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ENCYCLOPÆDIA BRITANNICA

SEVENTH EDITION.

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THE

ENCYCLOPÆDIA BRITANNICA

OR

DICTIONARY

OF

ARTS, SCIENCES, AND GENERAL LITERATURE.

SEVENTH EDITION,

WITH PRELIMINARY DISSERTATIONS ON THE HISTORY OF THE SCIENCES,

AND

OTHER EXTENSIVE IMPROVEMENTS AND ADDITIONS;

INCLUDING THE LATE SUPPLEMENT.

A GENERAL INDEX,

AND NUMEROUS ENGRAVINGS.

VOLUME X.

ADAM AND CHARLES BLACK, EDINBURGH;

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ENCYCLOPÆDIA BRITANNICA.

FRANCE.

Introduction.

IN treating of France, a subject in itself of great magnitude, but one which, in a work like this, embracing the entire circle of human knowledge, can only be delineated in outline, we shall endeavour to observe the same method which was followed in treating of England, and to place before our readers condensed abstracts of the History, Statistics, Government and Laws of that great country, long remarkable for its high civilization, and now happily blessed with political institutions in some measure adapted to the opinions and wants of its people.

I. HISTORY.

Merovingians and Carlovingians.

About half a century before the commencement of our era, Gaul, then inhabited by a race of Celtic origin and descent, was subdued by Cæsar, and for the space of nearly five centuries continued under the sway of the Romans. During the first half of this period, which was in a great measure one of repose, the country made considerable advances in improvement, and in fact received its full share in that civilization with which Rome usually repaid the turbulent independence destroyed by her conquests. Political union, internal tranquillity, and the security resulting from the firm and impartial administration of an admirable system of laws, were amongst the direct advantages which the people derived from their subjugation; whilst, collaterally, agriculture was improved, commerce extended, industry encouraged, wealth accumulated, and the general happiness promoted. To the wild and pernicious liberty enjoyed by warlike savages had succeeded the vigorous but wise government of an enlightened conqueror, whose policy it was to efface the recollection of independence by positive benefits conferred, and to secure to the people those substantial advantages without the enjoyment of which liberty is no better than an empty name. Even the climate was ameliorated in proportion as industry extended its dominion; and the soil, rendered capable of producing and maturing the choicest fruits, amply repaid the labour employed in its cultivation. The vine, the olive, and other useful plants, were introduced by the Romans; and even Christianity itself was amongst the boons which this people latterly conferred on the subject nations in return for their political independence. But during the latter half of the period above mentioned, when the ancient Roman valour and discipline had begun to decline, and degeneracy of manners had sapped the foundations of Roman power, the province of Gaul became exposed to the incursions, and was finally overwhelmed by the settlement, of barbarian invaders.

Of the natural boundaries of the Roman province of Gaul, the Rhine was by far the most important, as forming the line of demarcation between the empire on the one hand, and the multitudinous tribes of savage nations which swarmed beyond the stream on the other. On one side were wealth and civilization; on the other, want and barbarism. Principles the most irreconcilable, and inveterately hostile, were only separated by the breadth of the river. But the genius of barbarism, hanging on the outskirts of civilization, is essentially aggressive, and continually seeking to destroy the monuments which the latter has reared. In a word, the natural state between such neighbours is one of war. As long, however, as the Roman legions preserved their ancient discipline and spirit, the turbulence of the German tribes was repressed, and the barrier of the empire maintained; one or two defeats, which imprudence or temerity had entailed, were severely avenged; and the Roman generals, penetrating at different intervals into the country of the barbarians, chastised their audacity, and taught them to regard with salutary awe the power which they had dared to defy. But the Germans, though little versed in policy, began in time to be sensible that their frequent defeats were owing to their disunion; that whilst dispersed in different tribes, without any solid or permanent bond of connection, they could never hope to contend with success against the disciplined force of a great empire, impelled by and obedient to one supreme directing mind. They now perceived that their former leagues, hastily formed, were as easily dissolved; that something more than a sort of wild, irregular co-operation was necessary; and that, without coherence and consistence, it would be vain to expect success in any offensive enterprise. The consciousness of this defect produced in the third century those extensive confederacies in which many tribes united permanently under one common name, and frequently under one chief or sovereign, some assuming the appellation of Alemanni, descriptive of the combination which had been formed, and others taking that of Franks, indicative of the spirit or freedom in which they rejoiced.

The first mention made of the Franks by the historians of the empire is about the middle of the third century. Of their origin various and discordant accounts have been given; but the most probable supposition seems to be that, about the time of the emperor Gordian, the people inhabiting the banks of the Lower Rhine entered into a confederacy with those who dwelt on the Weser, and that the tribes thus united assumed the name of Franks or Freemen. The chief seat of this confederacy, therefore, appears to have been the marshy territory overflowed and divided into islets by the Rhine, from the spot where the river begins to run in a westerly direction, to its junction with the sea. Their first irruption took place in the year 254, and the second in the reign of Valerian. On the latter occasion they were but few in number, and were easily repulsed by Valerian, who afterwards became emperor. Not discouraged by this check, however, they returned in greater numbers about two years afterwards, and were again defeated by Gallienus, whom Valerian had now chosen as his associate in the empire. But as fresh swarms still continued to pour in from their native fastnesses, Gallienus, being no longer in a condition to expel them by force of arms, adopted the perilous expedient of negotiation, and, by means of advantageous offers, engaged one of their chiefs to defend the frontier against his own countrymen as well as against other invaders. Such an admission of weakness, however, could only have the effect of provoking further aggression. In the year 260 the Franks, taking advantage of the defeat and captivity of Valerian in Persia, broke into Gaul, and afterwards into Italy, committing everywhere the most dreadful ravages; and five years afterwards they invaded Spain, which they occupied, or rather desolated, for the space of twelve years. But in the year 275 they were completely overthrown and driven out of Gaul by the emperor Probus, who pursued them into their own country, and there built several forts to keep them in awe. Intimidated by this defeat, they remained quiet until 287, when, in conjunction with Saxon pirates, they plundered the coasts of Gaul, and carried off from thence an immense booty. To revenge this insult the emperor Maximian, the following year, entered their country, which he laid waste with fire and sword, at the same time compelling two of their chiefs to submit to his arms; whilst to such of the common people as chose to remain in Gaul he allotted lands in the neighbourhood of Treves and Cambray. The restless disposition of the Franks, however, did not suffer them to remain long at peace; and about the year 293 they made themselves masters of Batavia and part of Flanders; but they were once more entirely defeated, and compelled to surrender at discretion, by Constantius, the father of Constantine the Great, who allotted them settlements in Gaul. In 306 their countrymen in Germany renewed their depredations, though with little success; for having been overtaken by Constantine, they were completely routed, and two of their kings who fell into his hands were thrown to wild beasts during the sports exhibited in honour of the victory. All these reverses, however, were insufficient to prevent the incursions of this restless and turbulent people. In the year 355 they again invaded Gaul, and made themselves masters of forty cities in that province. But they were soon afterwards defeated by the emperor Julian, who also drove the Alemanni within their ancient boundaries; and again by Theodosius, father of the emperor of that name, who expelled the invaders, and pursued them with great slaughter. They returned, however, in the year 388, when they ravaged the province with greater fury than ever, cut off the Roman army which was sent against them, and in some measure established themselves in the country which they had so frequently overrun. In fact, the western empire was now reduced to so low an ebb that the Franks, until their progress was checked by Ætius, experienced more interruption from other barbarians roving in quest of new settlements, than from the armies of Rome, which had so often repulsed preceding invaders.

The commencement of the fifth century was marked by an overwhelming irruption into Gaul of the barbarian hosts, who, pouring in from different points, rolled on like a sudden inundation, sweeping away every thing in their destructive course. The church alone towered aloft above the general desolation; her bulwarks were strong enough to resist the shock of that fierce torrent of barbarism by which they were assailed; and had it not been for this circumstance, all the records and traditions of the past must have perished amidst the general ruin. But the progress of the invaders was nevertheless destined to experience a vigorous check. When the contest with Ætius commenced, the Franks were governed by Pharamond, the first of their kings or leaders of whom any distinct account has been preserved. This chief or prince is supposed to have reigned from the year 417 or 418 to 428, and is generally believed to have been killed in the war with Ætius. He is understood to have compiled the Salic laws, with the assistance of four sages named Wisegast, Losegast, Widegast, and Solegast; but Valesius is of opinion that the Franks had no written laws until the time of Clovis. Pharamond was succeeded by his son Clodio, who is said to have received a terrible overthrow from Ætius near the city of Lens. But notwithstanding this defeat he advanced to Cambray, of which he made himself master, extended his conquests as far as the river Somme, and destroyed the cities of Treves and Cologne, Tournay and Amiens. He died in the year 448, and was succeeded by Merovæus. It is uncertain whether the new king was brother, or son, or in fact any relation at all, to Clodio; it seems probable, indeed, that he was of a different family, as from him the first race of French kings were styled Merovingian. He was honoured and respected by his people, but did not greatly enlarge the boundaries of his kingdom. Merovæus, who died in 458, was succeeded by his son Childeric, who being no longer kept in check by Ætius, made war upon the Romans, extended his conquests as far as the river Loire, and took the city of Paris after a lengthened siege. Childeric was succeeded by Clodovæus, Clovis, or Louis; and as the Roman power in Italy had now been totally destroyed, the latter set himself to make an entire conquest of Gaul. Part of the province was still retained by a Roman named Syagrius, the son of Ægidius, who, like his father, governed and was even said to have reigned at Soissons, where the former had established himself on the downfall of the western empire in 476. But Syagrius was defeated and taken prisoner by Clovis, who afterwards caused him to be beheaded, and soon reduced his dominions under subjection.

Establishment of the French monarchy by Clovis.

The French monarchy was thus established in the year 487 by Clovis, who possessed all the country situated between the Rhine and the Loire. The secret of the rise of this conqueror, originally the chief or king of a small colony of Franks established at Tournay, may be easily explained. Of all the nations which overran Gaul, that which eventually subdued all the others, and gave its name both to the country and the people, was the most disunited and the least advanced in the arts of life. The Goths and the Burgundians were much more civilized than the Franks; for,

History. 487–496.

whilst the former constituted each a separate nation and race, which obeyed one monarch or family of monarchs, the latter consisted of different tribes united in a species of temporary confederacy, the ties of which became more and more relaxed in proportion as they advanced from the Rhine. Each town or territory had its petty independent sovereign; and, anterior to the time of Clovis, they do not appear to have had any supreme chief or a general capital. Whether this was or was not an advantage, we do not pretend to determine. But it obviously left them in a great measure free to engage in any enterprise in which they chose to embark; and it also laid open the chieftaincy to the ambition of the first leader distinguished for boldness and preeminent talents; whilst, on the other hand, the vague comprehensiveness of their name was calculated to congregate under their banner such roving bands as might be in search of either plunder or establishments. The principle of their confederacy was such that any tribe or race might easily be admitted within its pale. Of this Clovis skilfully took advantage, and, by availing himself of its elasticity (if we may be allowed the expression), became the founder of the French monarchy.

Clovis had been educated in paganism, and continued to profess it until the thirtieth year of his age; but notwithstanding this circumstance, he allowed his subjects full liberty of conscience. When he married Clotilda, daughter of the Duke of Burgundy, this princess, who was a zealous Christian, used all her influence to persuade him to embrace her religion. For some time, however, he continued to waver between Christianity and paganism; but having gained a battle against the Germans near Cologne, where, when in great danger, he had invoked the God of Clotilda and the Christians, he afterwards lent a favourable ear to the discourses of Remigius bishop of Rheims, and having declared himself a convert, was baptized in the year 496. But his acknowledgment of the truths of Christianity was not followed by any amendment of life; on the contrary, he employed the remainder of his life in aggrandizing himself, and extending his dominions, by means of treachery, fraud, and violence. In his attacks on Armorica or Bretagne, however, he proved unsuccessful. The inhabitants of this country, which comprehended the maritime part of ancient Gaul, had united for their common defence, and, though abandoned by the Romans, made a vigorous resistance against the barbarians, who assaulted them on all sides. Clovis, finding them too powerful to be subdued by force, proposed an union with his people, which they readily accepted, chiefly on account of his professing Christianity. Thus the new religion of Clovis proved subservient to the purposes of his ambition, and his power became gradually formidable. At this time the Burgundians, under Gondebaud, the uncle of Clotilda, possessed all the country from the forest of Vosges to the sea at Marseilles; and their chief, to secure his own authority, had put to death two of his brothers, one of whom was the father of the French queen. But the third brother, Godagesil, whom he had spared and allowed to possess the principality of Geneva, conspired with Clovis to expel Gondebaud from his dominions. A war accordingly commenced between the French and Burgundian monarchs, and the latter being deserted in battle by the faithless Godagesil, was obliged to fly to Avignon, leaving his antagonist undisputed master of the cities of Lyons and Vienne. The conqueror next laid siege to Avignon; but the place was defended with such vigour, that Clovis thought proper to accept of a large sum of money and an annual tribute from Gondebaud, who was likewise obliged to cede to Godagesil the city of Vienne, and several other places taken during the war. Gondebaud, however, no sooner found himself at liberty from his enemies, than he assembled a powerful army, with which he advanced towards Vienne, where Godagesil then resided. The place was garrisoned by five thousand Franks, and might have made considerable resistance; but Gondebaud being admitted into the city through an aqueduct, massacred most of the Franks, sent the rest as prisoners to the king of the Visigoths, and put Godagesil to death. This was speedily followed by the submission of all the other places which had owned the authority of Godagesil; and Gondebaud considering himself in a condition to resist the power of Clovis, intimated his determination to withhold the promised tribute; a defection which Clovis, though exceedingly mortified, found himself obliged for the present to overlook.

History. 496–511.

The next expedition undertaken by Clovis was directed against the Visigoths, who possessed considerable territories on both sides of the Pyrenean mountains. His motives for this enterprise were expressed in a speech which he delivered to his nobility when assembled in the city of Paris, which he considered as the capital of his dominions. "It is with concern," said the monarch, "that I suffer the Arians to possess the most fertile part of Gaul; let us, with the aid of God, march against them, and, having conquered them, annex their kingdom to our dominions." The nobility approved of the scheme; and Clovis marched against a prince for whom he had lately professed the greatest regard, vowing to erect a church in honour of the holy apostles if he succeeded in his unrighteous enterprise. Alaric the king of the Visigoths, though personally brave, was destitute of military experience, and therefore hesitated not to engage with his antagonist; but, unable to contend with the veteran troops of Clovis, his army was utterly defeated on the banks of the Clain, near Poictiers, in the year 507, and Alaric himself slain. After this victory the province of Aquitaine submitted; Toulouse soon afterwards surrendered, and the royal treasures of the Visigoths were transported to Paris. Angoulême was next reduced, and the city of Arles invested. But here the victorious career of Clovis was stopped by Theodoric, king of the Ostrogoths, who had overturned the dominion of Odoacer in Italy. He had married the sister of Clovis, but having also given his own daughter in marriage to the king of the Visigoths, he had endeavoured, as far as possible, to preserve a good understanding between the two sovereigns. This, however, he found to be impossible; and, convinced that no bounds could be set to the ambition of Clovis by peaceful means, he sent against him one of his generals with a powerful army, by which the French monarch was defeated with the loss of thirty thousand men. This discomfiture obliged Clovis to raise the siege of Arles; but the Franks still retained the greater part of their conquests, and the province of Aquitaine was indissolubly annexed to their empire. In 509 Clovis received the title of Roman consul, and was thus supposed to be invested with a just title to all his conquests, in whatsoever manner they had been acquired. He was solemnly invested with the new dignity in the church of St Martin, in the city of Tours. Clovis now proceeded to confirm his power by the murder of his kinsmen the princes of the Merovingian race. Amongst those who perished in virtue of this bloody policy were Sigebert king of Cologne, with his son Cloderic; Cararic, another prince whose dominions have not been accurately pointed out by historians; Ranacaire, who governed the diocese of Cambray; and Renomer, king of the territory of Maine. All these murders, however, were supposed to be expiated by the zeal which he expressed in behalf of Christianity, and his liberality towards the church. Clovis died in the year 511, after having reformed and published the Salic laws; a few lines of which, excluding women from inheriting any part of the Salic lands, have been extended so far as to deprive the females of the royal family of France of their right of succession to the throne of that kingdom.

Clovis has been compared to Constantine, and they had certainly this in common, that each embraced Christianity in circumstances nearly similar, and from motives much more closely allied to self-interest than conviction. In both cases, too, the change of religion, instead of tempering their passions, or exercising a benign influence over their conduct, appears rather to have exasperated their natural ferocity and blood-thirstiness. The domestic murders committed by Constantine find their parallel in the assassinations perpetrated by Clovis, who equalled the Roman emperor in cruelty, and perhaps surpassed him in perfidy. In the abuse of the doctrines of confession and absolution each found an opiate to lull the remonstrances of conscience; and as the church encouraged errors calculated to augment its wealth and extend its power, the natural obstacles to the commission of crime were thus removed, and eventual impunity secured to the greatest offender, provided his means bore any proportion to his criminality. The founder of the French monarchy, therefore, is to be regarded rather as a daring and fortunate ruffian than as a great conqueror or an able leader; one who reaped the fruits of the crimes he had committed, and around whom success had thrown that false glare which so much misleads the moral judgments of men.

The dominions of Clovis were divided amongst his four sons. Thierri, or Theodoric, the eldest, received the eastern part of the empire, and as he made the city of Metz his capital, he is commonly styled the king of Metz; Clodomir, the eldest son by Clotilda, obtained the kingdom of Orleans; whilst to Childebert and Clotaire, both infants, were allotted the kingdoms of Paris and Soissons, under the tutelage of their mother. During eight years the prudence of Clotilda maintained tranquillity in all parts of the empire; but about the year 520 a numerous fleet of Danes arrived at the mouth of the Meuse, and their king Cochiliac having landed his forces, began to desolate the country with fire and sword. Against the invaders Thierri sent his son Theodobert, who defeated the Danish army, killed their king, and forced the remainder to retire with precipitation. In 522 Hermanfroi, king of Thuringia, having put to death one of his brothers named Berthaire, and seized on his dominions, applied to Thierri for assistance against his other brother Balderic, whom he intended to dispose of in the same manner. Thierri assented, and embarked in this creditable enterprise, upon condition that he should have one half of Balderic's dominions; but after the unhappy prince had been overcome and killed in battle, Hermanfroi, forgetting or despising the compact, seized upon all his dominions. Thierri had no opportunity of revenging himself till the year 531, when, perceiving that the power of the Ostrogoths, whom he greatly dreaded, had been considerably lessened by the death of king Theodoric, he engaged his brother Clotaire to assist him. They accordingly entered Thuringia with two powerful armies, which formed a junction as soon as they had passed the Rhine, and were soon afterwards reinforced by a considerable body of troops under the command of Theodobert. The army of Hermanfroi was advantageously posted; but being attacked by a superior force, it was totally defeated, and Hermanfroi himself forced to fly from place to place in disguise. His capital was soon afterwards taken, and Hermanfroi himself being invited to a conference by Thierri, was treacherously murdered; after which his extensive dominions became feudatory to the murderer. In the mean time Clotilda had excited her children to make war on the Burgundians, in order to avenge the death of her father Chilperic, whom Gondebaud, king of Burgundy, had caused to be murdered. Gondebaud, who was now dead, had left his dominions to his sons Sigismund and Godemar. The former was speedily defeated, and soon afterwards delivered up to Clodomir, who caused him to be thrown into a pit, where he perished miserably. Clodomir now marched against Godemar, who, by the death of his brother, had become sole master of Burgundy, and completely defeated him also; but having pursued his victory too eagerly, he was surrounded by his enemies and slain. After the reduction of Thuringia, however, Childebert and Clotaire entered the kingdom of Burgundy at the head of a powerful army, and in 534 completed the conquest of that country.

Clotaire sole monarch of France.

In 560 Clotaire having murdered the sons of Clodomir, who had been killed in Burgundy as already related, and Thierri and his children, as also Childebert, being now dead, became sole heir to the dominions of Clovis. He had five sons, the eldest of whom, named Chramnes, had some time previously rebelled against his father in Auvergne. As long as Childebert lived he had supported the young prince; but on his death Chramnes was obliged to implore the clemency of his father, by whom he was pardoned. But he soon began to cabal afresh, and engaged the Count of Bretagne to assist him in another rebellion. The Bretons, however, were defeated, and Chramnes resolved to make his escape; but perceiving that his wife and children were surrounded by his father's troops, he made an effort to rescue them. In this attempt, however, he failed, and being taken prisoner, he was with his family thrust into a thatched cottage near the field of battle, which the king commanded to be set on fire, and all that were in it perished in the flames.

The empire again divided.

Clotaire did not long survive this barbarous execution, but died in 562, and after his death the French empire was divided amongst his four remaining sons, Caribert, Gontran, Sigebert, and Chilperic. Caribert, the eldest, received the kingdom of Paris; Gontran, the second, obtained Orleans; Sigebert got Metz, or Austrasia; and Chilperic had Soissons; whilst Provence and Aquitaine were possessed by all of them in common. The peace of the empire was first disturbed in 563 by an invasion of the Abares, a barbarous nation, believed to have been the remains of the Huns. They entered Thuringia, which belonged to the dominions of Sigebert, but were totally defeated, and obliged to repass the Elbe. Sigebert pursued them closely, but on hearing that his brother Chilperic had invaded his dominions, and taken Rheims, with some other places in the neighbourhood, he concluded a peace with the vanquished barbarians. Sigebert then marched with his victorious army against Chilperic, made himself master of Soissons, and seized his eldest son Theodobert. He then defeated Chilperic in battle, recovered the places which he had seized, and conquered the greater part of his dominions; but, on the mediation of the other two brothers, Sigebert abandoned all his conquests, set Theodobert at liberty, and thus restored peace to the empire.

Soon after this event Sigebert married Burnehaut, daughter to Athanagilde, king of the Visigoths in Spain; and Caribert, king of Paris, having died, his dominions were divided amongst his three brothers. In 567 Chilperic married Galswintha, Brunehaut's eldest sister, and before her arrival dismissed his mistress, Fredegonde, a woman of great ability and firmness of mind, but ambitious, and capable of committing the darkest crimes to gratify her ambition. The queen, who had brought with her immense treasures from Spain, and who made it her sole study to please the king, was for some time entirely acceptable to him. But by degrees Chilperic suffered Fredegonde to re-appear at court, and was even suspected of having renewed his intercourse with this profligate woman; a circumstance which gave such offence to the queen, that she desired permission to return to her own country, at the same time promising to leave behind her all the wealth she had brought. Aware that this would render him extremely odious, the king found means to dissipate his wife's suspicions, and soon afterwards caused her to be privately strangled, upon which he publicly married the harlot Fredegonde. Such an atrocious action could

History. 567–593.

not fail to excite the greatest indignation against Chilperic. His dominions were immediately invaded by Sigebert and Gontran, who conquered the greater part of them; but having effected this, they suddenly made peace, on Chilperic consenting that Brunehaut should enjoy those places which he had bestowed upon Galswintha, namely, Bordeaux, Limoges, Cahors, Bigorre, and the town of Bearn. The French princes, however, did not long continue at peace among themselves; and a war having ensued, Gontran and Chilperic made common cause against Sigebert. But the latter prevailed, and, having forced Gontran to conclude a separate peace, seemed determined to make Chilperic pay dear for his perfidy, when he was assassinated by a contrivance of Fredegonde, who thus saved herself and Chilperic from the most imminent danger. Immediately on his death Brunehaut fell into the hands of Chilperic; but Gondebaud, one of Sigebert's best generals, having made his escape into Austrasia with Childebert, the only son of Sigebert, an infant of about five years of age, the latter was immediately proclaimed king. In a short time, however, Merovæus, eldest son to Chilperic, fell in love with Brunehaut, and married her without acquainting his father. On receiving information of this, Chilperic went to Rouen, where Merovæus and his consort were living; and having seized them, sent Brunehaut and her two daughters to Metz, and carried Merovæus to Soissons. Soon afterwards one of his generals being defeated by Gontran, who had espoused Brunehaut's cause, Chilperic in a fit of rage caused Merovæus to be shaved and confined in a monastery. From this he found means to make his escape, and arrived in Austrasia, where Brunehaut would gladly have protected him; but the jealousy of the nobles proved so strong that he was forced to leave that country; and being betrayed into the hands of his father's forces, he was murdered at the instigation of Fredegonde.

The French empire was at this time divided between Gontran king of Orleans, called also king of Burgundy, Chilperic king of Soissons, and Childebert king of Austrasia. But Chilperic found his affairs in a very disagreeable situation. In 579, having a dispute with Varoc count of Bretagne, who refused to do him homage, he dispatched against his vassal a body of troops, who were defeated, and he was in consequence forced to submit to a disadvantageous peace. Meanwhile his brother and nephew, whom he had reason to dread, lived in the strictest union; his subjects, oppressed with heavy taxes, were poor and discontented; Clovis, his son by a former queen named Andovera, hated Fredegonde, and made no secret of his aversion; and, to add to his embarrassment, the seasons were for a long time so unfavourable that the country was threatened with famine and pestilence. The king and queen were both attacked by an epidemic which then raged; and though they recovered, their three sons Clodobert, Samson, and Dagobert, all died. After this, the sight of Clovis became so hateful to Fredegonde that she caused him to be murdered, as she likewise did his mother Andovera, lest Chilperic's affection for that lady should return after the tragical death of her son. In 583 Chilperic himself was murdered by some unknown assassins, when his dominions were on the point of being conquered by Gontran and Childebert. After his death Fredegonde implored the protection of Gontran, which he readily granted, and obliged Childebert to put an end to the war. Gontran died on the 28th of March 593, having lived upwards of sixty years, and reigned thirty-two; and Childebert succeeded to the kingdom without opposition, but did not long enjoy it. His dominions were on his death divided between his two sons Theodobert and Thierri; the former being declared king of Austrasia, and the latter king of Burgundy. But as Theodobert was only in his eleventh, and Thierri in his tenth year, Brunehaut governed both kingdoms with absolute sway. Fredegonde, however, availing herself of the opportunity offered by the death of Childebert, made herself mistress of Paris and some other places on the Seine; upon which Brunehaut sent against her the best part of the forces in Austrasia. The latter, however, were totally defeated; but Fredegonde died before she had time to improve her victory, leaving her son Clotaire heir to her dominions.

History. 593–612.

For some time Brunehaut preserved her kingdom in peace; but her own ambition in the end proved her ruin. Instead of instructing Theodobert in what was necessary for a prince to know, she took care to keep him in ignorance, and even suffered him to marry a young and handsome slave of his father's. But the new queen being possessed of ability and good nature, so gained the affection of her husband that he consented to the banishment of Brunehaut. Upon this disgrace she in 599 fled to Thierri king of Burgundy, by whom she was kindly received; and, instead of exciting jealousies or misunderstandings between the two brothers, she engaged Thierri to attempt the recovery of Paris and the other places which had been wrested from their family by Fredegonde. This measure was so acceptable to Theodobert, that he likewise raised a numerous army, and in conjunction with his brother invaded Clotaire's dominions. A battle ensued, in which the forces of Clotaire were completely defeated, and he himself obliged to sue for peace, which was not granted except on condition of his yielding up the best part of his dominions. This treaty was concluded in the year 600; but three years afterwards it was broken by Clotaire, who was again attacked by the two brothers. The war was carried on with great vigour until the next spring, when Thierri having forced Landri, Clotaire's general, to accept battle, overthrew him, and put to death the king's infant son Merovæus, whom he had sent with Landri. After this victory, Thierri, intent on the destruction of his cousin, marched directly to Paris. But Theodobert no sooner heard of the victory gained by Thierri, than, becoming jealous of his success, he offered Clotaire such conditions as speedily compelled Thierri also to listen to terms of accommodation. This conduct of Theodobert greatly provoked his brother; and his resentment was still more inflamed by Brunehaut, who never forgot the disgrace of having been banished from his court. A war was therefore commenced in 605; but being disapproved of by the nobility, Thierri found himself obliged to put an end to it. The tranquillity which ensued, however, was again disturbed in 607, when Theodobert sent an embassy to demand part of Childebert's dominions, which by the will of that monarch had been added to those of Burgundy. But the nobility of both kingdoms were exceedingly averse to war, and constrained their kings to consent to a conference, attended by an equal number of troops. By a scandalous breach of faith, however, Theodobert brought double the number agreed on, and compelled his brother to submit to whatever terms he pleased to dictate. This act of treachery instantly brought on a war. Thierri was bent on revenge, and his nobility no longer opposed him. Having secured the neutrality of Clotaire by a promise of restoring those parts of his dominions of which he had formerly been despoiled, Thierri entered Theodobert's territories, defeated him in two battles, took him prisoner, and treated him with the greatest indignity. Meanwhile Clotaire, thinking that the best method of making Thierri keep his word was to seize upon those places which the latter had promised to restore to him as the price of his neutrality, did so accordingly; upon which Thierri sent to him a messenger to require him to withdraw his forces, and in the event of a refusal, to declare war. Clotaire was prepared for such a proceeding, and immediately assembled his forces. But before Thierri could reach his enemies, he was seized with a dysentery, of which he died, in the year 612.

Brunehaut put to death.

On the death of Thierri, Brunehaut immediately caused his eldest son Sigisbert, then in the tenth year of his age, to be proclaimed king. It is probable that she intended to govern in his name with an absolute sway; but Clotaire did not allow her time to discover her intentions. Knowing that the nobility both in Burgundy and Metz were disaffected to Brunehaut, he declared war against her; and the unfortunate queen having been betrayed by her generals, fell into the hands of her enemies. Clotaire gave her up to the nobles, who generally hated her, and treated their captive in the most barbarous manner; for, after having led her about the camp, exposed to the insults of all who had the meanness to insult her, she was tied by the leg and arm to the tail of an untamed horse, which, setting off at full speed, quickly dashed out her brains. Thus, in the year 613, Clotaire became sole monarch of France, and quietly enjoyed his kingdom till his death, which happened in 628.

This prince was succeeded by Dagobert, who proved a great and powerful sovereign, and raised the kingdom of France to a high degree of splendour. Dagobert was succeeded by his sons Sigebert and Clovis; the former of whom obtained the kingdom of Austrasia, and the latter that of Burgundy. Both the kings were minors at the time of their accession to the throne, which gave an opportunity to the mayors of the palace, the highest officers under the crown, to usurp the whole authority of the state. Sigebert died in 640, after a short reign of one year, leaving behind him an infant son named Dagobert, whom he strongly recommended to the care of Grimoalde, his mayor of the palace. The minister caused Dagobert to be immediately proclaimed king, but did not long suffer him to enjoy that honour. He had not the cruelty, however, to put him to death, but sent him to a monastery in one of the western islands of Scotland; and then, giving out that he was dead, advanced his own son Childebert to the throne. Childebert was expelled by Clovis king of Burgundy, who placed on the throne Childeric, the second son of Sigebert. Clovis died soon after the revolution, and was succeeded in his dominions by his son Clotaire, who also died in a short time without issue. He was succeeded by his brother Childeric, who, after a brief reign, was murdered, with his queen, at that time big with child, and an infant son named Dagobert, though another, named Daniel, had the good fortune to escape.

Miserable situation of France.

The affairs of the French were now in the most deplorable situation. The princes of the Merovingian race had been for some time entirely deprived of their power by their officers called mayors of the palace. In Austrasia the administration had been totally engrossed by Pepin and his son Grimaulde, whilst Archambaud and Ebroin followed the same course in Neustria and Burgundy. On the reunion of Neustria and Burgundy with the rest of the French dominions, this minister ruled with such despotic sway that the nobility of Austrasia, provoked to a revolt, elected as their dukes two chiefs named Martin and Pepin. The forces of the confederates, however, were defeated by Ebroin; and Martin having surrendered upon a promise of safety, was treacherously put to death. Pepin lost no time in recruiting his shattered forces; but before he had an opportunity of trying his fortune a second time in battle, the assassination of Ebroin delivered him from all apprehensions in that quarter. Pepin now carried every thing before him; overthrew the royal army under the command of the new minister Bertaire; and having obtained possession of the capital, caused himself to be declared mayor of the palace, in which station he continued to govern with absolute sway during the remainder of his life. Pepin, who had obtained the surname of Heristal, from his palace on the Meuse, died in the year 714, having enjoyed unlimited power for twenty-six years; and appointed his grandson Theudobalde, then only six years of age, to succeed him in his post of mayor of the palace. This happened during the reign of Dagobert already mentioned; but as the latter had too much spirit to suffer himself to be deprived of his authority by an infant, the adherents of the young mayor were defeated in battle; and this discomfiture was soon followed by his death.

Charles Martel.

But Charles, the illegitimate son of Pepin, was now raised to the dignity of duke by the Austrasians; and by his great qualities he seemed in every respect worthy of this honour. The murder of Dagobert freed him from a powerful opponent; and the young king Chilperic, who after Dagobert's death had been brought from a cloister to the throne, was not qualified to cope with so experienced an antagonist. On the 19th of March 717, Charles had the good fortune to surprise the royal camp as he passed through the forest of Ardennes; and soon afterwards a battle ensued, in which the king's forces were entirely defeated. Upon this Chilperic entered into an alliance with Eudes duke of Aquitaine, whose friendship he purchased by the final cession of all the country which Eudes had seized for himself. Charles, however, having placed on the throne another of the royal family, named Clotaire, advanced against Chilperic and his associate, whom he entirely defeated near Soissons. After this disaster Eudes, despairing of success, delivered up Chilperic into the hands of his antagonist; having stipulated for himself the same terms which had been formerly granted him by the captive monarch. Charles being now advanced to the summit of power, treated Chilperic with the greatest respect, and on the death of Clotaire caused him to be proclaimed king of Austrasia; but by this proceeding his own power was in no degree diminished, and henceforth the authority of the kings of France became merely nominal; indeed so inactive and indolent were they accounted, that historians have bestowed upon them the epithet of *rois fainéans*, indolent or lazy kings. Charles, however, had still one competitor to contend with. This was Rainfroy, who had been appointed mayor of the palace, and who made so vigorous a resistance, that Charles was obliged to allow him to retain peaceable possession of the country of Anjou. But no sooner had he thus set himself at liberty from domestic enemies, than he was threatened with destruction by foreign invaders. The Suevians, Frisians, and Alemanni, were successively encountered and defeated; Eudes also, who had perfidiously violated the treaties by which he had bound himself, was twice repulsed; after which Charles invaded Aquitaine, and obliged the treacherous duke to hearken to reason. This however had scarcely been accomplished when he found himself engaged with a more formidable enemy than any he had yet encountered. The Saracens having overrun the greater part of Asia, now turned their victorious arms westward, and threatened Europe with total subjugation. Spain had already received their yoke; and having crossed the Pyrenees, they next invaded France, appearing in vast numbers under the walls of Toulouse. Here they were encountered and defeated by Eudes; but this proved only a partial check. The barbarians having once more passed the Pyrenees, entered France with a powerful army, which Eudes was no longer able to resist. He encountered them indeed with his accustomed valour; but being obliged to yield to superior force, he solicited the protection and assistance of Charles. Upon this occasion the latter, on account of his valour and personal strength, acquired the name of *Martel*, or the Hammer, in allusion to the violence of the strokes which he bestowed on his enemies. Three hundred and seventy-five thousand Infidels, amongst whom was their commander Abderrahman himself, are said to have perished in a single battle fought near Poictiers. But notwithstanding this slaughter, they soon made another irruption, though with no better success, being again defeated by

Louis subdued the neighbouring diocese of Rennes; after which the latter assumed the title of king. By this bold usurper Charles was totally defeated; and his subjects, perceiving the weakness of their monarch, put themselves under the protection of Louis the German, whose ambition prompted him to give a ready ear to the proposal. Taking the opportunity of Charles's absence in repelling an invasion of the Danes, he marched with a formidable army into France, and was solemnly crowned by the Archbishop of Sens in the year 857. But being too confident of success, and fancying himself already established on the throne, he was persuaded to dismiss his German forces; upon which Charles marched against him with an army, and compelled Louis to abandon his new kingdom. Notwithstanding this success, however, the kingdom of Charles still continued in a very tottering condition. Harassed by the Normans on one side, and by the king of Bretagne on another, he marched against the latter in 860; but had the misfortune to sustain a total defeat, after an engagement which lasted two days. The victory was chiefly owing to a noted warrior named Robert le Fort, or the Strong, who commanded the Bretons; but Charles found means to gain over the latter to his interest, and for some time the abilities of Robert afforded support to his tottering throne. The difficulties, however, returned on the death of that hero, who was killed in repelling an invasion of the Danes. Some amends were indeed made for his loss by the death of the king of Lorraine in 869, by which event the territories of Charles were augmented by the cities of Lyons, Vienne, Toul, Besançon, Verdun, Cambray, Viviers, and Urez, together with the territories of Hainault, Zealand, and Holland; whilst Cologne, Utrecht, Treves, Mentz, Strasburg, with the rest of the territories of Lothaire, were assigned to Louis the German.

All this time the Normans still continued their incursions; but Solomon king of Bretagne having joined his forces to those of Charles, in order to repel the common enemy, the Normans were besieged in Angiers, and obliged to purchase leave to depart by relinquishing all the spoil they had taken. Thus freed from a formidable enemy, Charles began to aspire to the imperial crown, which soon became vacant by the death of Louis. This indeed belonged of right to Louis the German; but Charles, having assembled a powerful army, marched into Italy; and being favourably received at Rome, the imperial crown was placed on his head by the pope, in the year 873. Enraged at his disappointment, Louis discharged his fury on the defenceless country of Champagne; and though the approach of Charles obliged him to retire, he continued his preparations with such vigour that Charles would probably have found him a formidable adversary, had he not been removed by death in 877. Informed of his brother's decease, Charles invaded the dominions of his son Louis, who possessed Franconia, Thuringia, and Lower Lorraine, with some other territories. But the enterprise proved unsuccessful. Charles, though at the head of superior numbers, was defeated with great slaughter, and had scarcely time to reunite his scattered forces when he received information that the Normans had invaded his territories, laid waste part of the country, and taken possession of Rouen. These disasters affected him so deeply that he fell dangerously ill, and he had scarcely recovered when he was called into Italy to assist the pope against the Saracens. Charles passed into Italy with a few followers; but when he arrived at Pavia, where the pontiff had appointed to meet him, he was informed that Carloman, king of Bavaria, son of Louis the German, was already in Italy with a powerful army, and laid claim to the imperial title. Charles accordingly prepared to oppose him by force of arms; but his generals conspired against him, and the soldiers declared their resolution not to pass the Alps. This obliged him to retire to France at the moment when Carloman, dreading his power, was preparing to return to Germany. This was the last enterprise of Charles. His journey brought on a relapse of illness, which was rendered fatal through the treachery of a Jewish physician named Zedechius, who administered poison to him under the pretence of curing his malady; and he expired in a miserable cottage upon Mount Cenis, in the fifty-fourth year of his age, and thirty-eighth of his reign over the kingdom of France.

Louis the Stammerer.

The ambition of Charles had been productive of much distress both to himself and to his subjects. His son Louis, surnamed the Stammerer, from a defect in his speech, was of a different disposition; but his feeble administration was ill calculated to retrieve the fortunes of his country. He died on the 10th of April 879, whilst on a march to suppress some insurrections in Burgundy, leaving his queen Adelaide pregnant; and some time after his decease the latter was delivered of a son, named Charles. His death was followed by an interregnum, during which a faction was formed for setting aside the children of Louis the Stammerer, in favour of the German princes, sons to Louis the brother of Charles the Bald. But this scheme proved abortive; and the two sons of the late king, Louis and Carloman, were crowned kings of France. But in 881 both princes died; Louis, as was suspected, of poison; and Carloman of a wound he had received whilst hunting. This produced a second interregnum, which ended in calling in Charles the Gross, emperor of Germany, whose reign was even more unfortunate than that of any of his predecessors. The Normans, whom he had allowed to settle in Friesland, having sailed up the Seine with a fleet, and laid siege to Paris, Charles, unable to force them to abandon their undertaking, prevailed on them to depart by a large sum of money. But as he could not advance the money at once, he permitted them to remain during the winter in the neighbourhood of Paris, which they in return plundered without mercy. After this disgraceful transaction Charles returned to Germany in a declining state of health; and having quarrelled with his empress, he was abandoned by all his friends, deposed, and reduced to the greatest distress.

Charles the Simple.

On the deposition of Charles the Gross, Eudes count of Paris, chosen king by the nobility during the minority of Charles son of Adelaide, afterwards named Charles the Simple, defeated the Normans, and repressed the power of the nobility. On this account a party was formed in favour of Charles, who was sent for from England; but Eudes having peaceably resigned the greater part of the kingdom, consented to do homage for the remainder, and died soon after the agreement, in 898. During the reign of Charles the Simple, the French government declined. By the introduction of fiefs, those noblemen who had obtained the possession of governments, and got these confirmed to themselves and their heirs for ever, became in a manner independent sovereigns; and as the great lords had others under them, and these in like manner others who again had their vassals, instead of the easy and equal government which formerly prevailed, a vast number of insupportable little tyrannies was erected. The Normans, too, ravaged the country, and desolated some of the finest provinces of France. But Charles at length ceded the duchy of Neustria to Rollo, the chief of these barbarians, who having become a Christian, changed his own name to Robert, and that of his principality to Normandy.

Hugh Capet.

During the remainder of the reign of Charles the Simple, and the entire reigns of Louis IV. surnamed the Stranger, Lothaire, and Louis V. the power of the Carlovingian race continually declined, till at last they were supplanted by Hugh Capet, who had been created Duke of France by Lothaire. This revolution happened in the year 987, and was brought about much in the same manner as the former one had been by Pepin. Capet proved an active and prudent monarch, and possessed other qualities requisite for keeping his tumultuous subjects in awe. He died on the 24th of October 997, leaving his dominions in perfect quiet to his son Robert.

Robert.

The new king inherited the eminent qualities of his father. In his reign the kingdom was enlarged by the death of Henry duke of Burgundy, to whom he became heir. This new accession of territory, however, was not obtained without a war of several years continuance; and had it not been for the assistance of the Duke of Normandy, it is doubtful whether the king would have succeeded. As Robert was of opinion that peace and tranquillity were preferable to wide and extended dominions held by a precarious tenure, he refused the kingdom of Italy and the imperial crown of Germany, both which were offered him, and died on the 20th of July 1030.

Henry I.

Robert was succeeded by his eldest son Henry I. In the beginning of his reign he met with great opposition from his mother, who had always hated him, and preferred his younger brother Robert, in whose favour she now raised an insurrection. With the assistance of Robert duke of Normandy, however, Henry overcame all his enemies, and established himself firmly upon the throne. In return for this service he supported William, Robert's natural son, and subsequently king of England, in the possession of the duchy of Normandy. Afterwards, however, having become jealous of the power of the future conqueror, he not only supported secretly the pretenders to the duchy of Normandy, but actually invaded that country. This enterprise, however, proved unsuccessful, and Henry was obliged to make peace; but no sincere reconciliation ever followed; for the king retained a deep sense of the disgrace he had met with, and the duke never forgave him for invading his dominions. The treaty was therefore speedily broken; and Henry once more invaded Normandy with two armies, one commanded by himself, and the other by his brother. The first was harassed by continual skirmishes, and the last totally defeated; after which Henry was obliged to agree to such terms as the duke thought proper to dictate. But the rancour which had been generated between them never ceased, and was in reality the cause of that implacable aversion which for a long series of years produced perpetual quarrels between the kings of France and those of the Norman race in England.

Philip.

Henry died in 1059, not without suspicion of being poisoned, and was succeeded by his eldest son Philip, at that time in the eighth year of his age. Baldwin earl of Flanders was appointed his guardian, and died in the year 1066, about the time that William of Normandy became king of England. After the death of his tutor, Philip began to show an insincere, haughty, and oppressive disposition. He engaged in a war with William the Conqueror, and supported his son Robert in a rebellion against him. (See article ENGLAND.) But after the death of William, he assisted Robert's brothers against him, by which means the latter was forced to consent to a partition of his dominions. In 1092, Philip, being wearied of his queen Bertha, procured a divorce under pretence of consanguinity, and afterwards demanded in marriage Emma, daughter of Roger, count of Calabria. The treaty of marriage was concluded; and the princess was sent over, with jewels and a considerable sum in ready money. But the king, instead of espousing her, retained her fortune; dismissed the princess herself; carried off the countess of Anjou, esteemed the handsomest woman in France, from her husband, and, not satisfied with the illegal possession of her person, procured a divorce from her husband, whilst he prevailed upon some Norman bishops to solemnize a marriage with her. But these transactions were so scandalous, that the pope, having caused them to be revised in a council held at Autun in the year 1094, pronounced sentence of excommunication against Philip in case he did not part with the countess. On his professing repentance, however, the censure was taken off; but as the king paid no regard to his promises, he was in 1095 excommunicated a second time. He again professed repentance, and was again absolved; but as he still lived with the Countess of Anjou as formerly, he was soon afterwards excommunicated a third time. This unworthy conduct exposed him to the contempt of the people. But too many of the nobility followed his example, at the same time that they despised his authority. In the year 1100 Philip prevailed on the court of Rome to have this affair reviewed in an assembly at Poictiers; where, notwithstanding his utmost efforts, sentence of excommunication was a fourth time pronounced against him. Yet, in spite of all these sentences, as Bertha was now dead, and the Count of Anjou offered, for a large sum of money, to give whatever assistance might be requisite for procuring a dispensation, Philip at last prevailed, and the countess was proclaimed queen of France. But though his domestic concerns were now in some measure arranged, his negligence in public matters had thrown the affairs of the nation into the greatest disorder. He therefore associated with him in the government his eldest son Louis, a prince the reverse of his father, and who by his activity and resolution kept constantly in the field with a considerable body of forces, reduced the rebellious nobility to subjection, and saved the state from being utterly subverted. For these services the queen looked upon the prince with so jealous an eye, that he found it necessary to retire for a time into England; but he had not been long at the English court before Henry I. received a letter from Philip, urging him, for certain important reasons, to throw his son into close confinement, or even to dispatch him. The king of England, however, instead of complying with this infamous request, showed the letter to Louis, and sent him home with all imaginable marks of respect. Immediately on his return he demanded justice; but the queen caused poison to be administered to him, which operated so violently that his life was for a time despaired of. A stranger, however, undertook the cure, and succeeded. On his recovery, the prince was on the point of avenging his quarrel by force of arms; but his father having caused the queen to make the most humble submissions to him, his resentment was appeased, and a reconciliation took place.

Louis the Gross.

Philip died in the year 1108, and was succeeded by his son Louis, surnamed the Gross. The first years of his reign were disturbed by insurrections of his lords, which proved the more troublesome as they were secretly fomented by Henry I. of England, that by weakening the power of France his duchy of Normandy might be the more secure. This quickly brought on a war, in which Henry was defeated, and his son William obliged to do homage for Normandy. As the kings of England and France, however, were rivals, the latter espoused the cause of William the son of Robert duke of Normandy, whom Henry had unjustly deprived of that duchy; and this brought on a new war, in which Louis, having sustained a defeat, was obliged to make peace upon such terms as his antagonist thought proper to prescribe. The pacification, however, was but of short duration. Louis renewed his intrigues in favour of William, and endeavoured to form a confederacy against Henry; but the latter found means not only to dissipate this confederacy, but to prevail upon Henry V. emperor of Germany to invade France with the whole strength of the empire on one side, whilst he prepared to attack it on the other. But Louis having collected an army of two hundred thousand men, both thought proper to desist from the attempt. Upon this the king of France desired to march into Normandy to put William in possession of that duchy; but his great vassals refused to assist in such an enterprise, alleging that they had assembled to defend the territories of France from the invasion of a foreign prince, and not to enlarge his power by destroying the balance produced by the king of England possessing Normandy, which they reckoned necessary for their own safety. This was followed by a peace, which was concluded on pretty equal terms, and maintained during the life of Louis, who died in 1137, leaving the kingdom to his son Louis VII.

ouis VII.

The young king was not endowed with any of those qualities which constitute a great monarch. From the superstition of the age in which he lived, he undertook an expedition into the Holy Land, whence he returned without glory. In this expedition he took his queen Eleanor along with him; but was so much offended with her gallantries during her stay in Palestine, as well as her behaviour afterwards, that he divorced her, and returned the duchy of Guienne, which he had received as her portion. Six weeks after this she married Henry duke of Normandy, count of Anjou and Maine, and heir apparent to the crown of England. This marriage proved a very great mortification to Louis, and, on account of the folly of his conduct, procured him an unenviable cognomen. His reign was wholly undistinguished. He died on the 18th of September 1180, leaving the kingdom to his son Philip.

hilip the
reat.

This prince, surnamed The Gift of God, The Magnanimous, and The Conqueror, during his life-time, and styled Augustus after his death, is reckoned by some historians one of the greatest princes who ever sat on the throne of France. It does not appear, however, that these titles were at all deserved. In the beginning of his reign he was opposed by a strong faction excited by his mother, which he suppressed with a vigour and spirit that did him honour; but his having taken part with the children of Henry II. of England, in their unnatural contests with their father, and his treacherous combination with John to seize his brother's kingdom when he was detained in prison by the emperor of Germany, are indelible stains in his character. In military skill and personal valour he was inferior to Richard I. of England; nor can his recovering the provinces held by the English in France from such a mean and dastardly prince as John entitle him with any justice to the surname of Conqueror. In politics he was evidently the dupe of the pope, who made use of him to intimidate John into a submission, by promising him the kingdom of England, which he never meant that he should enjoy. For an account of these transactions, see the article ENGLAND.

eign of
ouis IX.

Philip died in 1223, and was succeeded by his son Louis VIII. who, again, was, in 1226, succeeded by Louis IX. afterwards styled St Louis. This prince was certainly possessed of many good qualities, but deeply tinctured with the superstition of the times, which induced him to engage in two crusades. In the first of these, against the Saracens of Egypt, he was taken prisoner, and treated with great cruelty; but ultimately obtained his deliverance, on condition of paying a million of pieces of gold, and surrendering the city of Damietta. No sooner had he regained his liberty than he entered Syria with a view of doing something worthy of his character. But from this expedition he was obliged to return sooner than he intended, by the news of the decease of his mother, Queen Blanch, whom he had appointed regent in his absence, and who had managed the national affairs with great prudence. Upon his return, however, the king found many and great disorders in the kingdom, which he set himself to reform with the utmost diligence. The reputation of this monarch for candour and justice was so great that the barons of England, as well as King Henry III. consented to make him umpire of the differences which subsisted between them. But though he decided this matter justly, his decision was not productive of any good. At last the king, having settled every thing relating to his kingdom, set out on another crusade for Africa, where he died of the plague, on the 25th of August 1270.

Philip the
Hardy.

Notwithstanding the misfortunes of Louis, his successor Philip, surnamed the Hardy, continued the war against the Infidels with great vigour. Being reinforced by his uncle Charles king of Sicily, he brought the contest to a more fortunate conclusion than his predecessor; the Saracens were defeated in two engagements; and the king of Tunis was obliged to sue for peace, offering at the same time to double the tribute which he formerly paid to the crown of Sicily, to reimburse the expenses of the war, and to permit the Christian religion to be freely propagated throughout his dominions. Having accomplished this, the two princes set sail for Europe; but the distemper which had infected the army in Africa not being eradicated, it broke forth on their arrival in Sicily, and for some time raged with great violence. On his return to France, Philip took possession of the counties of Provence and Toulouse; married his second son, though then very young, to the only daughter of the king of Navarre; and himself espoused Mary the daughter of the Duke of Brabant, reckoned one of the most beautiful princesses of the age. He steadily enforced the regulations of his predecessor, who had prohibited the barons from making private wars upon one another; secured the friendship of Edward I. of England, by ceding to him the county of Agenois; and entered into a war with Spain in support of the pretensions of his nephews, the Infants de la Cerda, to the throne of Castille. The events of this war were of no great importance; and the king's attention was quickly called away from them by the death of his eldest son Louis at the age of twelve years. This event happened in the year 1275, not without a suspicion of poison, which is common enough when princes are cut off by sudden deaths, and the king and queen were themselves loudly condemned. Meanwhile the Sicilians, over whom Charles of Anjou had established his authority, instigated by John of Procida, a noble exile, came to a determination of freeing themselves from the French yoke by a general massacre. This resolution was accordingly carried into execution, and the French, to the number of eight thousand, were murdered in one night; after which Pedro of Aragon sailed to the island, where he was received by the inhabitants as their king and deliverer. Charles was sensibly affected by this misfortune; and having laid siege to Messina, sailed directly to Marseilles, where he obtained a powerful reinforcement. But during his absence, his son, to whom he had entrusted the conduct of the siege, having rashly ventured an engagement with the Spanish fleet, was entirely defeated and taken prisoner. This so much affected the father that he died of grief, and Sicily became inseparably attached to the house of Aragon. The misfortunes of Charles were followed by others which equally affected Philip himself. Pope Martin IV. in the warmth of his zeal for the cause of the Duke of Anjou, had excommunicated Pedro of Aragon, and bestowed his kingdom on Charles of Valois, a younger son of the king of France. In attempting to defend himself against the execution of this unjust sentence, Pedro was mortally wounded; but, soon afterwards, the French fleet being defeated by that of Aragon, the king was so much affected by the misfortune that he fell sick, and expired at Perpignan, in 1285, in the forty-first year of his age and sixteenth of his reign.

Philip the
Fair.

By the death of Philip the Hardy, the French crown devolved on his second son Philip the Fair, who had espoused the princess of Navarre, and who at the time of his accession was in his seventeenth year. By the marriage with this princess he had obtained the counties of Champagne and Brie; yet even with this increase of territory he found himself unable to support the war in which his predecessor had engaged, for which reason he abandoned the interest of the Infants de la Cerda, and settled the differences with Castille. The treaty was concluded through the mediation of Edward I. of England, by whose intercession Charles the Lame, son of the Duke of Anjou, was released from captivity, Edward himself paying part of his ransom. Charles consented to renounce his claim on Sicily; and Philip himself promised that his kinsman Philip of Valois should renounce all pretensions to the crown of Aragon. The tranquillity resulting from this treaty was, however, soon interrupted by differences with Edward, Pope Boniface VIII. and Guy de Dampier, count of Flanders. The difference with England arose by accident. A Norman and an English vessel having met off the coast of Bayonne, and having both occasion to water, the crews met and quarrelled at the same spring, and in the squabble a Norman was killed with his own weapon by an Englishman, whom it was alleged he had assaulted with it. But however this may have been, a complaint was made by the Normans to Philip, who, without giving himself much trouble to inquire into the merits of the cause, instantly allowed them to redress their supposed injuries. The consequence was, that a kind of piratical war commenced between the two nations; the Irish and Dutch seamen taking part with the English, and those of Flanders and Genoa with the French. Thus the force on both sides was gradually augmented, until at last the affair became so serious that in one engagement fifteen thousand French are said to have perished. Alarmed at such a carnage, Philip summoned the king of England as his vassal to attend; and, on his refusal, declared his estates in France forfeited. After a great deal of negotiation, however, Philip declared that he would be satisfied with the nominal cession of the province of Guienne; and Edward complied with his demands; but no sooner had the French monarch obtained possession of that country than he persisted in the forfeiture of the English possessions in France; and this treacherous proceeding instantly produced a war between the two nations. Edward, that he might the better defend himself against so formidable an adversary, concluded a treaty with the emperor Adolphus, and the courts of Bretagne, Holland, Bar, Juliers, Gueldres, and Flanders; whilst Philip strengthened himself by an alliance with John Baliol of Scotland, and thus laid the foundation of that intimate union which subsisted between France and Scotland for about two centuries. During this war the French made a descent upon the coast of England, and destroyed the town of Dover; whilst Edward, in revenge, landed in Gascony with a powerful army. But no great exploits were performed with this armament; and the belligerents, finding themselves equally matched, consented to a suspension of arms for two years, during which time a peace was finally concluded through the mediation of Boniface VIII. Guienne was restored; Edward espoused Margaret the sister of Philip; and his daughter Isabelle was given in marriage to the prince of Wales. Philip and Edward treated the allies whom they had engaged in their cause with equal perfidy. Baliol was abandoned by Philip to the resentment of Edward; and Guy, earl of Flanders, was left equally exposed to the vengeance of Philip.

The reconciliation between the French and English monarchs was soon followed by a difference with Pope Boniface, whom they had appointed mediator between them. Sensible of his assuming disposition, they had inserted in the reference made to him a provision, to the effect that he was chosen as a private individual, and not as the successor of St Peter. The pontiff, however, soon showed that he was not to be treated as a private person; and a contest with Philip quickly ensued. Boniface began with forbidding the clergy, under pain of excommunication, to grant the king any subsidies, without first obtaining the consent of the Holy See; and Philip revenged himself by prohibiting ecclesiastics from sending money out of the kingdom without his leave, and by protecting the Colonnas, the implacable enemies of Boniface. Irritated at this decided proceeding, his holiness sent an abusive letter to Philip, and then summoned the clergy of France to attend a council at Rome. Philip retaliated, by seizing the temporalities of those who obeyed the summons, and recalling his brother Charles of Valois, who was styled the pope's general. Sensible of the danger which attended this contest, however, Philip dispatched two emissaries under the pretence of conciliating differences, but in reality to levy a body of troops sufficient to execute his hostile purposes against the holy father; and with these he suddenly invested the pope in his native city of Anegnia; so that, whilst the bull was preparing to excommunicate Philip, and release his subjects from their obedience, the pope himself was obliged to surrender to the troops of the prince whom he intended to anathematize. But although Boniface had been delivered up to the troops of Philip through the treachery of the people of Anegnia, he was no sooner taken prisoner, and reduced to distress, than they rescued him from his guards, and conveyed him to Rome, where he soon afterwards died of chagrin and disappointment. Benedict, his successor, revoked the excommunication prepared by Boniface, and attempted to conciliate the good-will of Philip; but, before this could be effected, he was himself cut off by death, not without strong suspicions of poison. After the decease of Benedict, Philip offered to procure the papal chair for Bertrand, archbishop of Bordeaux, provided the latter would condemn the memory of Boniface, restore the honours and estates of the Colonnas, which had been forfeited, allow him the tenths of the clergy of France for five years, and grant other concessions which at that time it was not thought proper to divulge. Bertrand complied with the terms proposed by the king, and ascended the papal throne by the name of Clement V.; but narrowly escaped being killed on his return from the cathedral of Lyons, by the falling of a wall, by which accident the Duke of Bretagne was killed, and the king and Count of Valois were considerably bruised. The new pope fixed his residence at Avignon, where he punctually complied with all the conditions of the treaty, except that of condemning the memory of Boniface, which, instead of attainting, he vindicated with much solemnity. The condition which Philip had at first concealed was discovered by the death of the emperor Albert of Austria, after which he sought the assistance of Clement to place his brother Charles of Valois on the imperial throne. But his holiness, apprehensive of the danger which might arise from being surrounded with the powerful relations of Philip, urged the diet to proceed instantly to an election, and recommended to them Henry of Luxemburg as a proper person to fill the imperial throne. This scheme succeeded, and the election was concluded before Philip could arrive at Avignon; but, as some consolation for his disappointment, the latter took possession of the city of Lyons, which had hitherto been independent, but which was now induced to submit to the authority of Philip.

Expedition against the Earl of Flanders.

In the mean time, Guy earl of Flanders having been abandoned by his ally Edward king of England, was obliged to throw himself on the clemency of the French monarch, who had sent his brother, Charles of Valois, with a powerful army to invade his dominions. From the latter indeed he had obtained a promise, that if he could not, within a year, settle the differences subsisting between him and Philip, he should be at liberty to retire and pursue whatever measures he pleased. But Philip, to gratify the resentment of his queen against the captive prince, detained him, with two of his sons, in close confinement; whilst he himself, having entered Flanders in triumph, was everywhere received as sovereign of the country, and at his departure appointed John de Chatillon, a relative of the queen, as governor of the newly-acquired territory. This person, however, being of a haughty and tyrannical disposition, treated the people so harshly that an insurrection speedily broke out. The commotion, nevertheless, was not general, and would have been effectually quelled by the diligence of the magistrates, had not Chatillon entered Bruges, and publicly displayed two hogsheads of ropes, which he threatened to employ in the execution of the inhabitants. Upon this the people flew to arms, and massacred fifteen hundred French, whilst Chatillon himself escaped their fury only by swimming across the town ditch. The insurgents daily gathered strength, and having assembled an army of sixty thousand men, laid siege to Courtray. Here they were rashly attacked in their trenches by the Count d'Artois, who met the reward of his temerity in being cut off, with twenty thousand of his troops. Determined on revenge, Philip, by debasing the coin of the kingdom, raised another army, and was thus enabled to enter Flanders with a force which would probably have subdued the whole country, had not Edward artfully communicated to the queen of France, as a secret, a feigned correspondence between the French nobility and the court of Rome; by which false intelligence the king was induced to abandon the enterprise without performing any thing worthy of the preparations he had made. The war was continued some time longer, but the attempts of Philip were constantly defeated by the steady valour of the Flemings; and the only recompense Philip obtained for all his trouble and expense was the city of Courtray.

The other remarkable transactions of this reign were the expulsion and confiscation of the estates of the Templars, who at that time enjoyed immense possessions in France. These confiscations took place without any form of trial, and upwards of fifty of the knights were put to death in a cruel manner. The grand master, with three of his principal officers, were burned by a slow fire in the presence of the king and his attendants. The whole body of these unfortunate knights had been accused of the most gross and abominable sensualities. The particulars were revealed, or pretended to be so, by two criminals, who received their pardon for the discoveries they made; and these discoveries were confirmed by the confession of the Templars themselves. But this confession was afterwards retracted, as being extorted from them by the fear of absolute destruction; and those who suffered asserted their purity to the last; so that, on the whole, it was believed that Philip consulted his avarice more than his justice by this cruel execution.

The latter part of his life was embittered by domestic misfortunes. His three daughters-in-law were accused of infidelity to their husbands, and, after a severe examination, two of them were condemned to perpetual imprisonment, whilst their paramours were flayed alive, and afterwards hung upon a gibbet, together with an usher of the chamber, who had been their confidant. The uneasiness of mind which Philip suffered on this account is supposed to have impaired his health, and he died of a consumption in the year 1314, being the forty-seventh of his age and thirtieth of his reign.

ouis the oisterous.

On the accession of Louis surnamed the Boisterous, he found his treasury so much exhausted that he was obliged to delay for some time the ceremony of his coronation, and that of his queen Clemence, daughter of the king of Hungary. Having found the kingdom otherwise in a distracted state, he applied himself diligently to appease the discontents of his subjects, and conciliate their affection by every means in his power; and in this he was assisted by his uncle Charles of Valois, on whom he at length entirely devolved the government of the kingdom. This regent, however, behaved with a degree of cruelty which is supposed to have proved fatal to the king himself; for having put to death a nobleman who had enjoyed the confidence of the former king, this act was so much resented by his friends that they were thought to have administered poison to the king, who expired suddenly after drinking a glass of cold water, in the twenty-sixth year of his age and second of his reign. Immediately after his death, Charles prepared to dispute the sovereignty with the brothers of the deceased sovereign. Philip count of Poitou, the eldest brother, was at that time at Rome assisting in the election of a new pope; but on his arrival in France, the throne was assigned to him by the unanimous voice of the people. His prospects, however, were for a short time clouded by the queen dowager Clemence being delivered of a son, who has been enrolled amongst the kings of France under the name of John I.

Philip the Long.

The death of this infant in three weeks secured the throne to Philip. The conduct of this monarch, who, on account of his stature, was surnamed the Long, proved superior to that of his predecessor, who had unsuccessfully attempted to subdue the Flemings, and had even suffered himself to be duped by their count. By his vigorous policy Philip compelled their sovereign to consent to a peace upon honourable terms. He also summoned Edward II. of England to do homage for his possessions in France; but that monarch finding himself involved in difficulties which rendered the visit inconvenient, sent excuses to Philip, which the latter was pleased to sustain. As the French monarch had formerly taken the cross during the life-time of his father, he now proposed to perform his vow; but he was dissuaded by the pope himself; and, at the instance of the pontiff, he sent an army into Italy to put an end to the contending factions of the Guelphs and Ghibelines, who had long filled the country with violence and bloodshed. The event proved unfortunate; and the disgrace was rendered the more mortifying by a contagious distemper, which swept off many thousands of the French. The remaining part of the reign of Philip was spent in attempting to regulate the internal concerns of his kingdom. A design having been formed by his predecessors of establishing a certain standard for the coin, and also of weights and measures, throughout France, this was adopted by Philip, who, in order the more effectually to carry it into execution, purchased from the Counts of Valois, Clermont, and Bourbon, the right of coinage within their respective dominions. But notwithstanding all his endeavours the scheme misgave, and having failed to conciliate the affection of his subjects, he died of a fever and dysentery in the year 1322, being then in the twenty-eighth year of his age and sixth of his reign.

Charles the Fair.

By the death of Philip the crown of France devolved on his brother Charles IV., who had obtained the surname of the Fair. After settling some disputes with the Duke of Burgundy, he obtained the dissolution of his marriage with Blanch, who still continued in prison, and espoused Mary the daughter of Henry emperor of Germany. This marriage was contracted with a view to the imperial crown, which had been so long separated from that of France; and in 1325 an opportunity for Charles to gratify his ambition presented itself. At that time the imperial dignity was disputed between Louis of Bavaria and Frederic of Austria, the latter of whom had been taken prisoner in a battle with Louis. But Pope John, who entertained an implacable hatred towards Louis, fulminated sentence of excommunication against him; and the king of France was induced to embark in the same cause, by a promise of the spoils of Bavaria; whilst Frederic consented to relinquish his pretensions. Louis, however, by instantly releasing his prisoner, and dismissing him in an honourable manner, secured his friendship, and disarmed his most formidable antagonist. But the pope was not to be disappointed. A considerable sum of money induced Leopold, who had been intrusted with the execution of the excommunication, to persevere in hostilities; and it was determined that a new council of electors should be held in order to transfer the imperial crown to Charles. In pursuit of this scheme, the king of France set out with a splendid army for the frontiers of Germany; but he soon found it impossible to attain the object of his ambition. Leopold alone remained his friend, from motives of interest; the others showed the greatest indifference, and even his brother in-law, the king of Bohemia, absented himself from the diet; whilst in a short time the death of the queen put an end to all connection with that crown. On the decease of Mary, Charles espoused Joanna, daughter of the Count d'Evreux, and, to avert the calamity of an infant succession, he entered into an alliance with Robert, king of Scotland, by which it was provided, that should either of the sovereigns die without an heir apparent, the states of the kingdom should fill the vacant throne, and the survivor of the two kings should with his whole force support the legality of such nomination against any other competitor. But even this proved insufficient to avert the danger which now threatened the kingdom.

The regency. Philip the Fortunate.

Charles died in the year 1328, leaving his queen pregnant; and as the succession depended on the fruit of the queen's pregnancy, a regent was in the mean time necessary. Two candidates accordingly appeared for this important office, urging at the same time their right to the crown as well as to the regency. These were, Philip of Valois, cousin-german of the deceased king; and Edward III., king of England, who aspired to the throne in right of his mother, and as nephew of Charles the Fair. The pretensions of the latter, however, were easily set aside, and Philip was confirmed in the regency; from which, on the queen being delivered of a daughter, he soon stepped on the throne, and acquired the surname of Fortunate. But though the pretensions of Edward, both to the regency and the crown, were rejected by the people, it was still impossible for Philip to think of the claims of such a formidable rival without uneasiness. He therefore summoned the English monarch to do homage for his possessions in France; and, upon the latter not answering his summons, forfeited them, and seized his revenues. This at last induced Edward to cross the sea and pay homage, which Philip consented to receive in any form, upon condition of a proper explanation being afterwards given; but as this was studiously delayed after the return of the king of England, the province of Guienne was again seized by the French monarch. Unwilling to lose his continental dominions, or involve himself in a war for the sake of a mere ceremony, Edward sent over a formal deed, by which he acknowledged that he owed liege homage to France. The flame was thus smothered for the present, and would perhaps have been entirely extinguished, had it not been for the intrigues of Robert of Artois, brother-in-law to the king of France himself, who had been expelled his country, and had taken refuge in England. For some time, indeed, neither party made any open declaration of hostility; but as both monarchs possessed great sagacity, they soon penetrated each other's designs. Philip, under pretence of taking the cross, began to make great preparations, strengthening himself at the same time by alliances on every side; whilst Edward, determined to renew his claim to the crown of France, projected the conquest of Scotland. This, however, he failed to accomplish; and in the mean time Philip, in order to favour the Scotch, with whom he was in alliance, suffered his subjects to make irruptions into Guienne.

Edward's first expedition.

But at length, in 1337, the war broke out in earnest. Philip having detached a squadron of his fleet against the Infidels, employed the rest, consisting chiefly of Genoese vessels, against the English. In this contest the Flemings, whose aid was of importance, were courted by both parties. Louis count of Flanders declared for Philip, but his subjects were more inclined to Edward. James Arteville, a brewer, the most able and artful man in the country, governed them at that time as if he had been their prince; and as the advantages arising from the English commerce determined him in favour of Edward, that prince, at his request, embarked with a numerous army for Sluys, where he arrived in 1338. Upon his landing it was resolved that the German princes in alliance with him should act against France. But for this a pretext was wanting. The vassals of the empire could not act by Edward's orders, nor even as his allies, without directions from the emperor, and he was in league with France. This difficulty, however, was soon overcome. The French had made themselves masters of Cambray, and the emperor resolved that it should be retaken. With this view he created Edward vicar-general of the empire; an empty title, but one which seemed to give him a right to command the services of the princes of Germany. The Flemings, who were vassals of France, likewise pretended scruples at invading the territories of their liege lord; but, to allay these, Edward, by the advice of Arteville, assumed the title of king of France, and in virtue of this claim challenged their assistance to dethrone Philip of Valois, the usurper of his kingdom. Such a step, which could scarcely fail to beget endless jealousies and animosities, Edward did not take without hesitation; and from this time may be dated the commencement of that animosity which the English have until very recently borne towards the French. Edward's first attempt was upon the city of Cambray, to which he laid siege; but in a short time he was prevailed upon by Robert of Artois to raise the siege and march into Picardy, which he entered with an army of about fifty thousand men, composed chiefly of foreigners. Philip came in sight with an army of nearly a hundred thousand men, composed chiefly of native subjects; and it was daily expected that a battle would ensue. But the English monarch was averse to engage against a force so greatly superior; and Philip thought it sufficient to elude the attacks of his enemy, without running any unnecessary hazard. The two armies faced each other for several days, and mutual defiances were exchanged; but Edward at last retired into Flanders, and dispersed his army. Such was the fruitless and almost ridiculous conclusion of Edward's first expedition, which had plunged him into the greatest difficulties. He had contracted nearly L.300,000 of debt; he had anticipated all his revenue; he had pledged every thing of value which belonged either to himself or his queen; and he was obliged in some measure even to pawn himself to his creditors, by desiring their permission to go over to England in order to procure supplies, and by promising on his word of honour to return in person if he did not remit their money. On his arrival in England, however, he obtained a large supply, sufficient to enable him to make all the necessary preparations for a new invasion; and so certain were the English that France would now be conquered, that the parliament, before Edward's departure, protested that they owed him no obedience as king of France, and that the two kingdoms must remain for every distinct and independent.

Edward's second expedition.

The king of England set out on his second expedition with a fleet of two hundred and forty vessels. Philip had prepared a fleet of four hundred vessels, manned with forty thousand men; which he stationed off Sluys, in order to intercept Edward on his passage. The two fleets met on the 13th of June 1340; but the English, either by the superior abilities of Edward, or the greater dexterity of his seamen, gained the wind of the enemy, and with this advantage began the action. The battle was fierce and bloody. The English archers, whose force and address were now much celebrated, galled the French on their approach; and when the ships grappled together, the example of the king and his nobility so animated the seamen and soldiers, that they maintained everywhere a superiority over the enemy. Meanwhile the Flemings observing the battle, hurried

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out of their ports, and brought a reinforcement to the English, which contributed to decide the fate of the action. Two hundred and thirty ships were taken, and thirty thousand Frenchmen, including two of their admirals, were killed; whilst the loss of the English was inconsiderable compared to the greatness and importance of the victory. After this brilliant victory Edward landed his forces and laid siege to Tournay. Philip marched to its relief with a numerous army, but acted with so much caution that Edward found himself in a manner blocked up in his camp. At length the Countess Dowager of Hainault, sister of Philip, and mother-in-law of Edward, interposed with so much spirit and address, that she engaged all parties to agree to a truce for a year, and might perhaps have brought about a peace if she had survived.

France invaded a third time.

In 1341, however, Edward's ambition was once more excited by the invitation of the Count de Montfort, who had possessed himself of the province of Bretagne, and applied to Edward to second his claims. An offer of this kind entirely coincided with Edward's views. He was happy in the promised assistance of Montfort, which thus opened to him an entrance into the heart of France. But this flattering prospect was for a time damped by the imprisonment of Montfort, who, on the discovery of his intentions, was besieged in the city of Nantes, and taken prisoner. But Jane of Flanders, his wife, courageously undertook to support the falling fortunes of her family. Having assembled the inhabitants of Rennes, where she then resided, she appeared before them carrying her infant son in her arms, and having deplored her misfortunes, attempted to inspire the citizens with an affection for her cause. The inhabitants of Nantes instantly espoused her interests, and all the other fortresses of Bretagne embraced the same resolution. The king of England being apprised of her exertions, was entreated to send succour with all possible expedition to the town of Hennebone, in which place she had resolved to sustain the attack of the enemy. Charles de Blois, Philip's general, anxious to make himself master of so important a fortress as Hennebone, and still more to take the countess prisoner, sat down before the place with a large army, and conducted the siege with indefatigable industry. But the defence was not less vigorous than the attack, and several sallies were made by the garrison, in which the countess herself led the assailants. But at length the besiegers made several breaches in the walls, and a general assault was hourly expected. A capitulation was therefore proposed, and a conference already commenced, when the countess, who had ascended a high tower, and was looking with great impatience towards the sea, descried some ships in the distance, and, immediately exclaiming that reinforcements had arrived, forbade any further negotiation. Nor was she disappointed. The fleet which she had descried carried a body of English gentlemen, with six thousand archers, whom Edward had prepared for the relief of Hennebone, but who had been long detained by contrary winds. This seasonable relief entered the harbour under the conduct of Sir Walter Manny, one of the most gallant commanders of his time, and served to keep up the spirits of the Bretons until the expiration of the truce, when Edward would be at liberty to renew the war in regular form.

The succours under Sir Walter Manny were speedily followed by a more considerable reinforcement commanded by Robert of Artois, who soon after his arrival made himself master of Vannes; but the French speedily recovered that city, and Robert was compelled to relinquish his prize after receiving a mortal wound. Edward, eager to revenge the death of his ally, soon landed at Morbihan, near Vannes, at the head of an army of twelve thousand men; and with this small force he undertook at once the siege of Vannes, Nantes, and Rennes; but having divided his troops, he failed in every enterprise, and gave John duke of Normandy, the king of France's eldest son, an opportunity of besieging him in his camp. In this situation his provisions began to fail; and, notwithstanding all his valour, Edward would have been obliged to surrender, had he not, by a train of artful negotiations, induced Philip to relinquish the advantage he had obtained, and consent to a truce of three years, which was brought about by the mediation of the court of Rome.

History. 1341–1346.

Philip now endeavoured to secure himself against the power of his rival by alliances, and by purchasing the city of Montpellier from the king of Majorca. But in the mean time the English, under the command of the Earl of Derby, invaded Guienne, and, having twice defeated the French army, commanded by the Count de Lisle, made themselves masters of a great number of towns. Philip, by reason of the exhausted state of his treasury, was for some time incapable of making any opposition; and, to recruit his finances, he was obliged to impose a duty on salt, which gave great offence to his subjects. But when these discontents were allayed, he soon raised an army of a hundred thousand men, whose courage was excited by the presence of the Dukes of Normandy and Burgundy. The English general was therefore compelled to act on the defensive, and one fortress after another surrendered to the French, until at length the total extinction of the power of England upon the Continent appeared inevitable. In this situation Edward resolved to bring relief in person to his distressed subjects and allies; and accordingly embarked in 1346, at Southampton, on board a fleet of near a thousand sail. Besides the chief nobility of England, he carried along with him his eldest son the prince of Wales, afterwards surnamed the *Black Prince*, from the colour of his armour, a youth of about fifteen years old, and already remarkable for understanding and valour far above his age. His army, which consisted of four thousand men at arms, ten thousand archers, ten thousand Welsh infantry, and six thousand Irish, were all landed in safety at La Hogue, a port in Normandy. The intelligence of Edward's landing, and the devastation caused by his troops, who dispersed themselves over the whole country, soon spread consternation in the French court. The rich city of Caen was taken and plundered by the English; the villages and towns as far as Paris shared the same fate; and the French had no other resource but to break down the bridges, in order to check the advance of the invader. In the mean time Philip was not idle in making preparations to oppose the enemy. Having stationed one of his generals, Godemar de Faye, with an army on the opposite side of the river Somme, which Edward had to cross, whilst he himself, at the head of a hundred and twenty thousand fighting men, advanced to give the English battle, he so hemmed in Edward that the latter found himself exposed to the danger of being enclosed and starved in an enemy's country. In this dilemma he offered a large reward to any one who should bring him information of a passage across the river Somme; and a peasant of the country, named Gobin Agace, having discovered a ford, Edward had just time to get his whole army across the river, when Philip appeared in his rear. A battle ensued, in which the French were overthrown with great slaughter, and which, under the name of Crescy, the place where it was fought, is equally memorable in the annals of England and France. Edward next laid siege to Calais, which was then defended by John de Vienne, an experienced commander, and supplied with every thing necessary for defence; but it was nevertheless taken, after a twelvemonth's siege, the defenders having been reduced to the last extremity by fatigue and famine.

From the beginning of this unfortunate war, Philip had invariably showed himself desirous of peace, and the victory of Crescy rendered him still more so. Edward also, notwithstanding his successes, found himself unable any longer to support the expenses of the war. The mediation of the court of Rome was therefore readily accepted, and a truce for three years concluded. At the same time, Philip met with some recompense for the losses he had sustained, by the acquisition of Dauphiné, which afterwards gave the title of Dauphin to the eldest son of the king of France. The subsequent events of his reign are unimportant, and he expired in the year 1350, at the age of fifty-seven.

King John.

On the death of Philip, his eldest son John took possession of the kingdom; but scarcely was he seated on the throne when he disgusted his nobility by a most unseasonable act of severity. Robert de Brienne, count of Eu and Guisnes, had been taken prisoner by the king of England at Caen, and, under pretence of negotiating his ransom, had passed several times between France and England; but being accused of maintaining a treasonable correspondence with Edward, he was suddenly arrested, condemned, and beheaded, without any form of trial. At his death he is said to have confessed his treasonable practices, but this has not been authenticated by any historian of credit. Having been constable of France, the sword, the badge of his office, was delivered to Charles de la Carda; but the fate of the latter was not less unfortunate than that of his predecessor, inasmuch as he was soon afterwards assassinated by Charles king of Navarre, surnamed The Wicked. This prince, celebrated for his personal qualifications, but detested for his crimes, was the son-in-law of John. He had demanded the duchy of Angoulême of the king; but as the latter had thought proper to bestow it upon Carda, he sought to revenge himself by assassinating his rival. John did not fail to show a proper resentment; but such was the weakness of his government, that the king of Navarre set him at defiance, and would not even condescend to go through the ceremony of asking pardon until John had sent him his second son as an hostage for his personal security. To these offences the king of Navarre added another still more atrocious, namely, that of aiming at the crown of France, to which, as grandson by the female side to Louis the Boisterous, he pretended a title in right of his mother. But his more immediate demand was that the countries of Champagne and Brie should be given up to him. To obviate all difficulties on this head, however, John bestowed the duchy of Normandy on his eldest son Charles, and commanded him to seize the estates of the king of Navarre; upon which the latter soon made his appearance at Paris, and John found himself obliged to appease his opposition at the expense of a hundred thousand crowns.

During all this time the truce with England had been but ill observed on both sides; the French had possessed themselves of the port of St Jean d'Angeli, and the English had surprised the town of Guisnes. The rival houses of Montfort and Blois also indulged their animosities, whilst Edward continued to threaten war. The king of Navarre also persevered in his intrigues, and even the dauphin was drawn into a confederacy against his father; but John, being informed of their machinations, found means to defeat them. The dauphin was reclaimed by pointing out to him the impropriety of his conduct, and the disadvantage which must unavoidably ensue to himself from the connections which he had formed. The king of Navarre, with his principal adherents, were invited to an entertainment, where they were unexpectedly arrested; the former being sent prisoner to Chateau Gaillard, and several of the most obnoxious of the latter put to death. But the rest of the conspirators, instead of being dismayed by this check, immediately broke out in open rebellion; and finding themselves unable to gain their point without further assistance, they immediately invited Edward to come over from England.

France again invaded by Edward.

That warlike and enterprising monarch had never lost sight of the object which he had originally contemplated; and on the expiration of the truce had sent his son, the prince of Wales, surnamed the Black Prince, with a squadron towards the coast of France. With this force the prince entered the mouth of the Garonne, burned the towns and villages of Languedoc, and then retired with his plunder into the country of Guienne, whilst Edward himself, who had likewise passed over to the Continent, wasted the country as far as St Omer; but the French king, notwithstanding all these provocations, determined to avoid a battle, and accordingly prohibited his general, the constable of Bourbon, from coming to an engagement, though his army was much superior to that of the prince of Wales. With the flower of his troops, however, he pursued Edward from St Omer to Hesdin, where he defied him to a pitched battle; but the latter, without minding his bravadoes, continued his march towards Calais, whence he embarked for England. After his departure, John called an assembly of the states at Paris, where he explained the distressed situation of his finances, and showed so fully the necessity of their assisting him in the defence of the kingdom, that they consented to maintain an army of thirty thousand men during the war. To supply the other exigencies of government, they revived the duty upon salt, and added a variety of other imposts; but at the same time appointed a committee of their own number to take care that the money should be strictly appropriated to the public service. But the satisfaction which John received from these grants, and from the suppression of some disturbances which happened about this time, was soon overcast by the news that the prince of Wales had marched with an army of twelve thousand men from Bordeaux, and, after ravaging the Agenois, Quercy, and the Limousin, had entered the province of Berry. The young warrior had penetrated into the heart of France with this trifling body of forces, in hopes of joining the Duke of Lancaster in Guienne. But he soon found that his scheme was impracticable. The country before him was too well guarded to permit him to advance further; and all the bridges behind were broken down, which effectually barred a retreat. In this embarrassing situation his perplexity was increased by being informed that the king of France was actually marching at the head of sixty thousand men to intercept him. He at first thought of retreating; but soon finding it impossible to retrograde, he determined calmly to wait the approach of the enemy, and, notwithstanding the disparity of forces, to commit all to the hazard of a battle.

At a place called Maupertuis, near Poitiers, both armies arrived in sight of each other. The French king might easily have starved the English into terms; but such was the impatient valour of the French nobility, and such their confidence of success, that it might have been equally fatal to attempt repressing their ardour to engage. In the mean time, whilst both armies were drawn up in order of battle, and expecting the signal to advance, they were stopped by the appearance of the Cardinal of Perigord, who attempted to act as mediator between them. But as John, who made himself sure of victory, would listen to no terms which did not include the restitution of Calais, the Black Prince refused to listen to such a proposition, and the combat was deferred till the next morning, for which both sides waited in anxious suspense. During this interval the young prince strengthened his position with new intrenchments, and placed three hundred men in ambush, with as many archers, who were commanded to attack the enemy in flank during the heat of the engagement. Having taken these precautions to ensure success, he drew up his army in three divisions; the van commanded by the Earl of Warwick, the rear by the Earls of Salisbury and Suffolk, and the main body by himself. The king of France also arranged his forces in three divisions; the first commanded by the Duke of Orleans, and the second by the dauphin, attended by his younger brothers, whilst he himself directed the main body, seconded by his youngest son, then about fourteen years of age. As the English could be attacked only by marching along a narrow defile, the French suffered greatly from the English archers, who were posted on each side behind the hedges. Nor were they in a better situation upon emerging from this pass, being met by the Black Prince himself, at the head of a chosen body of troops, who made a furious onset upon their troops, already in great disorder. A dreadful overthrow ensued. Those who were as yet in the defile recoiled upon their own forces; whilst the English troops who had been placed in an ambush took the opportunity, by a flank attack, to increase the confusion and confirm the victory. The dauphin and the Duke of Orleans were amongst the first who fled. The king of France himself made great efforts to retrieve by valour what rashness had forfeited; but his courage was unable to check that panic which had now become general throughout his army; and his cavalry soon flying, he found himself exposed to the whole fury of the enemy. At length, overpowered with fatigue, and despairing of success, he thought of yielding himself a prisoner, and frequently cried out that he was ready to deliver himself to his cousin the prince of Wales. But the honour of taking him was reserved for a more ignoble hand; he was seized by Dennis de Morbec, a knight of Arras, who had been obliged to fly from his country for murder.

This defeat, which happened in the year 1356, almost entirely ruined the French affairs; and the miseries which ensued were greatly augmented by internal commotions. The dauphin, who had now assumed the government, was altogether unfit to govern a turbulent and seditious people at a crisis like this. An assembly of the states, which he called, took the opportunity to limit the power of the prince, to impeach the former ministers, and to demand the liberty of the king of Navarre; and the treasurer of the crown was basely murdered by one Marcel, a partisan of that worthless prince, who had filled the city of Paris with confusion by his intrigues. The public disorders were also augmented by the escape of the king of Navarre; and, though the dauphin was even assured that this royal ruffian had administered poison to him, he was nevertheless obliged to pay him some appearance of regard. A scheme was even formed by the chiefs of the sedition to change the government, to vest all the power in the commons, and to leave the king no more than an empty title; but though this was favourably received by the city of Paris, the other cities of the kingdom refused to concur in the project. The dauphin was likewise recognised as regent by the states-general, and the inhabitants of Picardy and Champagne took up arms in his cause. In this disastrous state of affairs, the miseries of the people were heightened by a new and unexpected evil. The peasants, who had all along been oppressed by the nobles, were now treated in such a manner that, having risen in great numbers to revenge themselves, the castles of the nobility were razed to the ground, their wives and daughters ravished, and themselves put to the most cruel torments. At last they were obliged to arm in their own defence. The Duke of Orleans cut off ten thousand of the insurgents in the neighbourhood of Paris; twelve thousand were massacred by the king of Navarre; and nine thousand who had laid siege to the town of Meaux, where the dauphiness and three other ladies of the first rank resided, were routed and pursued with dreadful slaughter by an officer in the service of Edward. Amidst these confusions, Marcel, the seditious leader already mentioned, perished in a tumult of his own raising; and the most virtuous and prudent people of the nation supported the pretensions of the dauphin. But his most dangerous enemy was the king of Navarre, who had enticed to his standard numbers of those Norman and English adventurers who had followed Edward into France, and remained there to seek their fortunes, having associated themselves under the name of the *Companions*. By this formidable competitor the dauphin was reduced almost to the last extremity, when his hopes were revived by an unexpected proposal of peace upon equitable and moderate terms. Historians in general have ascribed this to the natural levity of the king of Navarre; but some have been of opinion that he acted from prudential motives, and that he justly supposed it would be more easy to deal with the dauphin, who was his own kinsman, and humbled by so many misfortunes, than with a haughty and imperious conqueror like Edward.

A new invasion of France by Edward.

On the expiration of the truce in the year 1359, Edward, having again set sail for France, anchored before Calais with a fleet of eleven hundred sail, assumed the title of King of France, and augmented his army to a hundred thousand men. The dauphin, finding himself unable to oppose so great a force, was obliged to act upon the defensive; and having chosen the city of Paris as his station, he allowed the English to ravage the open country. Thus they were suffered to penetrate through Picardy into Champagne; but the city of Rheims, where Edward designed to have been crowned king of France, baffled his utmost efforts. From Champagne, therefore, which had already been laid waste, the English monarch marched into Burgundy, pillaging Tonnere, Gaillon, and Avalon. Burgundy was saved by the payment of a hundred thousand merks, and an equal sum was paid for Nivernois. At last, after a long and destructive march, Edward arrived at the gates of Paris; but the prudence of the dauphin and the citizens had rendered it impregnable to the attacks of famine as well as the assaults of an army. The war proceeded, however, till the year 1360, when the king of England showed himself inclined for peace. Notwithstanding all the victories he had gained, the French nation evinced not the least favour to his claim of succession; the king of Navarre was a dangerous rival; and the caution of the dauphin, in avoiding an engagement, deprived him of the advantages he expected from his valour and military skill. Conferences for a peace were accordingly opened at Bretigny in the Chartraine, and it was at last concluded, on the conditions that King John should pay for his ransom, at different periods, three millions of crowns of gold, or about a million and a half of our money; and that Edward should for ever renounce all claim to the kingdom of France, and remain possessed of the territories of Poitou, Xaintonge, l'Agenois, Perigord, the Limousin, Quercy, Rouvergne, l'Angoumois, and other districts in that quarter, together with Calais, Guisnes, Montreuil, and the county of Ponthieu. Some other stipulations were also made in favour of the allies of England, as a security for the execution of these conditions. But, upon John's return to his dominions, he found himself unable to ratify the terms of peace which had just been concluded. At the head of an exhausted state, his soldiers were without discipline, and his peasants without subordination. The latter had in fact risen in great numbers, and one of their chiefs had assumed the title of The Friend of God and the Terror of Man. A citizen of Sens, named John Gouge, also got himself acknowledged king, by means of his robberies, and soon caused almost as many calamities by his depredations as the real king had brought on by his misfortunes. Such was the state of France on the return of its captive monarch; yet so incredible was his absurdity, that he had scarcely been replaced on the throne when he prepared for a crusade into the Holy Land. But this folly was prevented by the exhausted state of the country, and the misery of the people, who, in fact, were even unable to pay the king's ransom. In these circumstances, however, the conduct of John was truly noble. "Though good faith should be banished from the rest of the earth," said he, "yet she ought still to retain her habitation in the breasts of kings." He accordingly returned once more to England, and yielded himself a prisoner, since he could not be honourably free. It has indeed been said by some, that his passion for the Countess of Salisbury was the real cause of his journey; but there seems to be no foundation for a report so injurious to his honour. During his captivity he resided in the Savoy, and afterwards closed a long and unfortunate reign by his death, which happened in the year 1364.

Charles the Prudent.

Charles, surnamed the Prudent, succeeded his father upon the throne of France; and by a finely-conducted policy, even though he suffered some defeats, restored his country once more to tranquillity and power. He dispersed a horde of banditti, who having associated themselves under the name of Companions, had long been a terror to the peaceable inhabitants. He had them even enrolled into a body, and led them into the kingdom of Castille against Peter, surnamed the Cruel, whom his subjects had dethroned, and who, by means of an alliance with the English, endeavoured to get himself reinstated in power. The consequence was, that the English and French again came to an engagement; the army of the former being commanded by the Black Prince, and that of the latter by Henry of Transtamarre, and Bertrand du Guesclin, one of the most consummate generals and accomplished men of the age in which he lived. The usual good fortune of the English prince however prevailed, and the French lost above twenty thousand men, whilst only four knights and forty private men were slain on the side of the English. Nevertheless these victories were attended with but little effect. The English, by frequent levies, had become quite exhausted, and were unable to continue an army in the field. Charles, on the other hand, cautiously avoided coming to a decisive engagement, but contented himself with allowing his enemies to waste their strength in attempts to plunder a fortified country; and when they retired, he then sallied forth, possessing himself of such places as they were not strong enough to defend. He first fell upon Ponthieu; the citizens of Abbeville opened their gates to receive him; those of St Valois, Rue, and Crotoy, imitated the example; and the whole country was in a little time reduced to submission. The southern provinces were in the same manner invaded by his generals with equal success; whilst the Black Prince, destitute of supplies from England, and wasted by a cruel disorder, was obliged to return to his native country, leaving affairs in the south of France in a desperate condition. In this exigency the resentment of the king of England was excited to the utmost pitch, and he resolved to take signal vengeance on his enemies of the Continent. But the fortunate occasion had now passed, and all his succeeding designs were unsuccessful. The Earl of Pembroke and his whole army were intercepted at sea, and taken prisoners, by Henry king of Castille. Sir Robert Knolles, at the head of thirty thousand men, was defeated by Bertrand du Guesclin; and the Duke of Lancaster, at the head of twenty-five thousand men, had the mortification of seeing his troops diminished without even coming to a battle. At length, when the affairs of the English were totally ruined by the death of the Black Prince and of King Edward, the armies of Charles attacked the English on all sides. One, under the command of the Duke of Burgundy, entered Artois; another, under the command of the Duke of Berry, penetrated into Auvergne; that which acted in Guienne was commanded by the Duke of Anjou; the forces in Bretagne were under the constable Guesclin; and the king put himself at the head of a powerful body of troops, that he might be able to repair any accident to which the chance of war might give rise. The constable having found it difficult to oppose Sir Thomas Felton and the seneschal of Bordeaux, was joined by the Duke of Burgundy, and soon afterwards attacked and defeated both, making them prisoners of war. At the close of the campaign of 1377, Bayonne and Bordeaux, with the surrounding districts, and the fortress of Calais with its dependencies, were all that England had now left on the Continent. But Charles having thus once more established the house of Valois on the throne of France, did not long live to enjoy his good fortune. He died in the year 1379, at the age of forty-four, in consequence of the poison formerly administered to him by the king of Navarre, and the immediate operation of which had been suspended by the skill of a physician sent by the emperor Charles IV.

Charles VI.

Charles V. was succeeded by his son Charles VI. surnamed the Well-beloved, who, at the time of his accession to the throne, was only twelve years of age. The Duke of Anjou, eldest brother to the late king, had been appointed guardian during the minority of the prince; but being totally unfit for the office, and distinguished only for his ambition and rapacity, he resigned his charge to the Dukes of Burgundy and Bourbon, the former being uncle to the king by his father's side, the latter by his mother's. None of these tutors, however, proved faithful to the trust reposed in them. At this time Joan, infamous for her profligacy, reigned in Naples, where she had appointed one Charles Durazzo, her relation, to succeed her on the throne; but the inhuman wretch murdered his benefactress, who with her last breath revoked her grant of the kingdom to him, and bestowed it upon the Duke of Anjou. The influence of the latter at the French court enabled him to waste the treasures of the kingdom in support of his pretensions; but he proved ultimately unsuccessful, his forces having been defeated, and his designs frustrated, by the superior skill of his adversary. Meanwhile the citizens of Paris, oppressed with taxes, broke out into tumults, and were with difficulty quelled; and the mal-administration of the duke soon involved the nation in hostilities with the Flemings, whose country he invaded at the head of an army of eighty thousand men, accompanied by the young king and by the principal nobility of France. The first operations of the war were favourable to the Flemings; but they were at length totally defeated on the banks of the river Lis, where their leader, with twenty-five thousand men, perished in the field. This victory was followed by the submission of the whole country; but the satisfaction which this event afforded the king was disturbed by new seditions and revolts in Paris and other great towns. His return, however, at the head of a victorious army soon reduced them to their duty, and several of the revolted cities were severely punished; at the same time that the death of the Duke of Anjou having freed him from the immediate dependence on his tutors, enabled him to assume the reins of government, in the year 1384.

The genius which Charles displayed in his early years raised the hopes of the nation; but these were soon overcast, and greater misfortunes than any which had yet occurred were in reserve. His administration was for some time prudent and vigorous. He conciliated the affections of his people by restoring their privileges, punishing their oppressors, and relieving them from the taxes which had been imposed in his minority. He compelled the Flemings to submit to the authority of his uncle the Duke of Burgundy, and detached fifteen thousand archers and fifteen hundred men-at-arms to assist the Scotch in their incursions into England. Lastly, in 1385 he fitted out a mighty armament against England. A vast fleet assembled in the harbour of Sluys, and a numerous army was collected in the neighbourhood. According to some writers, the armament consisted of twelve hundred ships, twenty thousand foot variously armed, twenty thousand cavalry, and twenty thousand cross-bow men. There was besides a vast wooden edifice or floating town, which had been contrived for the protection of the soldiers when landed. But all these preparations came to nothing through the obstinacy of the Duke of Berry, who, having been originally opposed to the expedition, conducted his part of the armament so slowly that he did not arrive at Sluys till the middle of September, when the season was too far advanced, and an invasion impracticable. In addition to this, a storm which happened soon afterwards drove the greater part of the fleet on shore, and beat down the wooden edifice, and completely shipwrecked the whole project.

But the destruction of the French fleet was only a prelude to calamities of a more extraordinary description. The Sieur de Craon, a profligate nobleman, having been intrusted by the court of France with a considerable sum destined for the support of the Duke of Anjou during his Italian expedition, had dissipated this money at Venice; but, by the credit of the Duke of Orleans, the king's brother, he had obtained his pardon, and even returned to court, where he sought to gratify his private resentment by the assassination of the constable Oliver Clisson, whom he suspected of having promoted his disgrace. The latter was attacked on his return from the Hôtel de St Pol, by a band of twenty ruffians, against whom he defended himself with wonderful intrepidity, but at last fell, after receiving more than fifty wounds. Happily, however, the veteran recovered from his wounds; and the assassin, in order to screen himself from vengeance, fled for protection to the Duke of Bretagne. The king demanded the surrender of Craon; and the duke having professed that he knew nothing of him, he marched with all his forces into Bretagne. But when the army had arrived at Mons, the king was seized with a slow fever, during which he became delirious, and killed several persons with his own hand. When the excitement subsided he fell down and lay as if he had been dead; upon which he was taken up, bound in a waggon, and carried back to Mons, where he lay two days in a lethargy, from which he recovered a little, and expressed great sorrow on account of the blood he had shed in his delirium. But it was soon discovered that he no longer possessed that strength of judgment and understanding for which he had formerly been remarkable; and hence a regency became indispensably necessary. The competition for this office brought to light the characters of the queen and the Duke of Orleans, which had not hitherto been displayed to public view. The former was a beautiful and accomplished princess, but vindictive, suspicious, and intriguing, insensible to natural affection, but easily accessible to flattery, and ready to yield to every impulse of lawless passion. The latter was equally remarkable for personal accomplishments, and had married Valentina, daughter of the Duke of Milan; but his engagements with that princess did not prevent him from engaging in a number of licentious amours, and amongst the rest, as was supposed, with his sister-in-law Isabelle. During the king's illness he openly aspired to the regency; but his pretensions were overruled by the states, and the administration of affairs for the present conferred on the Duke of Burgundy. In a few months indeed the health and understanding of the king seemed to be sufficiently restored; but in the year 1393 it was again disturbed by a sudden alarm, which occasioned a relapse, and he continued delirious at intervals as long as he lived. During his lucid intervals Charles frequently assumed the government into his own hands; and as the war with England still continued, though in a languid manner, the French monarch in one of those intervals of reason had an interview with Richard of England, in order to put an end to hostilities. But their respective claims were so difficult of adjustment, that, as an intermediate arrangement, they concluded a truce for twenty-five years; during which time it was hoped that a lasting peace might be established. Richard gave up Cherbourg to Charles, and Brest to the Duke of Bretagne; and a marriage was also concluded between the king of England and Isabelle the daughter of Charles, but, by reason of the tender age of the princess, this marriage was never consummated. During this reign France was still further weakened by the succours sent to the Hungarians against the Turks. On this expedition upwards of one thousand of the bravest and most experienced knights were sent under the conduct of John count of Nevers, eldest son of the Duke of Burgundy; the Count of Eu, constable of France; John de Vienne, admiral of France; and the Count of Marche, a prince of the blood royal; together with De Courcy, one of the most experienced captains in Christendom. But the prudent counsels of this veteran were not obeyed by the youthful warriors by whom he was accompanied, and who, having attacked the enemy rashly, whilst heated with wine, were all either killed or taken prisoners. Notwithstanding this disaster, however, assistance was in the year 1400 sent to Wanceslaus, emperor of Germany; and the Duke of Orleans, who commanded the army on this occasion, acquitted himself so well that he acquired the duchy of Luxembourg for himself, and left his ally satisfied.

But whilst the friendship of France was thus courted by foreign powers, the kingdom itself was in the most miserable situation. The king's distemper daily gained ground; and the discordant interests of the contending parties kept the whole nation in a ferment. The most violent animosity broke out between the Dukes of Orleans and Burgundy. The former, by means of his interest with the queen, and the ascendency which his duchess possessed over the king, had for some time got the advantage of his rival, and was made lieutenant-general and governor of the kingdom; but presuming on his power to levy new imposts on the people, and oppress the churchmen, whom in that age he ought to have conciliated, he was deprived of his authority, and obliged to yield to the Duke of Burgundy. For some time, however, these powerful rivals were kept within some bounds by the mediation of the Duke of Bourbon, the only grandee who appears to have maintained a pure and unspotted character; but by his death in 1404, the unhappy nation was left totally exposed to their relentless fury. In 1405 the queen and the Duke of Orleans again seized on the administration, which, however, they were soon deprived of by the unanimous voice of the people. During this period Charles and his children were neglected and abandoned to distress; but they were relieved by the Duke of Burgundy on his obtaining the regency, whilst Isabelle and the Duke of Orleans were obliged to retire from Milan. But a sudden return of the king's reason now deprived both parties of power, and the administration was vested in the queen and a council composed of princes of the blood. The rival dukes being thus prevented from interfering in public affairs, exercised themselves in committing hostilities against the English, with whom the truce had lately been concluded. They were encouraged to commit this infraction of the treaty by the unsettled situation of affairs under Henry IV.; but their attempts having proved unsuccessful, the truce was renewed after obtaining the restoration of the princess, who, as has already been mentioned, had been betrothed to Richard II. The failure of their enterprises produced a new scene of discord between the dukes, and led to mutual recriminations. By the interposition of the Duke of Berry they were apparently reconciled; but the Duke of Burgundy pretended friendship only in order to take a more signal vengeance, to which he was now inflamed by jealousy as well as by political animosity. The Duke of Orleans was accordingly attacked one evening by eighteen ruffians hired for the purpose, who set upon him whilst attended by only two pages. A Norman gentleman

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who had been deprived of an employment headed the assassins, and in person attacked the duke; at the first blow he cut off his grace's hand, at the second he struck him from his mule, and at the third put an end to his life. The Duke of Burgundy escaped to Flanders; and the whole nation was rent into two factions, called the Burgundians and Armagnacs, the latter being the title of the party of the Duke of Orleans, from Armagnac, the father-in-law of that prince. A state of dreadful confusion and anarchy ensued. The Duke of Burgundy soon returned into France, and extorted a pardon from the unhappy king, who was now no longer able to resist him; and some notion may be formed of the state of the kingdom from the circumstance that two thousand people perished in one tumult in the capital. The king himself was alternately the prisoner of both parties, and transferred the power from the one to the other as he happened to fall into their hands.

Henry V. of England judged this a favourable opportunity to recover from France those possessions that had been formerly surrendered by treaty. But, in order to give his intended expedition the appearance of justice, he sent ambassadors to Paris, offering perpetual peace and alliance, on condition of being put in possession of all those provinces which had been ravished from the English during former reigns, and of espousing Catharine, daughter of the French king, with a suitable dowry. Though the French court was at this time extremely averse to war, yet these demands were too extravagant to be complied with; and Henry probably made them in hopes of meeting a refusal. He therefore assembled a fleet and army at Southampton, and having drawn all the military men of the kingdom to his standard, he put to sea, and landed at Harfleur at the head of an army of six thousand men-at-arms, and twenty-four thousand foot, mostly archers. His first operations were directed against Harfleur, which being hard pressed, promised to surrender by a certain day, unless relieved before that time. When the day arrived, and the garrison, unmindful of their engagement, resolved to defend the place, Henry ordered an assault, took the town by storm, and put the garrison to the sword. The victor then advanced further into the country, which had been already rendered desolate by factions, and which he now laid totally waste. But although the enemy made a feeble resistance, the climate seemed to fight against the English; and a contagious dysentery carried off three fourths of Henry's army. In this situation he had recourse to an expedient common enough in that age, in order to inspire his troops with confidence in their general. He challenged to single combat the dauphin, who commanded the French army, offering to stake his pretensions on the event. But this challenge, as might have been expected, was refused; and the French, notwithstanding their internal dissensions, at last seemed to unite at the appearance of a common danger. A numerous army of fourteen thousand men-at-arms and forty thousand foot had by this time assembled under the command of Count Albert, and been placed so as to intercept Henry's weakened forces on their return. The English monarch, when it was too late, began to repent of his rash inroad into a country where disease and a powerful army everywhere threatened destruction, and he therefore determined to retire on Calais. In this retreat, which was at once painful and dangerous, Henry took every precaution to inspire his troops with patience and perseverance, and showed them in his own person the brightest example of fortitude and resignation. He was continually harassed on his march by flying parties of the enemy; and when he attempted to cross the river Somme, he observed troops on the other side ready to oppose his passage. He was, however, fortunate enough to seize by surprise, near St Quintin, a passage which had not been sufficiently guarded, and thus carried over his army in safety. But the enemy being still resolved to intercept his retreat, after he had passed the river Tertrois, at Blangi, he was surprised to observe from the heights the whole French army drawn up in the plains of Agincourt, and so posted that it was impossible for him to proceed on his march without coming to an engagement. A battle accordingly took place, in which the English gained a victory, the most remarkable perhaps of any recorded in history (see AGINCOURT), and which deserves to be classed with the triumphs achieved at Crescy and Poitiers. This victory, gained on the 25th of October 1415, was however attended with no immediate effects. Henry still continued to retreat after the battle of Agincourt, and carried his prisoners first to Calais and thence to England.

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In 1417, the king of England once more landed an army of twenty-five thousand men in Normandy, and prepared to strike a decisive blow for the crown of France, to which the English monarchs had long made pretensions. That wretched country was now reduced to a most deplorable condition. The whole kingdom appeared one vast theatre of murder, injustice, and devastation. The Duke of Orleans had been assassinated by the Duke of Burgundy; and the Duke of Burgundy, in his turn, fell by the treachery of the dauphin. At the same time the son of the duke, desirous of revenging his father's death, entered into secret negotiations with the English; and a league was immediately concluded at Arras, between Henry and the young Duke of Burgundy, in which the king promised to revenge the murder of the late duke, and the son appeared to insist on no further stipulations. Henry therefore proceeded in his conquests without much opposition from any quarter. Several towns and provinces submitted on his approach; the city of Rouen was besieged and taken; and he soon became master of Pontoise and Gisors. He even threatened Paris, and obliged the court to remove to Troyes, where the Duke of Burgundy, who had taken upon him the protection of the French king, met Henry in order to ratify the treaty by which the crown of France was to be transferred to a stranger. The imbecility into which Charles had fallen made him passive in regard to this treaty, and Henry dictated the terms throughout the whole negotiation. The principal articles of the treaty were, that Henry should espouse the Princess Catharine; that King Charles should enjoy the title and dignity of king for life, but that Henry should be declared heir to the crown, and intrusted with the present administration of the government; that France and England should be for ever united under one king, but should still retain their respective laws and privileges; and that Henry should unite his arms with those of King Charles and the Duke of Burgundy, to depress and subdue the dauphin and his partisans. Not long after this treaty had been concluded, Henry married the Princess Catharine; upon which he carried his father-in-law to Paris, and took formal possession of the capital. He next obtained from the estates of the kingdom a ratification of the late compact, and then turned his arms with success against the adherents of the dauphin, who now wandered about a stranger in his own country, and to the success obtained by his enemies opposed only fruitless expostulations.

But Henry's supplies were not provided in such abundance as to enable him to carry on the war without returning in person to prevail with his parliament to grant fresh aid; and on his arrival in England, although he found his subjects highly pleased with the splendour of his conquests, they seemed somewhat doubtful as to the advantage to be derived from them. A treaty, which in its consequences was likely to transfer the seat of empire from England, was not much relished by the parliament, which, therefore, on various pretences, refused his majesty a supply equal to his exigencies. But he was bent on pursuing his schemes of ambition; and, having joined the supplies granted at home to the contributions levied on the conquered provinces, he was able once more to assemble an army of twenty-eight thousand men, with which he landed safely at Calais.

In the mean while, the dauphin omitted no opportunity of repairing his ruined fortunes. Taking advantage of Henry's absence from France, he prevailed upon the regent of Scotland to send him a body of eight thousand men; and with these, and some few forces of his own, he attacked the Duke of Clarence, who commanded the English troops in the king's absence, and gained a complete victory. This was the first action which turned the tide of success against the English. But it was of short duration; for Henry having soon afterwards appeared with a considerable army, the dauphin fled at his approach; and many of the places which held out for the latter in the neighbourhood of Paris surrendered to the conqueror. Henry, everywhere victorious, now fixed his residence at Paris; and whilst Charles had only a small court, he was attended with one of great magnificence. In the mean while the dauphin, driven beyond the Loire, and almost totally dispossessed of the northern provinces, was pursued into the south by the united arms of the English and Burgundians, and threatened with total destruction. In this exigency, he found it necessary to protract the war, and to evade all hazardous actions with a rival who had long been accustomed to victory. His prudence was everywhere remarkable; and, after a train of persecutions from fortune, he found her at length willing to declare in his favour by the death of the king of England. Charles VI. died a short time afterwards; and Charles VII. succeeded his father on a nominal throne.

Charles VII.

Nothing could be more deplorable than the situation of France when this monarch assumed his title to the crown. The English were masters of almost all France; and Henry VI. though yet an infant, was solemnly invested with regal power by legates from Paris. The Duke of Bedford was at the head of a numerous army in the heart of the kingdom, ready to oppose every insurrection; whilst the Duke of Burgundy, who had entered into a firm confederacy with the English commander, still remained stedfast, and seconded his claims. Yet notwithstanding these unfavourable appearances, Charles found means to break the leagues formed against him, and to bring back his subjects to their natural interest and duty. His first attempts, however, were totally destitute of success. Wherever he endeavoured to face the enemy he was overthrown, and he could scarcely rely even on the friends next his person. His authority was insulted by his own servants; advantage after advantage was gained over him; and a battle fought near Verneuil, in which he was totally defeated by the Duke of Bedford, seemed to render his affairs altogether desperate. But, from the impossibility of the English keeping the field without new supplies, Bedford was obliged to retire into England; and in the absence of this commander his vigilant enemy began to recover from his late consternation. Dunois, one of his generals, at the head of a thousand men, compelled the Earl of Warwick to raise the siege of Montargis; and this advantage, slight as it was, served to convince the French that the English were not invincible.

Joan d'Arc.

But they had soon still greater reason to triumph in their change of fortune, and a new revolution was produced, by means apparently the most unlikely to bring about such a result. In the village of Domremi, near Vaucouleurs, on the borders of Lorraine, there lived a country girl, about twenty-seven years of age, called Joan d'Arc. This girl had been a servant in a cabaret or small inn, and in that humble station had submitted to those hardy employments which fit the body for the fatigues of war. She was of an irreproachable life, and had hitherto exhibited none of those enterprising qualities which she soon afterwards displayed. She contentedly fulfilled the duties of her station, and was remarkable only for her modesty and love of religion. But the miseries of her country seemed to have occupied the thoughts of this lowly maiden; and her mind, inflamed by the subject, and brooding with melancholy stedfastness thereon, began to feel impulses, which she was willing to mistake for inspirations of heaven. Convinced of the reality of her own visions, she had recourse to one Baudricourt, governor of Vaucouleurs, whom she informed of her destination by heaven to free her native country from its fierce invaders. Baudricourt treated her at first with neglect; but her importunities at length prevailed, and, willing to make trial of her pretensions, he gave her some attendants, who conducted her to the court, which at that time resided at Chinon. The French courtiers were probably sensible of the weakness of her pretensions, but they were willing to make use of every artifice to support their declining fortunes. It was therefore given out that Joan was actually inspired; that she had been able to discover the king amongst the number of his courtiers, although he had laid aside all the distinctions of his authority; that she had told him some secrets, which were only known to himself; and that she had demanded, and minutely described, a sword in the church of St Catharine de Fierbois, which she had never seen. The minds of the vulgar being thus prepared, she appeared armed *cap-à-pied*, and was shown in that martial dress to the people. She was then brought before the doctors of the university, who, tinctured with the credulity of the times, or willing to second the imposture, declared that she had actually received her commission from above. When the preparations for her mission had been completely blazoned, the next object was to send her against the enemy. The English were at this time besieging the city of Orleans, the last resource of Charles, and every thing promised them a speedy conquest. Joan undertook to raise the siege; and, in order to render herself still more remarkable, girded herself with the miraculous sword, of which she had before had such extraordinary notices. Thus equipped, she ordered all the soldiers to confess themselves before they set out, displayed in her hand a consecrated banner, and assured the troops of certain success. Such confidence on her side soon raised the spirits of the French army; and even the English, who pretended to despise her efforts, felt themselves secretly influenced with the terrors of her mission. A supply of provisions was to be conveyed into the town; Joan, at the head of some French troops, covered the embarkation, and entered Orleans at the head of the convoy which she had safely protected. Whilst she was leading her troops along, silence and astonishment reigned amongst the English; and they regarded with religious awe that temerity, which they thought nothing but supernatural assistance could inspire. But they were soon roused from their state of amazement by a sally from the town; Joan led on the besieged, bearing the sacred standard in her hand, encouraging them with her words and actions, bringing them to the trenches, and overpowering the besiegers in their own redoubts. In the attack of one of the forts, she was wounded in the neck with an arrow; but instantly pulling out the weapon with her own hands, and getting the wound promptly dressed, she hastened back to head the troops, and to plant her victorious banner on the hostile ramparts. As these successes continued, the English found it impossible to resist troops who were animated by such superior energy; and Suffolk, who conducted the attack, thinking that it might prove extremely dangerous to remain any longer in the presence of such an enemy, raised the siege, and retreated with all imaginable precaution. From being attacked, the French now became in turn the aggressors. Charles formed a body of six thousand men, and sent them to besiege Jergeau, whither the English, commanded by the Earl of Suffolk, had retired. The city was taken; Suffolk yielded himself a prisoner; and Joan marched into the place in triumph at the head of the army. A battle was soon after fought near Patay, where the English were again worsted, and Generals Scales and Talbot were taken prisoners.

The raising of the siege of Orleans formed one part of the promise which the maid had made to the king of France, the crowning him at Rheims was the other; and as she now declared that it was time to complete that ceremony, Charles, in pursuance of her advice, set out for Rheims at the head of twelve thousand men. The towns through which he passed opened their gates to receive him; and Rheims sent him a deputation, with its keys, upon his approach. The ceremony of his coronation was there performed with the utmost solemnity; and the Maid of Orleans, as she was now called, seeing the completion of her mission, desired leave to retire, alleging that she had now accomplished the end of her calling. But her services had been so great that the king could not think of parting with her; he pressed her earnestly to remain, and she at length complied with his request. A train of success followed the performance of this solemnity; Laon, Soissons, Château-Thierri, Provins, and many other fortresses in that neighbourhood, submitted to him on the first summons.

On the other hand, the English, discomfited and dispirited, fled in every direction, not knowing whether to ascribe their misfortunes to the power of sorcery or to a celestial influence, but equally terrified at both. They now found themselves deprived of the conquests they had gained, in the same manner as the French had formerly submitted to their power. Their own divisions, both abroad and at home, unfitted them entirely for carrying on the war; and the Duke of Bedford, notwithstanding all his prudence, saw himself divested of his strongholds in the country, without being able to arrest the enemy's progress. In order, therefore, to revive the declining state of his affairs, he resolved to have Henry crowned king at Paris, knowing that the natives would be allured to obedience by the splendour of the ceremony. In 1430 Henry was accordingly crowned, all the vassals who still continued under the English power swearing fealty and homage. But it was now too late to give a turn to the affairs of the English by the ceremonics of a coronation; the generality of the kingdom had declared against them, and the remainder only waited a convenient opportunity to follow the example. An accident which soon afterwards occurred, though it promised to advance the English cause in France, served in the end to render it odious, and conduced to the total evacuation of that country. The Duke of Burgundy, at the head of a powerful army, had laid siege to Compeigne; and the Maid of Orleans had thrown herself into the place, contrary to the wishes of the governor, who desired not the company of one whose authority would be greater than his own. The garrison, however, were rejoiced at her appearance, and believed themselves invincible under her protection. But their joy was of short duration; for Joan having the day after her arrival headed a sally, and twice driven the enemy from their intrenchments, was at last obliged to retire, placing herself in the rear, to cover the retreat of her forces. But in the end, attempting to follow the troops into the city, she found the gates shut, and the bridge raised, by order of the governor, who is said to have long wished for an opportunity of delivering her up to the enemy. Nothing could exceed the joy of the besiegers, in having taken a person who had been so long a terror to their arms. The service of *Te Deum* was publicly celebrated on the occasion; and it was hoped that the capture of this extraordinary person would restore to the English their former victories and successes. The Duke of Bedford was no sooner informed of her being taken, than he purchased the heroine of the Count Vendôme, who had made her his prisoner, and ordered her to be committed to close confinement.

The credulity of both nations was at this time so great, that any thing which coincided with their passions was not too absurd to gain belief. As Joan had a little before, when successful, been regarded as a saint, she was now, on her captivity, considered as a sorceress, forsaken by the demon who had given her a temporary and fallacious assistance. It was accordingly resolved in council to send her to Rouen to be tried for witchcraft; and the Bishop of Beauvais, a man wholly devoted to the English interest, having presented a petition against her, the university of Paris was mean enough to join in the request. Several prelates, amongst whom the Cardinal of Winchester was the only Englishman, were appointed her judges, and held their court at Rouen, where Henry then resided; whilst the maid, clothed in her military apparel, but loaded with irons, was produced before the tribunal. Her behaviour on this occasion in no way disgraced her former gallantry; she betrayed neither weakness nor womanish submission, but appealed to God and the pope for the truth of her former revelations. Nevertheless she was found guilty of heresy and witchcraft, and sentenced to be burned alive, the common punishment for such offences. But previously to the execution of this sentence, they resolved to make her abjure her former errors; and at length, by terror and rigorous treatment, so far prevailed, that her spirits were entirely broken by the hardships she was forced to endure. Her former visionary dreams began to vanish, and a gloomy distrust took place of her late inspirations; she publicly declared herself willing to recant, and promised never more to give way to the vain delusions which had hitherto misled her, and imposed upon the people. This was what her oppressors desired; and, willing to show some appearance of mercy, they changed her sentence into that of perpetual imprisonment, and to be fed for life on bread and water. But the rage of her enemies was not yet satiated. Suspecting that the female dress, which she had consented to wear, was disagreeable to her, they purposely placed in her apartment a suit of men's apparel, and watched the effect of this temptation. The despicable artifice succeeded. Joan, struck with the sight of a dress in which she had gained so much glory, immediately threw off her penitent robes, and put on the forbidden garment. Her enemies caught her equipped in this fashion; and her imprudence was considered as a relapse into her former transgressions. No recantation would now suffice, no pardon could now be granted. She was condemned to be burned alive in the market-place of Rouen; and this disgraceful sentence was executed with most rigorous severity.

One of the first misfortunes which befel the English after this sacrifice was the defection of the Duke of Burgundy, who had for some time seen the error of his conduct, and wished to break an unnatural connection, which only served to involve his country in ruin. A treaty was therefore concluded between him and Charles, in which the former agreed to assist him in driving the English out of France. This proved a mortal blow to the cause of the latter; and such were its effects upon the populace of London when informed of it, that they killed several of the Duke of Burgundy's subjects who happened at the time to be living amongst them. It might perhaps also have hastened the Duke of Bedford's death, who died at Rouen a few days after the treaty had been concluded; and the Earl of Cambridge was appointed his successor to the regency of France. From this period the English affairs were irretrievably ruined. The city of Paris returned once more to a sense of its duty, and Lord Willoughby, who commanded it, was contented to stipulate for the safe retreat of his troops to Normandy. Thus ground was continually, though slowly, gained by the French; and notwithstanding that their fields were laid waste, and their towns depopulated, they yet found protection in the weakness and divisions of the English. At length both parties began to grow weary of a war, which, though carried on feebly, was still a burden greater than either could support. But the terms of peace insisted upon by both were so exorbitant that little hopes of an accommodation could reasonably be entertained. In 1443, therefore, a truce for twenty-two months was concluded, which left every thing between the parties on the footing upon which it actually stood. And no sooner had this been agreed upon, than Charles applied himself with great industry and judgment to repair the numberless evils to which, from the continuance of wars both foreign and domestic, his kingdom had so long been exposed. He established discipline amongst his troops, and justice amongst his governors; he revived agriculture, and repressed faction. Having prepared once more for taking the field, he seized the first favourable opportunity to break the truce. Normandy was at the same time invaded by four powerful armies; one commanded by Charles himself, a second by the Duke of Bretagne, a third by the Count of Alençon, and a fourth by the Count Dunois. Every place opened its gates almost as soon as the French appeared before them. Rouen was the only city which threatened to hold out; but the inhabitants clamoured so loudly for a surrender, that the Duke of Somerset, who commanded the garrison, was obliged to capitulate. The battle, or rather skirmish, of Fourmingi, was the last stand which the English made in defence of their French dominions; but here they were put to the rout, and above a thousand slain. Normandy and Guienne, which had so long acknowledged subjection to England, were lost in the space of a year; and the English saw themselves entirely dispossessed of a country which for above three centuries they had considered as annexed to their native dominions. Of all their conquests Calais alone remained to them; but this was a small compensation for the blood and treasure which had been lavished in France.

In the year 1450, accordingly, the power of the English in France was entirely destroyed; and Charles obtained the surname of Victorious, on account of the vigour which he had shown in expelling the invaders of his country. But his satisfaction was greatly diminished by domestic misfortunes. The dauphin, forgetting the allegiance and filial duty which he owed to his father, had already impeded his conquests by his seditious intrigues. He had used every effort to thwart the designs of the king's ministers, and it was even supposed that he had destroyed by poison Agnes Soreille, his father's favourite mistress. He had also married Charlotte, daughter of the Duke of Savoy, which Charles had resented by a declaration of war against the duke; but he had been persuaded to recall this denunciation, in order to prosecute the war against Guienne. At length, weary of the disobedience of his son, he commanded him to be arrested; but Louis, informed of his design, withdrew to Franche Comté, and afterwards to Brabant, where the Duke of Burgundy, then sovereign of the country, ordered him to be supplied with every necessary, and treated with all imaginable respect. The duke, however, refused to see him until he had obtained the approbation of his father; upon which Louis employed himself in sowing dissension between his benefactor and the Count of Charolois, his son, at the very time that he himself was receiving a pension of twelve thousand crowns annually from the father. He thus destroyed the domestic peace of his benefactor, whilst his unnatural conduct created continual suspicions in the mind of his father. Being repeatedly informed that his own domestics, along with his undutiful son, were in a conspiracy against his life, the miserable monarch lived in continual fear of being poisoned, and, having none in whom he could repose confidence, obstinately refused for some days to receive any sustenance; and when at last prevailed upon by the importunities of his attendants to take some food, his stomach had become incapable of receiving it, and he died of inanition, in the year 1461. His body, neglected by his unnatural son, was interred at the expense of Tannegui de Chastel, who had ever been his faithful companion.

Louis XI.

On the death of Charles, his son Louis succeeded to the throne to which he had so long aspired. He was reckoned one of the greatest politicians that ever existed, though his character was not upon that account the more amiable; on the contrary, there are few princes whose character appears in a more detestable light. So destitute was he of natural affection, that he did not even attempt to conceal his joy at his father's death. He pretended much friendship for the Count of Charolois, son to the Duke of Burgundy, on account of the protection which he had received at his father's court, and even conferred upon him a pension of twelve thousand crowns annually. But all this show of affection soon degenerated into a mortal aversion upon both sides. Some differences which took place between the courts of France and Castille produced an interview between the two monarchs, Louis, and Henry surnamed the Impotent. They met at Mauleon, on the confines of Navarre; but their negotiations came to nothing, and they parted with a feeling of mutual contempt; Henry despising the mean and sordid appearance of Louis, and the latter in his turn deriding the gaudy magnificence of Henry. In his negotiations with the Duke of Burgundy, Louis proved more successful, having persuaded him to restore some towns situated on the river Somme which had been ceded by Charles VII., and by the possession of which the duke was in effect master of Picardy. This cession was opposed by the Count of Charolois; but Louis, by corrupting John de Croy, the duke's minister, succeeded in his object, and for the sum of four hundred thousand crowns the cities were delivered to him. In this transaction, by which he effectually ensured the hatred of Charolois, the duplicity of Louis was eminently displayed; for though he had agreed to retain in those towns the officers appointed by the duke, he had no sooner obtained possession than he displaced all of them, and appointed others in their stead.

The duchy of Bretagne was at this time governed by Francis, a weak but generous prince, whose defect of capacity was supplied by the abilities of his ministers. This prince Louis had insulted in the grossest manner; and as Francis found himself unable alone to oppose such a powerful adversary, he formed a close alliance with the Duke of Burgundy and the Count of Charolois, who had also been grievously offended by Louis. The confederacy was joined by several of the principal French nobility, who had been oppressed by the king; and though the secret was confided to upwards of five hundred persons, not one of them ever divulged it. Finding matters becoming very critical, Louis marched with an army towards the capital, which the Count of Charolois had already threatened; and a battle ensued, in which both princes exerted themselves to the utmost, though their valour was but ill seconded by the bravery of their troops. About fifteen hundred men perished on each side, but the Count of Charolois remained master of the field. Louis, however, after this engagement entered the capital, where he endeavoured, by every kind concession, to conciliate the affection of his subjects; and in this he succeeded so well, that though the army of the insurgents was soon augmented to a hundred thousand men, they were unable to make themselves masters of the city. At last a treaty was concluded between Louis and the Count of Charolois, by which the latter obtained the towns which had been formerly ceded, with the districts of Boulogne, Guisne, Peronne, Mondidior, and Roye, as a perpetual inheritance for himself; and by granting favours to the other confederates, the league was completely broken. But as soon as Louis found himself freed from danger, he protested against the whole treaty, as contrary to the interest of his crown; and therefore waited the first favourable opportunity to crush one by one those who by their united efforts had been ready to destroy him. The Duke of Bourbon, one of the most able of the confederates, was gained over, by bestowing upon him in marriage, Jane, a natural daughter of the king, with the dowry of Usson in Auvergne, together with Moras, Beaurepaire, and Cormillon in Dauphiné; and, by the discontents between the Dukes of Bretagne and Normandy, he was enabled to secure the neutrality of the former, and to recover from the latter some territories which had been unwillingly ceded to him.

In 1467, Philip duke of Burgundy, surnamed from his amiable qualities the Good, died, and left his dominions to his son Charles, count of Charolois. That fiery and impetuous prince, jealous of the growing power of France, and an implacable enemy of Louis, had entered into a secret treaty with Francis; but Louis had driven the Bretons from the posts which they had occupied in Normandy before the Duke of Burgundy could pass the Somme. The king, however, alarmed at the power of the confederates, concluded a peace with Bretagne; and, confiding in his talents for negotiation, determined to risk a personal conference with the Duke of Burgundy. This memorable interview took place in the year 1468; and Peronne, a fortified town of Picardy, belonging to the Duke of Burgundy, was appointed as the place of rendezvous. Thither the politic Louis repaired with a slender train, being attended only by Cardinal Balue, the Duke of Bourbon, and the Count de St Pol, constable of France; apparently without reflecting that he was entering a hostile city, where he might be confined for any length of time, or treated at the pleasure of the duke, who was his mortal enemy. Nor had he been long in the place when he began to perceive the extent of his error; and, by the daily concourse of Burgundian lords and other persons of rank, his avowed enemies, he became alarmed for his personal safety. His fears even suggested to him more serious apprehensions; and he requested apartments in the castle, where it was in the power of his rival in a moment to make him a close prisoner. This event accordingly took place, through the machinations of Louis himself. From the first his policy had been to keep the Duke of Burgundy constantly employed in domestic wars; and with this view he had, immediately before his interview with Charles, excited the inhabitants of Liège, who were subject to the Duke of Burgundy, to revolt against their sovereign. It is probable, indeed, that he did not anticipate that the effects of this treachery would so soon begin to manifest themselves. But at the very time when Louis was in the castle of Peronne, the people of Liège revolted, seized the bishop and governor, and having massacred many of the adherents of Charles, retired with their prisoners to the capital. Charles was soon informed of this massacre, with the additional circumstance that the emissaries of Louis were seen animating the insurgents to their work of destruction. Transported with rage, he commanded the gates of the castle to be shut and strictly guarded, and denounced the severest vengeance on the perfidious monarch who had so often deceived him. Louis, however, though justly alarmed for the consequences of this premature explosion, did not neglect to take the proper methods for securing himself. He distributed large sums of money amongst those officers to whom he imagined the duke was most inclined to pay any regard, and by splendid promises and presents endeavoured to allay the resentment of his other enemies. The resentment of Charles, as short-lived as it was violent, quickly subsided, and he entered into a treaty with the king, upon much the same terms as those which had been agreed to before. He insisted, however, that Louis should be present at the punishment he inflicted upon the inhabitants of Liège for the massacre they had committed; and this being acceded to, these princes in conjunction formed the siege of the city, which, notwithstanding the obstinate defence of the people, was at length taken by storm, and delivered over to a general massacre.

But, as might have been foreseen, the new alliance was soon dissolved. A confederacy against Louis, whom neither promises nor treaties could bind, was formed between his own brother the Duke of Normandy and the Duke of Burgundy; but before their measures were ripe for execution, Louis had already commenced hostilities. The Duke of Burgundy, as a peer of France, was summoned to parliament, and on his refusal the Constable St Pol made himself master of St Quintin. Several other cities were also reduced; and Baldwin, the natural brother of Charles, having, at the instigation of Louis, deserted his cause, the duke, notwithstanding his haughty spirit, was at last obliged to solicit a peace. This, however, was not of long duration. Charles, encouraged by the success of Edward IV. of England, his brother-in-law, began once more to league against Louis, with the Dukes of Bretagne and Guienne, the king's brother, and formerly Duke of Normandy, but who had exchanged that duchy for the territory of Guienne. But whilst the affairs of the confederates seemed likely to prosper, their prospects were suddenly overcast by the death of the Duke of Guienne, who was universally supposed to have been poisoned by order of Louis. The abbot of St Jean d'Angeli was fixed upon as the immediate perpetrator of the deed; but upon the day appointed for his trial he was found strangled in his cell; and as the dead tell no tales, Louis escaped the ignominy which the trial would probably have fixed on him, and was enabled to seize upon the territory of Guienne, which he annexed to the dominions of France.

By this unexampled villany Charles was so much exasperated that he vowed the most dreadful vengeance against the people of France, and threatened to sacrifice to the memory of the Duke of Guienne every one who fell into his hands. The citizens of Nesle were massacred without distinction of sex or age; but Beauvis resisted his attacks, after which Charles wreaked his fury on other places. Having entered the country of Caux, he reduced the cities of Eu and St Valery, burned Longueville, and wasted the whole country as far as Rouen. Louis, on the other hand, steady and constant in his designs, determined to dissolve the league between the Duke of Bretagne and Edward IV. of England, encamped with his army on the frontiers of Bretagne; whilst the duke, not meeting with the assistance promised by Edward, was obliged to consent to a truce for a year. In a little time, however, he began again to conspire with the king of England against Louis, and a powerful invasion was determined upon. Edward was to cross the sea with an army of ten thousand men, whilst Charles assembled all his forces to join in the attack. The former was also to set up a claim to the crown of France, and at all events to obtain the provinces of Normandy and Guienne; whilst the duke was to have Champagne, with some adjacent districts, and to free his dominions from homage; and neither party was to make peace without the consent of the other. It was supposed that the Duke of Bretagne would naturally accede to the confederacy; and the Count de St Pol, constable of France, had engaged to deliver up the town of St Quintin and others which he occupied on the river Somme. Louis, however, had still the good fortune to avoid the storm. Charles, instead of advancing to the assistance of Edward, who had entered France at the head of fifteen thousand archers and fifteen hundred men-at-arms, laid siege to the city of Nuiz on the Rhine; whilst the Constable St Pol, instead of delivering up the towns as he had promised, deceived his allies, and enabled Louis to dissolve a confederacy, which, had it been vigorously maintained, might have involved him in the greatest difficulties. To procure the departure of Edward, however, he was obliged to consent to a tribute of seventy-five thousand crowns, as well as to settle on the king himself fifty thousand crowns for life, and also to betrothe the dauphin to the eldest daughter of the king of England. The Duke of Burgundy exclaimed loudly against this treaty; but Edward presisting in his resolution, it was executed, at a place called Pecquigny, near Amiens, though in such a manner as showed the little confidence which the two sovereigns reposed in each other. A power was reserved by Edward for the Duke of Burgundy to accede to the treaty; but the latter haughtily replied, that he was able to support himself without the assistance of England, and that he would make no peace with Louis until three months after the return of Edward to his own country. To this resolution he adhered; but no sooner had the term expired than he concluded a truce with Louis for nine years. The Constable St Pol having rendered himself obnoxious to all parties by his complicated treachery, fled to Mons in Hainault; but the Duke of Burgundy had already consented to deliver him up, upon condition of receiving his estates and moveables as the price of his treachery.

Thus had Louis, without any other remarkable qualification than the mere arts of dissimulation and falsehood, got rid of all his enemies excepting the Duke of Burgundy, whose growing power rendered him a constant object of jealousy and terror. The imprudence and temerity of the latter, however, soon proved his ruin. Having rashly engaged in a war with the Swiss, he was defeated in the first encounter, with the loss of his military chest and baggage, and of his plate and jewels, supposed to be the richest in Europe. His disappointment on this occasion was so great that he was seized with a severe sickness; but he had hardly recovered when he resumed his insane scheme of conquering the Swiss. Another battle ensued, in which, after an obstinate struggle, Charles was defeated with the loss of eighteen thousand men; a disaster which was followed by the defection of most of his allies. The Duke of Lorraine recovered the city of Nancy, and the greater part of his dominions, which Charles had seized; whilst the latter, overwhelmed with shame and disappointment, spent his time in solitude and inactivity. But from this state he was at length roused by the misfortunes which fell upon him in rapid succession. He now invested the city of Nancy, acting in this, as in every other instance, against the advice of his best officers. The Duke of Lorraine advanced with a strong body of Germans to the relief of the city, whilst Charles had scarcely four thousand men to oppose him. His troops were therefore defeated, and he himself, notwithstanding the most heroic efforts of valour, was hurried away in the crowd. The Count de Campobasso, an Italian nobleman, in whom he put great confidence, but who was in reality a traitor, had deserted with about eighty men at the commencement of the action; but he left twelve or fifteen fellows about the duke's person, with strict orders to assassinate him in the tumult; and this order they punctually obeyed. The body of Charles was found two days after the battle, pierced with three wounds. This occurred in the year 1477.

The news of Charles's death was received with the most unfeigned joy by Louis, whose sole object it now was to unite the territories of the Duke of Burgundy to those of his own. This might be done in two ways; either by a match between the dauphin and Mary, the heiress of Burgundy, or by marrying this lady to the Duke of Angoulême, a prince of the blood royal of France. The king, however, to whom duplicity and falsehood seem to have been absolutely necessary, chose a third method, which was more agreeable to his character. The match with the dauphin, for various reasons, might be considered as impracticable. The disparity of age was great, the dauphin being only eight years old, and the princess twenty; the Flemings were besides averse to submit to a prince whose powerful resources would enable him to oppress their liberties. But, notwithstanding these difficulties, Louis chose to insist upon the match, at the same time that he endeavoured to make himself master of her dominions by force of arms. He addressed circular letters to the principal cities of Burgundy, representing that the duchy had been given by King John to the heirs male of his son Philip, and that now, when these were extinct by the death of Charles, the territory reverted of course to the crown; and, to render this argument more effectual, he corrupted the governors of some towns, and seduced the inhabitants of others, whilst he himself at the head of an army prepared to enforce obedience from those who could not be worked upon by other methods. And by these means the province of Burgundy was entirely reduced. But Flanders could not be brought under subjection either by fraud or force. In this, as on almost all other occasions, Louis displayed the most detestable falsehood, and the meanest treachery. In order to render Mary odious to her subjects, he negotiated with her ministers, and having prevailed on them to disclose the most important state secrets, he communicated their letters to the states of Flanders. This double treachery, however, did not answer his purpose. The two ministers he had betrayed were indeed put to death in the presence of their sovereign; but Mary was induced to bestow her hand upon the emperor Maximilian, and Louis had the mortification to find that all his arts had contributed only to aggrandise a rival power, whom he had already sufficient cause to dread. To repair this oversight, he entered into an alliance with Edward IV. of England, whom he had inspired with a jealousy of his brother Clarence; and thus a peace was concluded between the two monarchs, intended to continue during the life of each, and a year thereafter. Meanwhile the marriage of Mary with Maximilian secured the independence of Flanders; whilst the return of the prince of Orange to the party of that princess once more extended the war to the cities of Burgundy, and the French were on the point of being expelled from that country. But Maximilian unexpectedly made proposals of peace, and a truce was concluded, but without any term fixed for its duration, or without stipulations in favour of the Burgundians; so that the whole country was soon afterwards reduced by Louis.

The king being now freed from the apprehensions of foreign enemies, turned his vindictive disposition against his own subjects, and, under pretence of former rebellions, exercised the most insupportable tyranny. The principal victim of his sanguinary disposition was James d'Armagnac, duke of Nemours, one of the first noblemen in the kingdom, who had formerly been a zealous confederate in the league with Edward and Charles. This unfortunate nobleman, knowing that vengeance was determined on, fled to the fortress of Carlat, in the mountains of Auvergne, where he was besieged by the Seigneur de Beaujeu, who had married Anne the daughter of Louis. The place, however, being almost impregnable, his enemies were obliged to make the most solemn promises of safety in order to induce him to surrender, and he was at last persuaded to trust himself in the hands of the faithless tyrant. But no sooner had the latter got the unfortunate nobleman in his power than he shut him up in an iron cage in the Bastille, and reprimanded the judges for having released him from this close confinement during his examination. He was condemned to be beheaded; but the king's cruelty extended beyond the sentence, for he ordered the two sons of the duke, though yet in childhood, to be placed directly under the scaffold, that they might be covered with the blood of their father. Four thousand persons are supposed to have perished upon this occasion without any form or trial; and were it not for the concurring testimony of the historians of that age, the inhuman barbarities of this monster would scarcely be credited. By these means he broke the spirit of the French nobility, and gradually extended the power of the crown, until at last it was limited only by the pleasure of the sovereign.

In 1479, the emperor Maximilian, who had lightly abandoned the duchy of Burgundy when he might have reduced it, now renewed his claims when it was no longer in his power to enforce them. After a variety of actions of little note, and the destruction of cities on both sides, a battle was fought at Guinegate, where the Flemings were routed; but as the French pursued with too great ardour, the infantry of the enemy rallied, and the battle was renewed with great slaughter on both sides. A more decisive advantage was afterwards gained by the capture of eighty Flemish vessels, which induced that commercial people to think of peace.

In the mean time, Louis, after a life spent in continual deceit, hypocrisy, and cruelty, received warning of his approaching end by a fit of apoplexy, with which he was seized in the year 1480. He lay speechless and motionless for two days; after which he in some degree recovered, but never completely regained his health and strength. His illness, however, neither prevented him pursuing the schemes of his ambition, nor using the same methods as formerly to attain them. He seized, without any pretence, the estates of the Duke of Bourbon, the only nobleman in the kingdom whose power gave him any cause of suspicion; and, notwithstanding his assiduity for the interest of the dauphin, kept him a kind of prisoner in the castle of Amboise. He banished his own consort, the mother of the dauphin, to Savoy, and endeavoured to inspire the prince with aversion for her. By the death of Charles, titular king of Naples, and the last of the second house of Anjou, he became master of the county of Provence; but his satisfaction on this occasion was marred by a second stroke of apoplexy. Still, however, he revived, and again began to pursue his ambitious intrigues. The death of Mary of Burgundy, who perished by a fall from her horse, inspired him with new views; and he betrothed his son to the infant daughter of the emperor, by which means he deeply offended Edward IV. whose eldest daughter had previously been contracted to the dauphin, and a war would in consequence have ensued, had it not been for the death of the king of England. This event was ere long followed by that of Louis himself, who had in vain exhausted the skill of his physician, and wearied the clergy with prayers and processions to avert the impending stroke. He expired in the year 1483, after a reign of twenty-three years, during which he was detested by his subjects, whom he had continually oppressed, and equally dreaded and hated by his neighbours, whom he had constantly deceived. But, in spite of all this, he obtained from his holiness the title of Most Christian King, which his successors retained until the year 1830, when a sudden revolution placed a new and more popular dynasty on the throne. Notwithstanding the dark character of this prince, it must be allowed that he laid the foundations of the future greatness of the French monarchy. By his arts he deprived the common people of their liberty, depressed the power of the nobility, established a standing army, and even induced the states to render many taxes perpetual which formerly were only temporary. From this time the people became accustomed to submit entirely to the voice of their sovereign as their only legislator; and being always obedient in matters of the greatest consequence, they cheerfully contributed whatever sums were required to fulfil the king's pleasure.

Charles VIII.

Charles VIII. who succeeded his father Louis XI. in 1483, was only fourteen years of age at the time of his father's death. But though he might, even at that age, have ascended the throne without any material violation of the laws of France, yet it was judged necessary to appoint a regent, on account of the king's delicacy of constitution and want of education. Three competitors appeared as candidates for this important trust: John duke of Bourbon, a prince of the blood, and who had, till the age of sixty, maintained the most unblemished character; Louis duke of Orleans, presumptive heir to the crown, but who from his youth seemed incapable of undertaking so important an office; and Anne, the eldest daughter of Louis, to whom he had in the last moments of his life committed the charge of the kingdom. The claim of this lady was supported by the assembly of the states-general at Tours; and though she had only entered the twenty-second year of her age, the office, it appears, could not have been more properly bestowed. Being married to Peter of Bourbon, seigneur of Beaujeu, she was styled the Lady of Beaujeu; but she seems to have acted independently of her husband, who was a man but of moderate capacity.

Her first step was to ingratiate herself with the people by some popular acts, and particularly by punishing the instruments of her father's cruelties. One of these, Oliver le Dian, who, from the humble station of barber, had raised himself to the confidence and favour of the king, and had distinguished himself by the invention of new modes of torture, was publicly hanged. Another, named Jean Doyac, who by continual acts of violence and rapacity had oppressed the people, after being whipped in all the public places and squares of Paris, was condemned to have one of his ears cut off, and his tongue pierced through with a hot iron; upon which he was conveyed to his native city of Montferrand, where he was again whipped, and had his other ear cut off. Jacques Coitier, the physician of Louis, who had availed himself of the terror of death, with which the king was strongly influenced, to extort large sums of money from him, was ordered to account for the immense wealth he had acquired; but he prudently averted the danger by paying a fine of fifty thousand crowns. Thus the Lady of Beaujeu secured the affection of the people at large, and was equally successful in gaining those who had at first been averse to her government. The Duke of Bourbon was made constable, an office which he had long desired; the Duke of Orleans having behaved in such a manner as to exclude all hopes of favour. Incensed at the determination against him of a trifling dispute at tennis by the Lady of Beaujeu, he furiously had exclaimed, that whoever had decided in that manner was a liar if a man, or a strumpet if a woman. After this insolent declaration he fled to the castle of Beaujency, where, however, he was soon forced to surrender. He then applied to Henry VII. who had newly ascended the throne of England; but that prince, naturally cautious and deliberate, paid little attention to his application. On this he next made application to the court of Bretagne, where he was received with great marks of esteem, and began to entertain hopes of marrying the daughter of the duke; but he was looked upon with a jealous eye by the nobility, who entered into secret negotiations with Anne, and even solicited her to invade the country, stipulating that only a certain number of troops should enter the province, and that no fortified place should remain in the hands of the French; conditions which were indeed agreed to by the regent, though she determined to keep them no longer than it suited her purpose so to do. Bretagne was therefore invaded by four armies, each superior to the stipulated number, who quickly made themselves masters of the most important places in the country; whilst the troops of the duke retired in disgust, leaving the invaders to pursue their conquests as they pleased. Finding, however, that the entire subjection of their country was determined upon, the nobility at last began to exert themselves in its defence, and, inflamed by the enthusiasm of liberty, they raised an army of sixty thousand men, by which the French were compelled to abandon the siege of Nantes. But this proved only a transient gleam of success. Anne persevered in her design of completing the conquest of the country, and the state of Europe was at that time favourable to the design. Of all the European nations, England alone was then capable of affording effectual assistance; but the slow caution of Henry prevented him from giving the aid which in this case he ought to have afforded. The Bretons were thus left to defend themselves as they best could; and having ventured a battle, they were entirely defeated, most of their leaders being taken prisoners, whilst a small body of English who assisted them were entirely cut to pieces. The duke soon afterwards died by a fall from his horse, leaving his dominions to his daughter Anne, at that time only thirteen years of age. A marriage was now negotiated between this princess and Maximilian king of the Romans, who had previously been married to Mary of Burgundy; but, by reason of the poverty of that prince, it was never completed. The Lady of Beaujeu then determined to conclude a marriage between the young king of France and the duchess, though the former had already been married to Margaret of Austria, the daughter of Maximilian. But this marriage was not consummated, by reason of the tender age of the princess, who had been sent to Paris for her education, and for several years treated as queen of France; and in 1491 Margaret was returned, like rejected goods, to her father. Anne of Bretagne, however, long refused to violate the engagement into which she had entered; but at last, finding herself pressed on all sides, and incapable of resisting the numerous forces of France, she reluctantly consented to the match. Maximilian, whose proverty had prevented him from giving any assistance to his bride, or even from coming to see her, enraged at the double disgrace which he had suffered, began, when too late, to bethink himself of revenge. France was now threatened with an invasion by the united forces of Austria, Spain, and England. But this formidable confederacy was soon dissipated. Henry, whose natural avarice had induced him to withhold the necessary assistance, was bought off with the immediate payment of 745,000 crowns, and the promise of 25,000 annually ever afterwards; Ferdinand king of Spain had the counties of Roussillon and Cerdagne restored to him; whilst Maximilian was gratified by the cession of that part of Artois which had been acquired by Louis XI.

The young king of France agreed to these terms the more readily, that he was impatient to undertake an expedition into Italy, in order to conquer the kingdom of Naples, to which he laid claim. Most of his counsellors were opposed to this expedition; but the king was inflexible, even though Ferdinand king of Naples offered to do homage for his kingdom, and to pay him a tribute of fifty thousand crowns a year. He appointed the Duke of Bourbon regent in his absence, and then set out for Italy, with few troops, and but little money. On the march he fell ill of the small-pox, but in a short time recovered, and having entered Italy with a force of twelve thousand foot and six thousand horse, the greater part of which consisted of regular troops, he obtained the most surprising success, traversing the whole country in six weeks, and rendering himself master of the kingdom of Naples in less than a fortnight. To vulgar observers, his extraordinary good fortune seemed miraculous; and he was reckoned an instrument raised up by God to destroy the execrable tyrants by which Italy was at that time afflicted; and had Charles availed himself of this prepossession in his favour, and acted up to the character generally ascribed to him, he might have raised his name as high as that of any hero of antiquity. But his conduct was of a very different description. Instead of following up his successes, he amused himself with feasts and shows, leaving his power in the hands of favourites, who abandoned it to such as chose to purchase titles, places, or authority, at the rates imposed; and the whole force he proposed to leave in his newly conquered dominions amounted to no more than four thousand men. But whilst Charles was thus idly losing precious time, a league was forming against him at Venice, to which the pope, the emperor Maximilian, the archduke Philip, Ludovico Sforza, and the Venetians, were all parties. The confederates assembled an army of forty thousand men, commanded by Francis marquis of Mantua, and waited for the king in the valley of Fornova, in the duchy of Parma, into which he had descended with nine thousand men. On the 6th of July 1495 he attacked the allies, and, notwithstanding their great superiority of numbers, defeated them, with but little loss on his part. By this victory he got safe to France; but his Italian dominions were lost almost as soon as he departed. Some schemes were proposed for recovering these conquests, but they were never put in execution; and the king died of an apoplexy in 1498.

Louis XII.

By the death of Charles VIII. the crown of France passed from the direct line of the house of Valois, and Louis duke of Orleans succeeded to the throne. At the time of his accession he was in his thirty-sixth year, and had long been taught prudence in the school of adversity. During the administration of the Lady of Beaujeu he had been constantly in disgrace, and, after his connections with the Duke of Bretagne, had spent a considerable time in prison; and though afterwards set at liberty by Charles, he had never possessed any share of that monarch's confidence or favour. Towards the close of the preceding reign he fell under the displeasure of the queen; and afterwards continued at his castle of Blois till he was called thence to take possession of the throne. He had been married in early life, against his will, to Jane, the youngest daughter of Louis XI. a princess of an amiable disposition, but deformed in person, and supposed to be incapable of bearing children. He afterwards entertained thoughts of having his marriage dissolved, and was supposed to possess the affections of the Duchess of Bretagne before she became queen of France. After the death of her husband, that princess retired to Bretagne, where she pretended to assume independent sovereignty; but Louis having got his marriage with Jane dissolved by Pope Alexander VI. made proposals to the queen dowager, which were accepted without hesitation, though it was stipulated that, if she had two sons, the younger should inherit the duchy of Bretagne.

As Louis, while Duke of Orleans, had some pretensions to the crown of Naples, he now set about realizing them by conquest, and found circumstances favourable to his design. The pope, Alexander VI. was devoted to his interests, in the hope of getting his son Cæsar Borgia provided for. Louis had conciliated the friendship of the Venetians by promising them a part of the Milanese; he had also concluded a truce with the archduke Philip, and renewed his alliances with the crowns of England, Scotland, and Denmark. He then entered Italy with an army of twenty thousand men; and, being assisted by the Venetians, conquered one part of the duchy, whilst they conquered the other, the archduke himself being obliged to fly with his family to Inspruck. He then attacked Ferdinand of Spain with three armies simultaneously; but as none of these performed any thing remarkable, he was obliged to evacuate the kingdom of Naples in 1504. But in 1506 the people of Genoa revolted, drove out the nobility, chose eight tribunes, and declared Paul Nuova, a silk dyer, their duke; after which they expelled the French governor, and reduced a great part of the Riviera. This induced Louis to return into Italy, where, in 1507, he obliged the Genoese to surrender at discretion, and in 1508 entered into a league with the other princes who at that time desired to reduce the overgrown power of the Venetians. But Pope Julius II. who had been the first contriver of this league, soon repented of his contrivance, and declared that if the Venetians would restore the cities of Faenza and Rimini, which had been unjustly taken from him, he would be contented. This was refused, and in 1509 the forces of the republic received an entire defeat from Louis, in consequence of which they agreed to restore not only the two cities demanded by Pope Julius, but whatever else the allies required. The pope, instead of executing his treaties with his allies, made war on the king of France. Upon this Louis convoked an assembly of his clergy, at which it was determined that in some cases it was lawful to make war upon the pope. The king therefore declared war against his holiness, and committed the command of his army to the Marshal de Trivulce, who soon obliged the pope to retire to Ravenna. In 1511, Gaston de Foix, duke of Nemours, gained a great victory at Ravenna, but was himself killed in the engagement. After his death the army was disbanded for want of pay; and the French affairs in Italy, and indeed everywhere else, fell into great confusion. The duchy of Milan was recovered and lost again in a few weeks. Henry VIII. of England invaded France, and took Terruenne and Tournay; whilst the Swiss invaded Burgundy with an army of twenty-five thousand men. In this desperate situation of affairs the queen died, and Louis put an end to the opposition of his most dangerous enemies by negotiating marriages. To Ferdinand of Spain he offered his second daughter for either of his grandsons, Charles or Ferdinand, and promised to renounce, in favour of that marriage, his claims on Milan and Genoa. This proposal was accepted; and Louis himself married the princess Mary, sister of Henry VIII. of England. But he did not long survive this marriage; and having died on the 2d of January 1514, he was succeeded by Francis I. count of Angoulême and duke of Bretagne and Valois.

Francis I.

The new king had no sooner been seated on the throne than he resolved to undertake an expedition into Italy. In this he was at first successful, having defeated the Swiss at Marignon, and reduced the duchy of Milan. In 1518 the emperor Maximilian having died, Francis showed himself ambitious of becoming his successor, and thereby restoring to France a splendid title which had been so long lost. But Maximilian, before his death, had exerted himself so much in favour of Charles V. of Spain, that Francis found it impossible to succeed; and from that time an irreconcilable hatred took place between these two monarchs. In 1521 this bad feeling produced a war, which, however, might perhaps have been terminated, if Francis could have been prevailed upon to restore the town of Fontarabia, which had been taken by his admiral Bonivet. But this being refused, hostilities were renewed with greater vigour than ever; nor were they concluded till France had been brought to the very brink of destruction. The war was continued with various success until the year 1524, when Francis having invaded Italy, and laid siege to Pavia, was utterly defeated before that city, and taken prisoner, on the 24th of February. This disaster threw the whole kingdom into the utmost confusion. The Flemish troops made continual inroads; many thousand boors assembled in Alsace, in order to invade the country from that quarter; Henry VIII. had assembled an army, and also threatened France on the side of the Channel; and a party was formed in the kingdom to dispossess the duchess of the regency, and confer it upon the Duke de Vendôme. This prince, however, who after the constable was the head of the house of Bourbon, proceeded to Lyons, where he assured the regent that he had no view but for her service and that of his country; and he then formed a council of the ablest men of the kingdom, of which the queen appointed him president. Henry VIII. acting under the influence of Cardinal Wolsey, resolved not to oppress the oppressed, and therefore assured the regent that she had nothing to fear from him; at the same time that he advised her not to consent to any treaty by which France was to be dismembered. To the emperor, however, he is said to have held different language, telling him that the time had now arrived when this puissant monarchy lay at their mercy, and that therefore an opportunity so favourable should not be lost; that, for his part, he would be content with Normandy, Guienne, and Gascony; that he trusted the empire would make no scruple of owning him as king of France; and that he expected the emperor would make a right use of his victory, by entering Guienne in person, in which case he was ready to bear half the expenses of the war. Alarmed at these proposed conditions, and not caring to have Henry as a neighbour, the emperor agreed to a truce with the regent for six months. In Picardy the Flemings were repulsed; whilst the Count de Guise and the Duke of Lorraine, with a handful of troops, defeated and cut to pieces the German peasants.

In the mean time Francis was detained a captive in Italy; but being wearied of his confinement in that country, and the princes of Italy having begun to cabal for his deliverance, he was carried to Madrid, where, on the 14th of January 1525, he signed a treaty, the principal articles of which were, that he should resign to the emperor the duchy of Burgundy in full sovereignty; desist from the homage which the emperor owed him for Artois and Flanders; renounce all claim to Naples, Milan, Asti, Tournay, Lisle, and Hesdin, and certain other places; persuade Henry d'Albert to resign the kingdom of Navarre to the emperor, or at least to give him no assistance; restore within forty days the Duke of Bourbon and all his party to their estates; pay the king of England five hundred thousand crowns which the emperor owed him; and, when the emperor went to Italy to receive the imperial crown, to lend him twelve galleys, four large ships, and a land force, or instead of it two hundred thousand crowns. All these articles the king of France promised on the faith and honour of a prince to execute, or, in case of non-performance, to return as a prisoner into Spain. But, notwithstanding these professions, Francis had already protested, before certain notaries and witnesses in whom he could confide, that the treaty he was about to sign was compulsory, and therefore null and void. On the 21st of February the emperor released him from his prison, in which he had been closely confined ever since his arrival in Spain; and, after receiving from his own lips the strongest assurances that he would literally fulfil the terms of the treaty, sent him under a strong guard to the frontiers, where he was exchanged for his two eldest sons, who were to remain as hostages for his fidelity.

But when the king returned to his dominions, his first care was to get himself absolved by the pope from the oaths which he had taken; and when this had been accomplished, he entered into a league with the pontiff, the Venetians, the Duke of Milan, and the king of England, for preserving the peace of Italy. In the month of June he received publicly remonstrances from the states of Burgundy, in which they told him without ceremony, that by the treaty of Madrid he had done what he had no right to do, in breach of the laws and his coronation oath; and that if he persisted in his resolution of placing them under a foreign yoke, they must appeal to the general states of the kingdom. The viceroy of Naples and the Spanish ministers were present at these remonstrances, and, perceiving the end at which the king aimed, expostulated with him in pretty warm terms. The viceroy, in fact, told him that he had now nothing left but to keep his royal word in returning to the castle of Madrid, as his predecessor John had done in a similar case. To this Francis replied, that John acted rightly, because he returned to a king who had treated him like a king; but that at Madrid he had received such usage as would have been unbecoming to a gentleman, and he had often declared to the emperor's ministers that the terms they extorted from him were unjust and impracticable. However, he was still willing to do all that was fit and reasonable, and to ransom his sons at the rate of two millions of gold in lieu of the duchy of Burgundy.

Hitherto the treaty for tranquillizing Italy had been kept secret, in hopes that some mitigation of the treaty of Madrid would have been obtained; but now it was judged expedient to publish it, though the viceroy of Naples and the Spanish lords still remained at the French court. The emperor was to be admitted as a party to this treaty, provided he accepted the king's offer of two millions for the release of his children, and left the Duke of Milan and other Italian princes in quiet possession of their dominions. But it is the common misfortune of all leagues, that the powers which enter into them keep only their own particular interests in view, and thus defeat the general intention of the confederacy. In the present instance, the king's great aim was to obtain his children upon the terms he had proposed; and he was desirous of knowing what hopes there were of accomplishing that object, before he acted against the monarch who had them in his power. Thus the Duke of Milan and the pope were both sacrificed. The former was obliged to surrender to the Duke of Bourbon, and the latter was surprised by the Colonnas; disasters which would have been prevented if the French succours had entered Italy in time. See ITALY.

According to an agreement which had been entered into between Francis and Henry, their ambassadors entered Spain, attended each of them by a herald, to summon the emperor to accept the terms which had been offered him, or in case of refusal to declare war. But as the emperor's answer was foreseen in the court of France, the king had previously called together an assembly of the Notables, to whom he proposed the question, whether he was bound to perform the treaty of Madrid? or whether, if he did not perform it, he was obliged in honour to return to Spain? To both these questions the assembly answered in the negative, declaring that Burgundy was united to the crown of France, and could not be separated by the king's own authority; that his person also was the property of the public, of which therefore he could not dispose; but as to the two millions, which they looked upon as a just equivalent, they undertook to raise it for his service. When the ambassadors delivered their propositions, Charles treated the English herald with respect, and the French herald with contempt; a circumstance which induced Francis to challenge the emperor. But all differences were at length adjusted, and a treaty concluded at Cambray on the 5th of August 1528. By this treaty, instead of actual possession, the emperor contented himself with reserving his right to the duchy of Burgundy, and the payment of the two millions of crowns already mentioned. Of these, he was to receive one million two hundred thousand in ready money; the lands in Flanders belonging to the house of Bourbon, valued at four hundred thousand, were to be delivered up; and the remaining four hundred thousand were to be paid by France in discharge of the emperor's debt to England. Francis was likewise to pay the penalty of five hundred thousand crowns which the emperor had incurred by not marrying his niece the Princess Mary of England, and further to release a rich jewel which many years before had been pawned by the house of Burgundy for fifty thousand crowns. The town and castle of Hesdin were also surrendered, together with the sovereignty of Flanders and Artois, and all the king's pretensions in Italy. As for the allies of France, they were, as usually happens, abandoned to the emperor's mercy, without the least stipulation in their favour; but Francis consoled himself for this disgraceful dereliction by protesting against the validity of the treaty before he ratified it, as did also his attorney-general before he registered it in parliament, though in both instances with the greatest secrecy imaginable. The remainder of this reign was not distinguished by any events of consequence. The war was renewed by Charles, who invaded France, though without success; nor was peace fully established until the death of the French king, which happened on the 3d of March 1547.

Henry II. Francis was succeeded by his son Henry II. who ascended the throne at the age of twenty-nine. In the beginning of his reign an insurrection broke out in Guienne, owing to the oppressive conduct of the officers who levied the salt-tax, and was not put down without considerable difficulty. In 1548 the king began to enforce the edicts issued against the Protestants with the utmost severity; and, thinking even the clergy too mild in the prosecution of heresy, he for that purpose erected a chamber composed of members of the parliament of Paris. At the queen's coronation, which happened this year, he caused a number of Protestants to be burned, and was himself present at the horrid spectacle, which, however, shocked him so much that he never forgot it. In 1549 a peace was concluded with England, and Henry purchased from the latter Boulogne, for the sum of four hundred thousand crowns, one half to be paid on the day of restitution, and the other half a few months afterwards. Scotland was included in the treaty, and the English restored some places which they had taken in that country. This was the most advantageous peace which France had hitherto concluded with England; the vast arrears due to that crown being in effect remitted, and the pension, which looked so like tribute, being tacitly extinguished. The Earl of Warwick himself, who had concluded the peace, was in fact so sensible of the disgrace suffered by this nation on this occasion, that he pretended to be sick, in order to avoid setting his hand to so scandalous a compact. This year, also, an edict was made to restrain the extravagant remittances which the clergy had been in use to make to Rome, and for correcting other abuses committed by the papal notaries. With this edict Pope Julius III. was highly displeased; and the following year, 1550, war was declared by the king of France against the pope and the emperor, on the ground that Henry protected Octavio Farnese, duke of Parma, whom the pope was desirous of depriving of his dominions. In this war the king was threatened with the censures of the church; but as the emperor soon found himself in such danger from these new enemies, that he could not support the pope as he intended, the latter was obliged to sue for peace. Henry continued the war against the emperor with success; and having reduced the cities of Toul, Verdun, and Metz, entered the country of Alsace, and reduced all the fortresses between Hagenau and Wissenburg. He failed, however, in his attempt on Strasburg; and was soon afterwards obliged by the German princes and the Swiss to desist from all further conquests on that side. This war continued with little interruption, and but small success upon the part of the French, till the year 1557, when a peace was concluded; and soon afterwards the king was killed at a tournament by the Count de Montgomery, one of the strongest knights in France, who had done all he could to avoid this encounter.

The reign of his successor Francis II. was remarkable only for the persecution of the Protestants, which became so grievous that they were obliged to take up arms in their own defence. This occasioned several civil wars, the first of which commenced in the reign of Charles IX. who succeeded to the throne in 1560. This contest continued until the year 1562, when a peace was concluded, by which the Protestants were to have a complete amnesty, and enjoy entire liberty of conscience. But in 1565 the war broke out afresh, and was continued with little interruption until 1569, when peace was again concluded, upon terms advantageous to the Protestants.

Charles IX.

After this, Charles, who had now taken the government into his hands, caressed and flattered the Protestants in an extraordinary manner. Their destruction had been resolved on, but as they were too powerful to be openly attacked, it was judged necessary to lull them into security by means of systematic dissimulation, and to fall upon them when off their guard. With this view the king invited to court Admiral de Coligni, the head of the Huguenot party, and so effectually cajoled him, that the gallant veteran was lulled into a fatal security, notwithstanding the warnings given by his friends that the king's fair speeches were by no means to be trusted. And he had soon reason to repent his confidence. On the 22d of August 1571, as he was returning from court to his lodgings, he received a shot from a window, which carried away the second finger of his right hand, and wounded him grievously in the left arm. This he himself ascribed to the malice of the Duke of Guise, the head of the Catholic party. After dinner, the king went to pay him a visit, and amongst other things observed, "you have received the wound, but it is I who suffer;" at the same time desiring that he would order his friends to establish themselves around his residence, and promising to prohibit the Catholics from entering that quarter after dark. This satisfied the admiral of the king's sincerity, and prevented him from complying with the wishes of his friends, who desired to carry him away, and were strong enough to have forced a passage out of Paris if they had attempted it.

In the evening of the same day, the queen-mother, Catharine de' Medicis, held a cabinet council to fix the execution of the massacre of the Protestants, which had long been meditated. The persons of whom this council was composed, were Henry duke of Anjou, the king's brother; Gonzagua duke of Nevers; Henry of Angoulême, grand prior of France, the bastard brother of the king; Marshal de Tavannes; and Albert de Gondi, count de Retz: and the direction of the whole was intrusted to the Duke of Guise, to whom the administration had during the former reign been entirely confided. The guards were appointed to be in arms, and the city officers were ordered to predispose the militia to execute the king's orders, of which the signal was to be the ringing of a bell near the Louvre. It is said, indeed, that when the fatal hour, which was that of midnight, approached, the king grew undetermined, and expressed great horror at the idea of shedding so much blood, especially considering that the people about to be destroyed were his subjects, who had come to the capital at his command, and in dependence on his word, and particularly the admiral, whom he had so lately detained by his caresses. The queen-mother, however, reproached him with cowardice, and representing to him the danger which he incurred from the Protestants, at last induced him to consent. According to others, the king himself urged on the massacre, and, when it was proposed to him only to take off a few of the leaders, exclaimed, "If any are to die, let there not be one left to reproach me with breach of faith."

As soon as the signal had been given, a body of Swiss troops, headed by the Duke of Guise and the Chevalier d'Angoulême, accompanied by many persons of quality, attacked the admiral's house; and having forced open the doors, the foremost of the assassins rushed into the apartment. One of them asked if he was Coligni; to which he answered that he was, adding, "Young man, respect these gray hairs." The assassin replied by running him through the body with a sword. The Duke of Guise and the chevalier growing impatient below stairs, loudly demanded if the business was done; and being answered in the affirmative, commanded the body to be thrown out at the window. As soon as it fell on the ground, the chevalier, or, as some say, the Duke of Guise, wiped the blood from the face, and kicked it with his foot. The body was then abandoned to the fury of the populace, who, after a series of indignities, dragged it to the common gallows, to which they chained it by the foot, whilst the head, being cut off, was carried to the queen-mother, who, it is said, caused it to be embalmed and transmitted to Rome. The king himself went to see the body hanging upon the gibbet, where a fire being kindled under it, part was burned, and the rest scorched. In the Louvre, the gentlemen belonging to the king of Navarre and the prince of Condé were murdered under the king's own eye. Two of them, wounded and pursued by the assassins, fled into the bedchamber of the queen of Navarre, and jumped upon her bed, beseeching her to save their lives; and as she proceeded to solicit this favour of the queen-mother, two more, under the same circumstances, rushed into the room, and threw themselves at her feet. The queen-mother repaired to the window to enjoy these dreadful scenes; and the king, seeing the Protestants who lodged on the other side of the river flying for their lives, called for his long gun, and fired upon them. In the space of three or four days many thousands were destroyed in the city of Paris alone. Peter Ramus, professor of philosophy and mathematics, after being robbed of all he had, was cruelly mutilated in the abdomen, and thrown from a window. During the first two days, the king denied that the massacre was done by his orders, and threw the whole blame upon the house of Guise; but on the 28th of August he went to the parliament, avowed the incomparable atrocity, was complimented on it, and directed a process against the admiral, by which he was stigmatized as a traitor. Two innocent gentlemen suffered as his accomplices in a pretended plot against the life of the king, in order, as was alleged, to place the crown on the head of the prince of Condé. They were executed by torch light; and the king and the queen-mother, together with the king of Navarre and the prince of Condé, who were forced to be present, were spectators of the horrid deed. Nor was the massacre confined to the city of Paris alone. On the eve of St Bartholomew, orders had been sent to the governors of provinces, either to fall upon the Protestants themselves, or to let loose the people on them; and though an edict was published before the end of the week, assuring them of the king's protection, and protesting that he by no means designed to exterminate them on account of their religion, yet private orders were issued of a directly contrary nature, in consequence of which the Matins of Paris were repeated in Meaux, Orleans, Troyes, Angers, Toulouse, Rouen, and Lyons; so that in the space of about two months thirty thousand Protestants were butchered in cold blood.[1] The next year Rochelle, the only fortress which the Protestants occupied in France, was besieged and taken, but not until twenty-four thousand of the besiegers had fallen before its walls. After this a pacification ensued, on terms nominally favourable to the Protestants; but as a body they had been destroyed; St Bartholomew had completely broken their power; and those who survived the massacre had no alternative but to accept whatever terms were offered them.

This year the Duke of Anjou was elected king of Poland, and soon afterwards set out to take possession of his new kingdom. Charles accompanied him to the frontiers; but during the journey he was seized with a slow fever, which from the commencement portended death. He lingered for some time under the most terrible agonies both of mind and body; and at last expired on the 30th of May 1572. It is said that ever after the massacre of St Bartholomew, this prince had a fierceness in his looks, and a deadly paleness in his cheeks; he slept little, but never soundly, and waked frequently in agonies, which the soft music employed to lull him into repose often failed to allay. The sting of remorse was deeply infixed in his soul, and in a little time its poison drank up his spirit.

Henry III.

During the first years of the reign of Henry III. who succeeded his brother Charles IX. the war with the Protestants was carried on with indifferent success upon the part of the Catholics. In 1575 a peace was concluded, which by way of eminence was called the Edict of Pacification. The treaty consisted of no fewer than sixty-three articles, the substance of which was, that liberty of conscience, and the public exercise of religion, were granted to the reformed, without any restriction except that they were not to preach within two leagues of Paris, nor in any other part where the court might be. The judgments against the admiral, and others who had either fallen in the war or been executed, were also reversed; and eight cautionary towns were given up to the Protestants.

This edict induced the Guises to form an association in defence (as was pretended) of the Catholic religion, which afterwards became known by the name of the Catholic League. This confederacy, though the king was mentioned with respect, struck at the very root of his authority; for, as the Protestants had their leaders, so the Catholics were in future to be entirely dependent on the chief of the league, and to execute whatever he commanded, for the good of the cause, without exception of persons. In order to neutralize the bad effects of this association, the king, by the advice of his council, declared himself the head of the league; and in this character he recommenced the war against the Protestants, which was not extinguished as long as he lived. In the mean time the faction of the Duke of Guise resolved to support Charles cardinal of Bourbon, a weak old man, as presumptive heir of the crown; and having entered into a league with Spain, they in 1584 took up arms against the king; and though peace was concluded the same year, yet in 1587 they again proceeded to such extremities that the king was forced to fly from Paris. Another reconciliation was soon afterwards effected; but it is generally believed that the king from this time resolved on the destruction of the Duke of Guise. Accordingly, finding that this nobleman still behaved with his usual haughtiness, the king caused him to be stabbed by his guards on the 23d of December 1587. But Henry himself did not long survive this deed, being stabbed by one Jacques Clement, a Jacobin monk, on the first of August 1588. His wound was not at first thought mortal; but his frequent swooning quickly discovered his danger, and he died the following morning, in the thirty-ninth year of his age and sixteenth of his reign.

Henry IV.

Before the king's death he had nominated Henry Bourbon, king of Navarre, as his successor on the throne of France; but as the latter was a Protestant, or at least one who greatly favoured their cause, he was at first owned by very few except those of the Protestant party. He met with the most violent opposition from the members of the Catholic League, and was often reduced to such extremities that he went to people's houses under colour of visits, when in reality he had not a dinner in his own. By his activity and perseverance, however, he was at last acknowledged by the whole kingdom, a consummation to which his abjuration of the Protestant religion not a little contributed. As the king of Spain had laid claim to the crown of France, Henry no sooner found himself in a fair way of being firmly seated on the throne, than he formally declared war against that kingdom; and having proved successful, he, in 1597, entered upon the quiet possession of his kingdom.

The king's first care was to put an end to the religious disputes which had so long distracted the kingdom. For this purpose he passed the famous edict, dated at Nantes, 13th April 1598, which re-established in a solid and effectual manner all the favours which had been granted to the reformed, and added some which had not been thought of before, particularly that of allowing them a free admission to all employments of trust, profit, and honour, establishing chambers in which the members of the two religions were equal, and the permitting their children to be educated without restraint in any of the universities. Soon afterwards he concluded peace with Spain upon advantageous terms; an event which afforded him an opportunity of restoring order and justice throughout his dominions, repairing the ravages occasioned by the civil war, and abolishing all those innovations which had been made, either to the prejudice of the prerogatives of the crown or the welfare of the people. His schemes of reformation, indeed, he intended to have carried much beyond the boundaries of France. If we may believe the Duke of Sully, he had in view no less a design than the new-modelling of all Europe. He imagined that the European powers might be formed into a kind of Christian republic, by rendering them as nearly as possible of equal strength; and that this republic might be maintained in perpetual peace, by bringing all their differences to be decided before a senate of wise, disinterested, and able judges. The number of these powers was to be fifteen, the Papacy, the empire of Germany, France, Spain, Hungary, Great Britain, Bohemia, Lombardy, Poland, Sweden, Denmark, the republic of Venice, the States General, the Swiss Cantons, and the Italian commonwealth, comprehending the states of Florence, Genoa, Lucca, Modena, Parma, Mantua, and Monaco. In order to render the states equal, the empire was to be given to the Duke of Bavaria; the kingdom of Naples to the pope; that of Sicily to the Venetians; Milan to the Duke of Savoy, who, by this acquisition, was to become king of Lombardy; the Austrian Low Countries were to be added to the Dutch republic; and Franche Comté, Alsace, and the country of Trent, were to be given to the Swiss. With the view, it is now thought, of executing this grand project, but under pretence of reducing the exorbitant power of the house of Austria, Henry made immense preparations both by sea and land; but if he really entertained such a design, he was prevented by death from attempting its execution. He was stabbed in his coach by Ravaillac, on the 12th of May 1608.

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[1] Dr Lingard has in vain attempted to extenuate the guilt and dispute the leading facts of this atrocious massacre. All his learning and ingenuity have been foiled in the attempt; and the result of his controversy with Mr Allen has only been to confirm and settle general belief on the subject. The "Vindication" of the able writer last mentioned is a masterpiece of historical research and strong reasoning.

Louis XIII.

On the death of Henry IV. the queen-mother assumed the regency. Ravaillac was executed, after suffering the most exquisite tortures. It is said that he made a confession, which was so written by the person who took it, that not a word of it could be read, and thus his instigators and accomplices were never discovered. The regency, during the minority of Louis XIII. was only remarkable for the cabals and intrigues of the courtiers. In 1617 the king assumed the government, banished the queen-mother to Blois, caused Marshal d'Ancre, her favourite, to be put to death, and chose as his minister the celebrated Cardinal Richelieu. In 1620 a new war broke out between the Catholics and Protestants, which was carried on with the greatest fury on both sides. Of this we have an instance in what took place at Negreplisse, a town in Quercy. This place was besieged by the king's troops, and it was resolved to make an example of the inhabitants, who had absolutely refused to surrender upon any terms. They defended themselves with desperate valour; and when at last the city was taken by storm, they were all massacred, without distinction of rank, sex, or age. But both parties soon became weary of so destructive a war; and a peace was concluded in 1621, by which the edict of Nantes was confirmed. This treaty, however, was not of long duration. A new war broke out, which lasted till the year 1628, when the edict of Nantes was again confirmed; but the Protestants were deprived of their cautionary towns, and consequently of the power of defending themselves in time to come. This put an end to the civil wars on account of religion, in which a million of men lost their lives, 150,000,000 livres were expended, and nine cities, four hundred villages, two thousand churches, two thousand monasteries, and ten thousand houses, were burned or otherwise destroyed. The next year the king was attacked with a slow fever, extreme depression of spirits, and swelling in the stomach and abdomen. But the year following he recovered, to the great disappointment of his mother, who had hopes of regaining her power. Meanwhile Richelieu, by a masterly system of policy, supported the Protestants of Germany and Gustavus Adolphus against the house of Austria; and, after suppressing all the rebellions and conspiracies which had been formed against him in France, died some months before Louis XIII. in 1643.

Louis XIV.

Louis XIV. surnamed the Great, succeeded to the throne of France when he was only five years of age. During his minority, the kingdom, under the administration of his mother, Anne of Austria, was thrown into confusion by the factions of the great, and the divisions between the court and parliament. The prince of Condé blazed like an erratic star; sometimes a patriot, sometimes a courtier, sometimes a rebel. He was opposed by Turenne, who from being a Protestant had become Catholic. The kingdom of France was involved both in civil and domestic wars; but the queen-mother having made choice of Cardinal Mazarin as her first minister, the latter found means to turn the arms even of Cromwell against the Spaniards, and so effectually divided the domestic enemies of the court, that when Louis assumed the reins of government he found himself the most absolute monarch who had ever sat upon the throne of France. On the death of Mazarin he had the good fortune to put the administration of affairs into the hands of Colbert, a minister who formed new systems for improving the commerce and manufactures of France, which he carried to a surprising height of prosperity. The king himself, ignorant and vain, was blind to every patriotic duty, promoting the interests of his subjects only that they might the better answer the purposes of his greatness; and, actuated by an overweening ambition, embroiled himself with all his neighbours, and wantonly rendered Germany a scene of devastation. By his impolitic and unjust revocation of the edict of Nantes in the year 1685, with the dragonade which followed it, he obliged the Protestants to take shelter in England, Holland, and different parts of Germany, where they established the silk manufacture, to the great prejudice of their own country. He was so blinded by flattery, that he arrogated to himself the heathen honours paid to the emperors of Rome; he made and violated treaties for his convenience; and in the end raised up against himself a confederacy of almost all the princes of Europe, at the head of which was King William III. of England. He was so well served, however, that for some years he made head against this alliance; and France seemed to have attained the highest pitch of military glory. But having provoked the English by his repeated perfidy, their arms under the Duke of Marlborough, and those of the Austrians under Prince Eugene, rendered the latter part of his life as miserable as the beginning of it had been splendid. From 1702 to 1711 his reign was one continued series of defeats and disasters; and he had the mortification of seeing those places reduced, which in the former part of his reign were acquired at an enormous expense of blood and treasure. But when Marlborough and Eugene were preparing to invade France at the head of their victorious troops, and to march directly to the capital, Louis, now tottering on the verge of destruction, was saved from ruin by the English Tory ministry deserting the cause, withdrawing from their allies, and concluding the inglorious peace of Utrecht in 1713. (See article BRITAIN.) The last years of Louis were also embittered by domestic misfortunes, which, added to those of a public nature which had befallen him, impressed him with a deep melancholy. He had been for some time afflicted with a fistula, which, though successfully cut, ever afterwards affected his health. The year before the peace was concluded, his only son, the Duke of Burgundy, died; a blow which was the more severely felt because it admitted of no alleviation. The king himself survived till the month of September 1715, when he expired, leaving the kingdom to his grandson Louis, then a minor. The reign of Louis XIV. is considered as the Augustan age of French literature.

Louis XV

By the last will of Louis XIV. the regency during the minority of the young king devolved upon a council, at the head of which was the Duke of Orleans. That nobleman, however, disgusted with an arrangement which gave him only a casting vote, appealed to the parliament of Paris, who set aside the will of the late king, and declared him sole regent. His first acts were extremely popular, and gave a favourable impression of his government and character. He restored to the parliament the right which had been taken from them of remonstrating against the edicts of the crown, and compelled those who had enriched themselves during the former reign to restore their ill-gotten wealth. He also took every method to efface the calamities occasioned by the unsuccessful wars in which his predecessor had engaged; promoted commerce and agriculture; and, by a close alliance with Great Britain and the United Provinces, seemed anxious to lay the foundation of lasting tranquillity. But this happy prospect was soon overcast by the intrigues of Alberoni the Spanish minister, who had formed a design of recovering Sardinia from the emperor, and Sicily from the Duke of Savoy, and also of establishing the Pretender on the throne of Britain. To accomplish these objects he negotiated with the Ottoman Porte, Peter the Great of Russia, and Charles XII. of Sweden; the Turks were to resume the war against the emperor, and the two latter powers to invade Great Britain. But, as long as the Duke of Orleans retained the administration of France, he found it impossible to bring his schemes into play. To remove this obstacle, therefore, he fomented divisions in the kingdom. An insurrection having taken place in Bretagne, Alberoni sent small parties into the country in disguise to support the insurgents, and even laid plots to seize the regent himself. But the intrigues of the Spanish minister misgave in every direction. His partisans in France were put to death; the king of Sweden was killed at Frederickshall in Norway; the Czar, intent on improving his own institutions, could not be persuaded to make war upon Britain; and the Turks refused to engage in a war with a power from which they had recently suffered so deeply. The cardinal, however, persevered in his intrigues, which soon produced a war between Spain on the one hand, and France and Britain on the other. But the Spaniards, unable to resist the union of two such formidable powers, were soon reduced to the necessity of suing for peace; and the terms were dictated by the regent of France, one of which was the dismission of Alberoni.

The spirit of conquest having now in a great measure subsided, that of commerce came in its stead, and France became the scene of as remarkable a project as ever was known in any country. John Law, a Scotchman, who had found it convenient to leave his own country, formed the plan of a company which by its notes was to pay off the debt of the nation, and reimburse itself by the profits. Law had wandered throughout various parts of Europe, and had successively endeavoured to engage the attention of various courts. The same proposal had been made to Victor Amadeus, king of Sicily; but the latter dismissed Law with the reply, that he was not rich enough to ruin himself. In France, however, it was looked upon in a more favourable light; and as the nation was at this time involved in a debt of two hundred millions, the regent and the people in general were ready to embark in almost any new scheme which might be proposed. The bank thus established proceeded at first with some degree of caution; but having gradually extended its credit to more than eighty times its real stock, it soon became unable to answer the demands made upon it, and the company was dissolved the very same year in which it had been instituted. The confusion into which the kingdom was thrown by this fatal scheme required the utmost exertions of the regent to put a stop to it; and scarcely had this been accomplished when the king, in the year 1723, took the government into his own hands. The duke then became minister, but did not long enjoy this office. His irregularities had broken his constitution, and brought on a number of maladies, under which he in a short time sunk, and was succeeded in the administration by the Duke of Bourbon. The king, as we have already remarked, had been married when young to the infanta of Spain, though by reason of his tender years the marriage had never been completed. This princess, however, had been brought to Paris, and for some time treated as queen of France; but as Louis grew up, it was easy to perceive that he had contracted an inveterate hatred against the intended partner of his bed. The minister, therefore, at last consented that the princess should be sent back; an affront so much resented by the queen her mother, that it had almost produced a war between the two nations. The dissolution of the marriage of Louis was the last act of Condé's administration, and the negotiating a new match was the first act of his successor Cardinal Fleury. The princess pitched upon was the daughter of Stanislaus Leczinski, king of Poland, who had been deposed by Charles XII. of Sweden. This princess was destitute of personal charms, but of an amiable disposition; and though it is probable that she never possessed the affections of her husband, her excellent qualities could not but extort his esteem; whilst the birth of a prince soon after their marriage removed all the fears of the people, if they had any, concerning the succession.

Cardinal Fleury continued the pacific policy pursued by his predecessors, though it was somewhat interrupted by the war which took place in the year 1733. But notwithstanding the connection between the sovereign of Poland and the French nation, Fleury was so parsimonious of his assistance, that only fifteen hundred soldiers were sent to relieve Dantzick, where Stanislaus was at that time besieged by the Russians. This pitiful reinforcement was soon overpowered by the Russians; and Stanislaus was at last obliged to renounce all thoughts of the crown of Poland, though he was permitted to retain the title of king. Fleury so steadily pursued his pacific plans, that the disputes between Spain and England in 1737 but little affected the peace of France; and it should be remembered to his praise, that instead of fomenting quarrels between the neighbouring potentates, he laboured incessantly to maintain peace and concord. He reconciled the Genoese and Corsicans, who were at war; and his mediation was accepted by the Ottoman Porte, which, through his intercession, concluded a treaty with the emperor. But all his endeavours to preserve the general peace proved at last ineffectual. The death of the emperor Charles VI. in 1740, the last prince of the house of Austria, set all Europe in a flame. His eldest daughter, Maria Theresa, claimed the Austrian succession, comprehending the kingdoms of Hungary and Bohemia, the duchy of Silesia, Austrian Suabia, Upper and Lower Austria, Styria, Carinthia, Carniola, the four forest towns, Burgau, Brisgau, the Low Countries, Friuli, Tyrol, the duchy of Milan, and the duchies of Parma and Placentia. Amongst the many competitors who pretended a right to share, or wholly to inherit, these extensive dominions, the king of France was one. But as he cared not to awaken the jealousy of the European princes by preferring directly his own pretensions, he chose rather to support those of Frederick III., who laid claim to the duchy of Silesia. This brought on the war of 1740 (see articles Britain and Prussia), which was terminated in 1748 by the treaty of Aix-la-Chapelle. But Louis, who had secretly meditated a severe vengeance against Britain, only consented to give his aid, that he might have time to repair his fleet, and put himself somewhat more upon an equality with so formidable a power. Meanwhile the internal tranquillity of the kingdom was disturbed by violent disputes between the clergy and parliaments of France. In the reign of Louis XIV. there had been vehement contests between the Jansenists and Jesuits, concerning free will, and other obscure points of theology; and the opinions of the Jansenists had been declared heretical by the celebrated bull *Unigenitus*, the reception of which was enforced by the king, in opposition to the parliaments, the Archbishop of Paris, and the great body of the people. The archbishop, with fifteen other prelates, protested against it as an infringement of the rights of the Gallican church and the laws of the realm, and also as an infringement of the rights of the people themselves. The Duke of Orleans favoured the bull by inducing the bishops to submit to it, but at the same time he stopped a persecution which had been commenced against its opponents. Matters continued in this state until the conclusion of the peace. But a short time afterwards the jealousy of the clergy was awakened by an attempt of the minister to inquire into the wealth of individuals of their order. To prevent this they revived the contest about the bull *Unigenitus*, and it was resolved that confessional notes should be obtained of dying persons; that these notes should be signed by priests who maintained the authority of the bull; and that, without such notes, no person could obtain the viaticum, or extreme unction. On this occasion the new Archbishop of Paris and the parliament of that city having taken opposite sides, the latter imprisoned such of the clergy as refused to administer the sacraments. Other parliaments followed the example of that of Paris; and a contest was instantly kindled up between the civil and ecclesiastical departments of the state. But the king having interfered in the dispute, forbade the parliaments to take cognizance of ecclesiastical proceedings, and commanded them to suspend all prosecutions relative to the refusal of the sacraments. Instead of acquiescing, however, the parliaments presented new remonstrances, refused to attend to any other business, and resolved that they could not obey this injunction without violating their duty as well as their oath. They cited the Bishop of Orleans before their tribunal, and ordered all writings in which its jurisdiction was disputed to be burned by the executioner. With the assistance of the military they enforced the administration of the sacraments to the sick, and ceased to distribute that justice to the subject for which they had been originally instituted. Enraged at their obstinacy, the king arrested and imprisoned four of the members who had been most obstinate, and banished the remainder to Bourges, Poitiers, and Auvergne; whilst, to prevent any impediment to the administration of justice in their absence, he issued letters patent, by which a royal chamber for the prosecution of civil and criminal suits was instituted. But the counsellors refused to plead before these new courts; and the king, finding that the whole nation was about to fall into a state of anarchy, thought proper to recall the parliament. The banished members entered Paris amidst the acclamations of the inhabitants; and the archbishop, who still continued to encourage the priests in refusing the sacraments, was banished to his seat at Conflans, as were also the Bishops of Orleans and Troyes; and for the present tranquillity was restored to the kingdom.

But the tranquillity thus established was not of long duration. In the year 1756, the parliaments again fell under the displeasure of the king, by their imprudent persecution of those who adhered to the bull *Unigenitus*, and even proceeded so far in this opposition as to refuse to register certain taxes absolutely necessary for carrying on the war. Louis was so provoked at this, that he suppressed the fourth and fifth chambers of inquests, the members of which had distinguished themselves by their opposition to his will. He commanded the bull *Unigenitus* to be respected, and prohibited the secular judges from ordering the administration of the sacraments. On this, fifteen counsellors of the great chamber resigned their offices, and a hundred and twenty-four members of the different parliaments followed their example; and the most grievous discontent pervaded the kingdom. Meanwhile an attempt was made by a fanatic, named Damien, to assassinate the king; and he was actually wounded, though slightly, in the midst of his guards. The assassin was put to the most exquisite tortures, under which he persisted in declaring that he had no intention to kill the king, but that his design was only to wound him, that God might touch his heart, and incline him to restore peace to his dominions. But these expressions, which undoubtedly indicated insanity, had no effect on his judges, who consigned him to one of the most horrid deaths which the ingenuity of man ever invented. This attempt, however, seems to have produced some effect upon the king; for he soon afterwards banished the Archbishop of Paris, who had been recalled, and once more accommodated matters with his parliament.

The unfortunate issue of the war of 1755 had brought the nation to the brink of ruin, when Louis implored the assistance of Spain; and upon this occasion was signed the celebrated Family Compact, by which, with the single exception of the American trade, the subjects of France and Spain were naturalized in both kingdoms, and the enemy of the one sovereign was to be invariably looked upon as the enemy of the other. At this time, however, the assistance of Spain availed but little, for both powers were reduced to the lowest ebb, and the arms of Britain were triumphant in every quarter of the globe. See the article BRITAIN.

The peace which was concluded at Paris in the year 1763, though it freed the nation from a most destructive and bloody war, did not restore internal tranquillity. The parliament, eager to pursue the victory which they had formerly gained over their religious enemies, now directed their efforts against the Jesuits, who had obtained and enforced the bull *Unigenitus*. But that once powerful order was now on the brink of destruction. A detestation of its principles, and even of its members, had for some time prevailed; and a conspiracy, formed, or said to have been formed, by this order against the king of Portugal, and from which he narrowly escaped, roused the indignation of Europe, which was still further inflamed by some fraudulent practices of which they had been guilty in France. La Valette, the chief of their missionaries in Martinico, had, ever since the peace at Aix-la-Chapelle, carried on an extensive commerce, insomuch that when the war with Great Britain commenced in 1755, he even aspired to monopolize the whole West India trade. Leonay and Gouffre, merchants at Marseilles, in expectation of receiving from him merchandise to the value of two millions, had accepted bills drawn by the Jesuits to the amount of a million and a half. But unhappily, owing to the vast number of captures made by the British, the returns were not made; in consequence of which the missionaries were obliged to apply to the society of Jesuits at large. But the latter, either ignorant of their true interest, or too tardy in giving assistance, suffered the merchants to stop payment, and thus not only to bring ruin upon themselves, but to involve a great many others in the same calamity. Their creditors demanded indemnification from the society at large, and, upon the refusal of the latter to satisfy them, brought the cause before the parliament of Paris. And that body, again, being eager to avenge itself on such powerful adversaries, carried on the most violent persecutions against them, in the course of which the volume containing the constitution and government of the order itself was appealed to, and produced in court. It then appeared that the order of Jesuits formed a distinct body in the state, submitting implicitly to their chief, who alone was absolute over their lives and fortunes; and it was likewise discovered that, after a former expulsion, they had been admitted into the kingdom upon conditions which they had never fulfilled, and to which their chief had obstinately refused to subscribe; and consequently, that their actual existence in the nation was merely the effect of sufferance. The result was, that the writings of the Jesuits were found to contain doctrines subversive of all civil government, and injurious to the security of the sacred persons of sovereigns; the attempt of Damien against the king was attributed to this body; and every thing seemed to prognosticate their speedy dissolution. At this critical moment, however, the king interfered, and by his royal mandate suspended all proceedings against them for a year. A plan of accommodation was then drawn up, and submitted to the pope and the general of the order; but the latter, by his ill-timed haughtiness, entirely destroyed all hope of reconciliation. The king withdrew his protection, and the parliament redoubled its efforts against them. The bulls, briefs, constitutions, and other regulations of the society, were declared to be encroachments on the public authority, and abuses of government; the society itself was finally dissolved, and its members were declared incapable of holding any clerical or municipal offices; their colleges were seized, their effects confiscated, and the order itself in fact annihilated.

The parliament, having gained this victory, next made an attempt to set bounds to the power of the king himself. They now refused to enregister an edict which Louis had issued for the continuation of some taxes which should have ended with the war, and likewise to conform to another by which the king was enabled to redeem his debts at an inadequate rate. The court attempted to get the edicts enregistered by force, but the parliaments everywhere showed a disposition to resist to the uttermost. In 1766, the parliament of Bretagne having refused the crown a gift of seven hundred thousand livres, were in consequence singled out for royal vengeance; but whilst matters were on the point of coming to extremities, the king thought proper to drop the process altogether, and to publish a general amnesty. The parliaments, however, now affected to despise the royal clemency; a circumstance which exasperated the king so much that he ordered the counsellors of the parliament of Bretagne who had refused to resume the functions of which he deprived them, to be included in the list of those who were to be drafted for militia, which was accordingly done. The parliament of Paris remonstrated so freely against this proceeding that they also fell under the royal censure; but Louis in the most explicit manner declared that he would suffer no earthly power to interfere with his will.

The interval of domestic tranquillity which now ensued was employed by the king in humbling the pride of the pope. The French monarch reclaimed the territories of Avignon and Venaissin; and whilst the pontiff denounced his unavailing censures, the Marquis de Rochecouart, with a single regiment of soldiers, drove out the troops of his holiness, and took possession of these territories. But a much more formidable opposition was made by the natives of the small island of Corsica, the sovereignty of which had been transferred to France by the Genoese, its former masters, on condition of Louis reinstating them in possession of the island of Caprala, which the Corsicans had lately reduced. These islanders defended themselves with desperate intrepidity; and it was only after two campaigns, in which several thousands of the bravest troops of France were killed, that they could be brought under subjection.

The satisfaction which this unimportant conquest afforded to Louis was clouded by the distress of the nation. The East India Company had totally failed, and most of the principal commercial houses in the kingdom were involved in the same calamity. The minister, the Duc de Choiseul, by one desperate stroke, reduced the interest of the funds one half, and at the same time took away the benefit of survivorship in the tontines, by which means the national credit was greatly affected; the altercation between the king and his parliaments also revived, and the dissensions became worse than ever. The Duc de Choiseul attempted in vain to conciliate these differences; but his efforts tended only to bring misfortunes upon himself, and in 1771 he was banished by the king, who suspected him of favouring the popular party. This was soon afterwards followed by the banishment of the parliament of Paris, and by that of a number of others; new parliaments being chosen in the room of those which had been expelled. But the people were by no means disposed to pay the same regard to these new parliaments as they had done to the old ones, though every appearance of opposition was at last silenced by the absolute authority of the king. In the midst of this plenitude of power, however, his majesty's health daily declined, and the end of his days was evidently at no great distance. As he had all along indulged himself to excess in sensual pleasures, so now these proved the immediate means of his destruction. His favourite mistress, Madame de Pompadour, who for a considerable time governed him with an absolute sway, had been long dead, and the king had become equally enslaved by the charms of Madame du Barry. But even her beauty at length proved insufficient to excite desire; and a succession of mistresses became necessary to rouse the languid appetites of the king. One of these, who happened to be infected with the small-pox, communicated the disease to the king, who in a short time died of it, notwithstanding all the assistance which could be afforded him by the physicians.

Louis XVI.

The new king, Louis XVI., grandson to the former, ascended the throne in the year 1774, in the twentieth year of his age; and, to secure himself against the disease which had proved fatal to his predecessor, submitted to inoculation, together with several other members of the royal family. Their quick and easy recovery contributed much to extend the practice throughout the kingdom, and to remove the prejudices which had been entertained against it.

The king had no sooner regained his health than he applied himself diligently to extinguish the differences which had arisen between his predecessor and the people. He removed from their employments those persons who had given just cause of complaint by their arbitrary and oppressive conduct; and he conciliated the affection of his subjects by discharging the new and recalling the old parliaments. But though the prudence of Louis had suggested to him these compliances, he still endeavoured to preserve entire the royal authority. He explained his intentions in a speech delivered in the great chamber of parliament. The step which he had taken to ensure the tranquillity and happiness of his subjects ought not, he observed, to invalidate his own authority; and he hoped, from the zeal and attachment of the assembly, an example of submission to the rest of his subjects. Their repeated resistance to the commands of his grandfather had compelled that monarch to maintain his prerogative by their banishment; but they were now recalled in the expectation that they would quietly exercise their functions, and display their gratitude by their obedience. He declared that it was his desire to bury in oblivion all past grievances; that he should ever behold with extreme disapprobation whatever might tend to create divisions and disturb the general tranquillity; and that the chancellor would read an ordonnance to the assembly, from which they might be assured he would not suffer the smallest deviation to be made. This ordonnance was conceived in the most explicit terms, and immediately registered. It limited within narrow bounds the pretensions of the parliament of Paris. The members were forbidden to look upon themselves as one body with the other parliaments of the kingdom, or to take any step or assume any title which might tend towards or imply such an union. They were enjoined never to relinquish the administration of public justice, excepting in cases of absolute necessity, for which the first president was to be responsible to the king; and it was provided, that in the event of disobedience, the grand council might replace the parliament without any new edict for the purpose. They were still, however, permitted to exercise the right of remonstrating before the registering of edicts or letters-patent which they might conceive injurious to the welfare of the people, provided they preserved in their representations the respect due to the throne. But these remonstrances were not to be repeated, and if they proved ineffectual, the parliament were to enregister the edict objected to within a month at furthest from the day of its publication. They were forbidden to issue any arrêts which might tend to excite trouble, or in any manner retard the execution of the king's ordonnances;

and they were assured that, as long as they adhered to the bounds prescribed, they might depend upon the countenance and protection of the sovereign. In short, the terms on which Louis consented to re-establish the parliaments were such that they were reduced to mere ciphers, and the will of the king still continued to be the only law in the kingdom. The Archbishop of Paris, who had likewise presumed to raise some commotions regarding the bull *Unigenitus*, was obliged to submit, and severely threatened if he should afterwards interfere in such a matter.

The final conquest of the Corsicans, who had once more attempted to regain their former liberty, was the first event of importance which took place after the restoration of tranquillity. But, from various causes, the kingdom was still filled with disorder. A scarcity of corn having taken place at the time when some regulations had been made by M. Turgot, the new minister of finance, the populace rose in great numbers, and committed such outrages that a military force became necessary to quell them; and it was not until upwards of five hundred of these starving creatures were destroyed that they could be reduced. The king, however, by his prudent and vigorous conduct on this occasion, put a stop to all riots, and displayed his clemency as well as prudence in the methods which he adopted for the restoration of the public tranquillity. He also seized the first moments of peace to fulfil those promises of economy which on his accession he had given to the people. Particular attention was likewise paid to the state of the marine. The appointment of M. de Sartine in 1776 to the naval department did honour to the penetration of the sovereign. That minister, fruitful in resources, and unwearied in application, was incessantly engaged in augmenting the naval strength of his country; and the various preparations which filled the ports and docks created no small uneasiness on the other side of the Channel. The next appointment made by the king was equally fortunate, and in one respect singular and unprecedented. M. Turgot, though possessed of integrity and industry, had not been able to command the public confidence. On his retreat, M. Clugny, intendant-general of Bordeaux, had been elevated to the vacant office; but the latter having soon afterwards died, M. Taboureau des Reaux was appointed his successor; and the king associated with him in the management of the finances M. Neckar, who was a Swiss and a Protestant. In the preceding reign that gentleman had been chosen to adjust some differences between the East India Company and the crown, and had discharged his trust in a manner which gained him the approbation of both parties. Possessed of distinguished abilities, his appointment would have excited no surprise, had it not been contrary to the constant policy of France, which had carefully excluded the aliens from exercising any control in matters of revenue.

Conduct of France in regard to America.

Although the French monarch was of a pacific disposition, and not destitute of generosity of sentiment, yet his own and the public exultation had been openly and constantly proportioned to the success of the Americans in their contest with Britain. The princes of the blood and the chief nobility were eager to embark in support of the cause of freedom; and the prudence of the king and his most confidential ministers alone restrained their ardour. The fatal events of the former war were still impressed on the mind of Louis; and he could not readily consent to expose his rising marine in a contest with a nation which had so frequently asserted the dominion of the seas, and had so lately broken the united strength of the house of Bourbon. At the same time he was sensible that the opportunity of humbling England should not be entirely neglected, and that some advantage should be taken of the present commotions in America. Two agents from the United States, Silas Deane and Dr Benjamin Franklin, had successively arrived at Paris; and though all audience was denied them in a public capacity, still they were privately encouraged to hope that France only waited for a favourable opportunity to assist in conquering the independence of America. In the mean while, the American cruisers were hospitably received in the French ports; artillery and all kinds of warlike stores were freely sold or liberally granted to the colonists; and, with the connivance of government, French officers and engineers entered their service.

Some changes were about this time introduced into the different departments of state. The conduct of M. Neckar in the finances had given general satisfaction; and M. Taboureau des Reaux, his colleague, had resigned his situation, but still retained the dignity of counsellor of state. To afford full scope to the genius of M. Neckar, Louis determined that he should no longer be clogged with an associate, and, with the title of director-general of the finances, submitted to him the entire management of the revenue of France. In the ensuing year the Count de St Germains, secretary at war, died; and the Prince de Montbarey, who had already filled an inferior situation in that department, was now appointed to succeed him. In the mean time negotiations with foreign courts were not neglected. Louis concluded a new treaty of alliance with Switzerland; and, on the death of the elector of Bavaria, vigilantly observed the motions of the different princes of Germany. When closely questioned by the English ambassador, Lord Stormont, respecting the warlike preparations which were diligently continued throughout the kingdom, he replied, that at a time when the seas were covered with English fleets and American cruisers, and when such armies were sent to the New World as had never before appeared there, it became prudent for him also to arm for the security of his colonies and the protection of the commerce of France. The king was not ignorant that the remonstrances of Great Britain, and the importunities of the agents of the United States, would soon compel him to adopt some decisive line of conduct; and this was accelerated by an event most disastrous to Britain, namely, the failure of General Burgoyne's expedition, and the capture of his army. The news of that calamity was received at Paris with unbounded exultation. M. Sartine, the minister of marine, was eager to measure the naval strength of France with that of Great Britain; the queen, who had long seconded the applications of the American agents, now espoused their cause with fresh ardour; and the pacific inclinations of Louis being overborne by the suggestions of his ministers and the influence of his queen, it was at length determined openly to acknowledge the independence of the United States. Accordingly Dr Franklin and Silas Deane, who had hitherto acted as private agents, were now acknowledged as public ambassadors from those states to the court of Versailles; and a treaty of amity and commerce was signed between the insurgent colonists and France in the month of February 1778. The Duke of Noailles, ambassador to the court of London, was in the month of March instructed to acquaint that court with the above treaty, and at the same time to declare that the contracting parties had not stipulated any exclusive advantages in favour of France, and that the United States had reserved the liberty of treating with every nation whatsoever upon the footing of equality and reciprocity. But this declaration was treated with contempt by the British; and the recall of Lord Stormont became the signal for the commencement of hostilities.

Removal of M. de Sartine.

In the year 1780 new changes took place in the French ministry. M. Bertin had resigned the office of secretary of state; and the Prince de Montbarey had retired from the office of secretary at war, in which he was succeeded by the Marquis de Segur. But the most important removal was that of M. Sartine, who had for several years presided over the marine department, and whose ability and unwearied application had raised the naval power of France to a height which astonished Europe. His colleagues in the cabinet, however, had loudly arraigned a profusion which would have diverted into one channel the whole resources of the kingdom; and his retreat opened a road to the ambition of the Marquis de Castries, who was appointed in his stead. This year the king abolished the inhuman custom of putting the question by torture; a custom which had been so established by long practice that it seemed an inseparable part of the constitution of courts of justice in France. At the same time, in order to defray the charges of war, he diminished his own expenditure; and sacrificing splendour to popularity, dismissed at once above four hundred officers belonging to his court.

Dismission of Neckar.

But unhappily the popular discontents were next year excited by the dismission of M. Neckar. He had conceived the arduous but popular project of supporting a war by means of loans without taxes; and the rigid economy which he had introduced into all the departments of the royal household, together with the various resources which were thus rendered available, had supported him amidst the difficulties that attended this system. But his austerity of temper had not rendered him equally acceptable to the sovereign and his subjects; and the repeated reforms which he had recommended were represented as inconsistent with the dignity of the crown. He was therefore, in 1781, dismissed from his office of comptroller-general; and M. Joli de Fleury, counsellor of state, was appointed to that important department. But the defeat of the Count de Grasse, which happened the following year, produced general grief and consternation. The victory of Rodney was indeed the most severe blow which the navy of France had ever yet sustained, and its effects were felt in every part of the kingdom. Immense preparations were, however, made for the operations of 1783; and, in conjunction with the courts of Madrid and the Hague, Louis determined this year to make the most powerful efforts to bring the war to a conclusion. But in the midst of these preparations the voice of peace was again heard; and Louis was induced to listen to the proffered mediation of the emperor of Germany and of the empress of Russia. The Count de Vergennes, who still held the portfolio of foreign affairs, was appointed to treat with Mr Fitzherbert, the British minister at Brussels, who had lately proceeded to Paris to conduct this important negotiation. The way was already smoothed by provisional articles, which had been signed at the close of the preceding year between Great Britain and the states of America, and which were now to constitute the basis of a treaty of peace between Great Britain and France. Preliminaries were accordingly agreed upon and signed at Versailles; and these were soon afterwards succeeded by a definitive treaty, so that France, throughout her extensive dominions, beheld peace once more established. Though the war had been attended by the most brilliant success, and the independence of America seemed to strike deep at the sources of British power, yet France herself had not by any means been free from difficulties. The retreat of Neckar had diminished the public confidence, and the failure of the celebrated *caisse d'escompte* completed the consternation of the people.

Caisse d'escompte.

The bank of this name had been established in the year 1776. The plan of it was formed by a company of private adventurers, and its capital was fixed at L.500,000 sterling. The professed design of the company was to discount bills at short dates, at the rate of four per cent. per annum; but as this interest was not an equivalent for the capital sunk by the proprietors, they were intrusted with the additional power of issuing notes to the amount of their capital, which, as these were made convertible into specie, might often be voluntarily taken instead of cash. The reputation acquired by the bank soon caused its stock to rise above par; and its credit still continued unimpaired, when, to the astonishment of the nation, it suddenly stopped payment on the 2d of October 1783. The cause assigned was an uncommon scarcity of specie. But the public suspected that the failure arose from a loan secretly made to government; and what confirmed the suspicion was, that government about the same time stopped payment of the bills drawn upon them by their army in America. But, whatever was the cause of this catastrophe, the king was prevailed on to extend his protection to the company. By four successive edicts the banks in Paris were ordered to receive the notes of the *caisse d'escompte* as currency; and a lottery with a capital of one million sterling, redeemable in eight years, was established, the tickets of which were made purchasable in notes of the *caisse d'escompte*. By these expedients the public confidence in the bank was in some measure revived, while its business increased, and its stock rose to above double the original subscription; the bills from America were at the same time put in a train of payment, and public credit was in a great degree restored throughout the kingdom. Some compensation also for the expenses which had been incurred during the war was derived from a treaty concluded with the United States of America. The latter engaged to reimburse France in the sum of eighteen millions of livres, which had been advanced in the hour of their need; and Louis, for the convenience of the States, consented to receive the money, in the space of twelve years, by twelve equal annual payments.

Treaty between France and Holland.

The general peace was soon afterwards followed by a particular treaty between France and Holland, which was effected by the Count de Vergennes. It included all the principles which can serve to cement nations in the closest union, and by which, in peace or in war, they may mutually participate in good or evil, and in all cases administer to each other the most perfect aid, counsel, and succour. If their united good offices for the preservation of peace should prove ineffectual, it also fixed the assistance which they were to afford each other by sea and land. France was to furnish Holland with ten thousand effective infantry and two thousand cavalry, and with twelve ships of the line and six frigates. Their high mightinesses, on the other hand, in case of a naval war, or of France being attacked by sea, were to contribute to her defence six ships of the line and three frigates; and in the event of an attack on the territory of France, the States General were to have the option of furnishing their land contingent either in money or troops, at the rate of five thousand infantry and one thousand cavalry. And further, if the stipulated succours should prove insufficient for the defence of the party attacked, or for procuring a proper peace, they engaged to assist each other with all their forces if necessary; but it was nevertheless provided, that the contingent of troops to be furnished by the States General should not exceed twenty thousand infantry and four thousand cavalry. Finally, it was agreed that neither of the contracting parties should disarm, or make or receive proposals of peace or even truce, without the consent of the other, nor directly or indirectly contract any future alliance or engagement whatsoever, contrary to the present treaty; and if any treaties or negotiations which might prove detrimental to their joint interest were proposed, they pledged their faith to give notice to each other of such proposals as soon as made. Thus Holland was converted into the firm ally of that power against the encroaching spirit of which she had formerly armed the most powerful kingdoms of Europe; whilst France having asserted the independence of America against Great Britain, and converted an ancient and formidable foe into an useful friend, seemed to have attained an influence over the nations of Europe which she had never before been possessed of.

But, however exalted her present situation might appear, the seeds of future commotion had already been extensively sown. The applause which had attended the parliament of Paris in their protracted struggles with the late king might be considered as the first dawn of freedom; the language of that assembly had boldly indicated to their countrymen their natural rights, and taught them to look with a less enraptured eye upon the splendour which encompassed the throne. The war in America had contributed to enlarge the political ideas of the French; they had on that occasion stood forth as the champions of liberty, in opposition to regal power; and the officers who had served in the struggle for independence, accustomed to think and speak without restraint, and familiarized with republican institutions, on their return imparted to the provinces of France a portion of the spirit which had been kindled in the wilds of America. From that moment the French, instead of silently acquiescing in the edicts of their sovereign, canvassed each action with bold inquisition; whilst the attachment of the army, which has ever been considered as the sole foundation of despotism, gave way to the noble enthusiasm of liberty.

We have already noticed the public dissatisfaction which had attended the dismission of Neckar. His successor, M. de Fleury, had retired from the management of the finances in 1783, and the still more short-lived administration of M. d'Ormesson had expired in the same year which gave it birth. Upon the retreat of the latter, M. de Calonne, who had successively filled with acknowledged reputation the office of intendant of Mentz, and afterwards of the provinces of Flanders and Artois, was nominated to the office of comptroller-general. This person, who was flexible and insinuating, eloquent in conversation and polished in his manners, fertile in resources and liberal in the disposal of the public money, soon rendered himself acceptable to the sovereign. But he did not enter upon his new and arduous station favoured by the breath of popularity; he was, in fact, reported to be more able than consistent, and not to have tempered the ardour of his spirit by the severity of deep research; and the people, amidst repeated loans, regretted that severe simplicity which had characterized the administration of Neckar. It was, however, by the bold and judicious measures of Calonne that credit was restored to the *caisse d'escompte*, which had stopped payment a few weeks before his accession. His next measure, in 1784, the establishment of the *caisse d'amortissement*, or sinking fund, was entitled to a still higher degree of applause. The plan of that fund was simple and moderate. It was, that government should pay annually into the hands of a board set apart for that purpose, the entire interest of the national debt, whether in stock or annuities, together with an additional sum of L.120,000. The annuities which would thus be extinguished every year were estimated at L.50,000, and in that proportion the sum set apart for the redemption of the national debt would annually increase. The operation of this new fund was limited to the term of twenty-five years; and during that period the annual receipt of the *caisse d'amortissement* was declared unalterable, and incapable of being diverted to any other object.

The principal measure of the following year was the establishment of a new East India Company, a measure which did not fail to excite violent complaints. The time, however, was now approaching, when the necessities of the state compelled the king to adopt measures still more unpopular, and destined to undergo a severer scrutiny. Although peace had for three years been re-established throughout Europe, yet the finances of France seemed scarcely affected by this interval of tranquillity, and it was found requisite to close every year with a loan. The public expenditure of 1785, indeed, seemed to sanction this measure; for it had been thought proper to fortify Cherbourg upon a grand scale; the claim of the emperor to the navigation of the Scheldt had obliged the French to increase their land forces; and the Marquis de Castries, fond of war, and profuse in his designs, had not suffered the navy which M. Sartine had surrendered into his hands to decline during the interval of peace. The treaty of commerce concluded with Great Britain in the year 1786 was also a new source of discontent. Though regarded by the English manufacturers as far from advantageous, it excited in France still louder murmurs, and was represented as likely to extinguish those infant establishments, which were yet unable to compete with the manufactures of England, that had attained to maturity. The market which it held out for the wines and oils of France was passed over in silence, whilst the distress of the artisan was painted in the most striking colours. But when the edict for registering the loan of the preceding year, amounting to three millions three hundred and thirty thousand pounds, was presented to the parliament of Paris, the murmurs of the people, through the remonstrances of that assembly, assumed a more legal and formidable aspect. The king, however, signified to the select deputation commissioned to convey to him their remonstrances, that he expected to be obeyed without further delay. The ceremony of the registration accordingly took place on the following day; but it was accompanied with a resolution, importing, that public economy was the only genuine source of abundant revenue, the only means of providing for the necessities of the state, and of restoring that credit which borrowing had reduced to the brink of ruin. The king was no sooner informed of this step than he commanded the attendance of the grand deputation of parliament, when he erazed from their records the resolution which had been adopted; and observed, that though it was his pleasure that the parliament should communicate, by its respectful representations, whatever might concern the good of the public, yet he never would permit them so far to abuse his clemency as to erect themselves into the censors of his government. At the same time, in order the more strongly to mark his displeasure at their expostulations, he superseded one of their officers, who had appeared most active in forwarding the obnoxious resolution.

M. de Calonne, however, though gratified by the approbation of his sovereign, could not but feel himself deeply mortified by the opposition of the parliament. His attempts to conciliate that assembly had proved ineffectual; and he experienced their inflexible aversion at the critical juncture when their acquiescence might have proved of the most essential service. An anxious inquiry into the state of the public finances had convinced him that the expenditure far exceeded the revenue. In this situation, to impose new taxes was impracticable, to continue the method of borrowing was ruinous, to have recourse to economical reforms would be found wholly inadequate; and he hesitated not to declare, that it would be impossible to place the finances upon a solid basis, except by the reformation of whatever was vicious in the constitution of the state. But, to give weight to this reform, M. de Calonne was sensible that something more was necessary than even the royal authority; he perceived that the parliament was neither a fit instrument for introducing a new order into public affairs, nor would submit to be a passive machine for sanctioning the plans of a minister, even if those plans were the emanations of perfect wisdom. Though originally a body of lawyers, indebted for their appointment to the king, there was not an attribute of a legislative assembly which they did not seem desirous to engross to themselves; and they had been supported in their pretensions by the approbation of the people, who were sensible that there was no other body in the nation which could plead their cause against either royal or ministerial oppression. To suppress, therefore, the only power of control that remained, and to render the government more arbitrary, was deemed too perilous a measure; yet to leave the parliament in the full possession of an influence which the minister was convinced would be exerted against him, was at once to render his whole system abortive. In this dilemma, the only expedient which suggested itself was to have recourse to some other assembly, more dignified and solemn in its character, and which should in a greater degree consist of members selected from the various orders of the state and the different provinces of the kingdom. This promised to be a popular measure; it implied a deference to the people at large, and might be expected to prove highly acceptable.

Assembly of the Notables.

But the true and legitimate assembly of the nation, the States General, had not met since the year 1614, nor could the minister flatter himself with the hope of obtaining the royal assent to a meeting which a despotic sovereign could not but regard with secret jealousy. Another assembly had occasionally been substituted in the room of the States General. This was distinguished by the title of the Notables, and consisted of a number of persons from all parts of the kingdom, chiefly selected from the higher orders of the state, and nominated by the king himself. This assembly, which had been convened by Henry IV. and also by Louis XIII. was now once more summoned by the authority of Louis XVI. The writs for calling them together were dated the 29th of December 1786, and addressed to seven princes of the blood, nine dukes and peers of France, eight field-marshals, twenty-two nobles, eight counsellors of state, four masters of requests, eleven archbishops and bishops, thirty-seven of the heads of the law, twelve deputies of the *pays d'états*, the civil lieutenant, and twenty-five magistrates of the different towns of the kingdom. The number of members was thus a hundred and forty-four; and the 29th of January 1787 was the period appointed for their meeting.

Upon the arrival of the Notables at Paris, however, the minister found himself as yet unprepared to submit his system for their consideration, and therefore postponed the opening of the assembly until the 7th of February. A second delay until the 14th of the same month was occasioned by the indisposition of M. de Calonne, and that of the Count de Vergennes, president of the council of finance and first secretary of state; and a third procrastination necessarily resulted from the death of the count on the day previous to that which had been fixed for the opening of the assembly. M. de Vergennes was succeeded in the department of foreign affairs by the Count de Montmorin, a nobleman of unblemished character; but his loss at this critical juncture was severely felt by M. de Calonne, as he alone, of all the ministers, had entered with warmth and sincerity into the plans of the comptroller-general. The Chevalier de Miromesnil, keeper of the seals, was avowedly the rival and enemy of Calonne; the Marshal de Castries, secretary for the department of marine, was personally attached to M. Neckar; and the Baron de Breteuil, secretary for the household, was the creature of the queen, and deeply engaged in what was called the Austrian system.

It was under these difficulties that M. de Calonne, on the 22d of February, first met the Assembly of the Notables, and unfolded his long-expected plan. He began by stating, that the public expenditure had for centuries past exceeded the revenue, and that a very considerable deficiency had of course existed; that the Mississippi scheme of 1720 had not, as might have been expected, restored the balance; that under the economical administration of Cardinal Fleury the deficit still existed; that the progress of this derangement under the last reign had been extreme, the deficiency amounting to three millions sterling at the appointment of the Abbé Terray, who, however, reduced it to one million six hundred and seventy-five thousand pounds; that it decreased a little under the short administrations which followed, but rose again, in consequence of the war, under the administration of M. Neckar; and that upon his own accession to office it amounted to three millions three hundred and thirty thousand pounds. In order to remedy this growing evil, M. Calonne recommended a territorial impost, of the nature of the English land-tax, from which no rank or order of men was to be exempted; and an inquiry into the possessions of the clergy, who hitherto had been exempted from bearing their proportion of the public burdens. It was also proposed that the various branches of internal taxation should undergo a strict examination; and a considerable resource was anticipated in mortgaging the demesne lands of the crown.

The necessity for these reforms, however, was combated with a degree of boldness and force of reasoning which could not fail to make a deep impression on the assembly; and, instead of meeting with a ready acquiescence, the comptroller-general found that he had launched into the boundless ocean of political controversy. M. Neckar, previously to his retirement, had published his *compte rendu au roi*, in which France was represented as possessing a clear surplus of above four hundred thousand pounds sterling. This performance had been read with avidity, and probably contributed to deprive the author of the royal favour; but the credit of the work was ably vindicated by M. de Brienne, archbishop of Toulouse. M. de Calonne met with a still more formidable adversary in the Count de Mirabeau. This extraordinary man, restless in disposition, licentious in morals, but bold, penetrating, and enterprising, had occasionally visited every court in Europe. He had been admitted at one time to the confidence of the minister, and had been directed, though not in an ostensible character, to observe at Berlin the disposition of the successor of the great Frederick; but whilst employed in this capacity he was frequently exposed to neglect and disappointment, and his letters were often left unanswered. Disgust succeeded to admiration; and he who had entered the Prussian court the intimate friend, returned to Paris the declared enemy, of M. de Calonne. Accordingly, whilst the archbishop arraigned the understanding, Mirabeau impeached the integrity, of the comptroller-general.

The eloquence of M. de Calonne, however, might have successfully vindicated his system and reputation against the calculations of Brienne and the invectives of Mirabeau; but he could not support himself against the influence of the three great bodies of the nation. The ancient nobility and the clergy had ever been free from all public assessments; and had the evil gone no further, it might still perhaps have been borne with patience; but, through the shameful custom of selling patents of nobility, such crowds of new noblesse started up, that every province in the kingdom was filled with them. The first object with those who had rapidly acquired fortunes, was to purchase a patent, which, besides gratifying their vanity, afforded an exemption to them and their posterity from contributing to the exigencies of the state. The magistracies likewise throughout the kingdom enjoyed their share of these exemptions; so that the whole weight of taxation fell upon those classes who were least able to bear it. Hence the minister's design of equalizing the public burdens, and diminishing the load borne by the lower and most useful classes of the people, by rendering the taxes general, though undoubtedly great and patriotic, at once united against him the nobility, the clergy, and the magistracy. And the result was such as might have been expected. The intrigues of these three bodies raised against him so loud a clamour, that finding it impossible to stem the torrent, he not only resigned his office on the 12th of April, but soon afterwards withdrew to England from the storm of persecution which now impended over him.

Disturbances in Holland.

In the midst of these domestic transactions, the attention of Louis was called to the state of affairs in Holland. The prince of Orange having been stripped of all authority by the aristocratic party, had retired from the Hague, and now maintained the shadow of a court at Nimeguen. But his brother-in-law, the new king of Prussia, exerted himself to promote the interests of the stadtholder, and offered, in concert with France, to undertake the arduous task of composing the differences which distracted the republic. The proposal was received with much apparent cordiality by the court of Versailles. At the same time it was scarcely to be expected that France would become the instrument of restoring the prince of Orange to that share of power which he had previously enjoyed, and thus abandon a favourite object of policy, namely, establishing a supreme and permanent control in the councils of Holland. In fact, the conditions framed as the basis of reconciliation by the Louvestein faction, were such as plainly indicated their design of reducing within very narrow limits the influence and authority of the stadtholder. On his renouncing the right of filling up occasional vacancies in the town senates, he was to be restored to the nominal office of captain-general; but he was to be restrained from marching troops into any province, or out of it, without leave from the respective provinces concerned; and he was also to subscribe a resolution passed some time previously by the senate of Amsterdam, that the command should at all times be revocable at the pleasure of the states. Had the prince acquiesced in these preliminaries, France would have completely attained the object of her lengthened negotiations, and by means of the Louvestein faction acquired the ascendency which she had repeatedly sought to obtain in the councils of Holland. But, under the difficulties which surrounded him, the prince of Orange was admirably supported and assisted by the genius, spirit, and abilities of his consort, who firmly rejected every measure tending to abridge the rights attached to the office of stadtholder; and M. de Rayneval, the French negotiator, having in vain endeavoured to overcome her resolution, broke off the correspondence between the Hague and Nimeguen, and returned to Paris about the middle of January 1787.

But the republican party were totally disappointed in the hopes which they had formed of assistance from France. The court of Versailles had indeed long trusted to the natural strength of this party, and had been assiduous during the summer in endeavouring to second them by every species of succour which could be privately afforded. Crowds of French officers arrived daily in Holland, and either received commissions in the service of the states, or acted as volunteers in their troops; several hundreds of tried and experienced soldiers were selected from different regiments, furnished with money for their journey, and dispatched in small parties to join the troops, and assist in disciplining the burghers and volunteers; and a considerable corps of engineers were also directed to proceed in disguise towards Amsterdam, in order to assist in strengthening the works of that city. But these aids, which might have proved effectual had the contest been confined to the states of Holland and the stadtholder, were rendered unavailing by the rapid invasion of the Prussians; the court of Berlin had taken its measures with so much celerity, and the situation of the republicans had already become so desperate, that it was doubtful whether their affairs could be restored by any assistance which France was capable of immediately affording. Nevertheless, on Great Britain fitting out a strong squadron of men of war at Portsmouth, to give confidence to the operations of the king of Prussia, the court of Versailles sent orders to equip sixteen sail of the line at Brest, and recalled a small squadron which had been commissioned to cruise on the coast of Portugal. But in these preparations Louis seemed rather to regard his own dignity, than to be actuated by any purpose of effectually relieving his allies. All opposition in Holland might already be considered as extinguished. The states assembled at the Hague had officially notified to the court of Versailles, that the disputes between them and the stadtholder were now happily terminated; and as the circumstances which gave occasion to their application to that court no longer existed, they intimated that the succours which they had formerly requested would not now be necessary. Under these circumstances, as the chief concern of France was to extricate herself with honour from her present difficulty, she readily listened to a memorial from the British minister at Paris, in which it was proposed that, in order to preserve a good understanding between the two crowns, all warlike preparations should be discontinued, and that the navies of both kingdoms should again be reduced to the footing of a peace establishment; a proposition which was gladly acceded to by the court of Versailles, and the harmony which had been transiently interrupted was thus restored.

Assembl of the N ables dis solved.

But though the French king could not but sensibly feel the mortification of thus relinquishing the ascendency which he had obtained in the councils of Holland, the internal situation of his kingdom furnished matter for more serious reflection. The dismission of M. de Calonne had left France without a minister, and almost without a system of government; and though the king bore the opposition of the Notables with temper, yet the disappointment he had experienced sunk deep in his mind. Without obtaining any relief for his most urgent necessities, he perceived when too late that he had opened a way for the restoration of the ancient constitution of France, which had been undermined by the craft of Louis XI. and nearly extinguished by the daring councils of Richelieu under Louis XIII. The Notables had indeed conducted themselves with respect and moderation, but at the same time they had not been deficient in firmness. The appointment of the Archbishop of Toulouse, the avowed adversary of M. de Calonne, to the office of comptroller-general, probably contributed to preserve the appearance of good humour in that assembly; but notwithstanding this, the proposed territorial impost or general land-tax, an object so ardently desired by the court, was rejected. Deprived of all hope of rendering the convention subservient to the relief of his embarrassments, and also dreading the spirit which it had on several occasions evinced, Louis determined to dissolve the assembly, which he did accordingly, in a moderate and conciliatory speech addressed to the members on their dismission.

Being thus disappointed of the advantage which he had hoped to derive from the acquiescence of the Notables, the king was now obliged to revert to the usual mode of raising money by royal edicts; and amongst the measures proposed for this purpose were the doubling of the poll-tax, the re-establishment of the third-twentieth, and a stamp duty. But, as might have been expected, this summary method was strongly disapproved by the parliament of Paris; and that assembly refused, in the most positive terms, to register the edict. In the last resort, therefore, Louis was obliged to have recourse to his absolute authority; and, by holding what is called a bed of justice, he compelled the parliament to register the impost. But the latter, though defeated, were not subdued; and on the day after the king had held his bed of justice they entered a formal protest against the edict, declaring that it had been registered against their approbation and consent, by the express command of the king; that it neither should nor ought to have any force; and that the first person who presumed to carry it into execution would be adjudged a traitor, and condemned to the galleys. This spirited declaration left the king no alternative, but either to proceed to extremities in support of his authority, or to relinquish for ever afterwards the power of raising money upon any occasion without the consent of the parliament. But though naturally of a mild disposition, and averse to violent measures, Louis determined not to surrender, without a struggle, that authority which had so long been exercised by his predecessors. Ever since the commencement of the discontents, considerable bodies of troops had been gradually marched into the capital; and, about a week after the parliament entered their protest, an officer of the guards, with a party of soldiers, proceeded at daybreak to the house of each member, to signify to him the king's command, that he should immediately get into his carriage, and withdraw to Troyes, a city of Champagne, about seventy miles from Paris, without writing or speaking to any person out of his own house previously to his departure. These orders were all served at the same instant; and before the citizens of Paris became acquainted with the transaction, their magistrates were already on the road to their place of banishment. Previously to their relegation, however, they had presented a remonstrance on the recent measures of government, and the alarming state of public affairs. In stating their opinions on taxes, they declared that neither the parliaments nor any other authority, excepting that of the three estates of the kingdom collectively, could warrant the imposition of any permanent tax on the people; and they strongly urged the renewal of those national assemblies which had rendered the reign of Charlemagne at once so illustrious and beneficent.

This demand for the convocation of the national council or States General was the more honourable to the parliament, as the latter assemblies had uniformly sunk under the influence of the former, and returned to their original condition of mere courts of registration and law. The confidence and attachment of the people therefore rose in proportion to this disinterestedness; their murmurs were openly expressed in the streets of the capital, and the general dissatisfaction was augmented in consequence of the stop put to public business by the exile of the parliament. Meanwhile the cabinet appeared weak, disunited, and fluctuating; and continual changes took place in every department of the state. Averse to rigorous counsels, Louis wished to allay the growing discontent by every concession consistent with his dignity; but the queen, it was believed, strongly dissuaded him from taking any step which might tend to diminish the royal authority. The influence of this princess in the cabinet was undoubtedly great; but the popularity which she had once enjoyed was no more, and some imputations of private levity, which had been scattered through the capital, were far from rendering her acceptable to the majority of the people. The Count d'Artois, the king's brother, who had expressed himself in the most unguarded terms against the conduct of the parliament, also stood exposed to all the consequences of popular hatred. Nor was it in the capital alone that the flame of liberty burst forth; it blazed with equal strength in the provincial parliaments. Amongst various instances of this, the parliament of Grenoble passed a decree against *lettres de cachet*, declaring the execution of these odious instruments of arbitrary power, within their jurisdiction, by any person, and under any authority whatsoever, to be a capital crime.

The king had endeavoured to soothe the Parisians by new regulations of economy, and by continual retrenchments in his household; but these proofs of a desire to lessen the public burdens, though they would at one time have been received with the loudest acclamations, were now disregarded, and the absence of the parliament was considered as an evil for which nothing could atone. In order therefore to regain the affections of his subjects, his majesty consented to restore that assembly, and at the same time to abandon the stamp duty and the territorial impost, which had been the chief subjects of dispute. But these measures were insufficient to establish harmony between the court and the parliament. The necessities of the state still remained unprovided for; nor could the deficiency of the revenue be supplied, except by extraordinary resources or a long course of rigid frugality. About the middle of November 1787, in a full meeting of the parliament, attended by all the princes of the blood and the peers of France, the king entered the assembly, and proposed for their approbation two edicts; one for a new loan of four hundred and fifty millions of francs, or about nineteen millions sterling, and the other for the re-establishment of the Protestants in all their ancient civil rights, a measure which had long been warmly recommended by the parliament, and which was now brought forward to procure a better reception for the loan. On this occasion the king delivered a speech of unusual length, filled with professions of regard for the people, but at the same time dwelling strongly upon the obedience he expected to his edicts. An animated debate ensued, and was continued for nine hours, when the king, wearied by opposition, and chagrined at some freedoms used in the course of the discussion, suddenly rose and commanded the edict to be registered without further delay. But this order was most unexpectedly opposed by the Duke of Orleans, first prince of the blood, who protested against the whole proceedings of the day, as an infringement on the rights of parliament, and therefore null and void. The king, though he could not conceal his astonishment and displeasure at this decisive step, contented himself with repeating his commands, and immediately afterwards left the assembly. On his departure, the parliament confirmed the protest of the Duke of Orleans, and declared, that as their deliberations had been interrupted, they considered the whole business of that day as of no effect.

But as it could not be supposed that Louis would suffer so bold an attack on his power to pass with impunity, a letter was next day delivered to the Duke of Orleans, commanding him to retire to Villars-Cotterel, one of his seats, about fifteen leagues from Paris, and to receive no company there except his own family; and at the same time the Abbé Sabbatière and M. Fréteau, both members of the parliament, who had distinguished themselves in the debate, were seized under the authority of *lettres de cachet*, and conveyed, the former to the castle of Mont St Michel in Normandy, and the latter to a prison in Picardy. This act of despotism immediately roused the indignation of the parliament, which on the following day waited on the king, and expressed their astonishment and concern that a prince of the blood-royal should have been exiled, and two of their members imprisoned, for having declared in his presence what their duty and consciences dictated, and at a time when his majesty had announced that he came to take the sense of the assembly by a plurality of voices. The answer of the king was reserved, forbidding, and unsatisfactory. But this did not prevent the parliament from attending to the exigencies of the state; and, convinced of the emergency, they consented to register the loan for four hundred and fifty millions of livres, which had been the principal cause of this unfortunate difference. This concession contributed to soften the mind of the king; and the sentence of the two magistrates was in consequence changed from imprisonment to exile; M. Fréteau being sent to one of his country seats, and the Abbé Sabbatière to a convent of Benedictines.

The parliament, however, was not so far propitiated by this measure as to give up the points against which they had originally remonstrated. In a petition, conceived with great freedom, and couched in the most animated language, they boldly reprobated the late acts of arbitrary violence, and demanded the entire liberation of the persons against whom these had been exercised. At the court of Versailles there was nothing but uncertainty and fluctuation; now vigour and now weakness; violence one day and attempts at conciliation the next; a king without energy or decision of character, and counsellors destitute alike of wisdom, prudence, and moderation. In the beginning of the year 1788, Louis recalled the Duke of Orleans, who soon afterwards obtained permission to retire to England; whilst the Abbé Sabbatière and M. Fréteau were about the same time allowed to return to the capital.

But the parliament had not confined their demands to the liberation of these gentlemen; they had also echoed the remonstrances of the parliament of Grenoble, and had loudly inveighed against the execution of *lettres de cachet*. These repeated remonstrances, mingled as they were with personal reflections, seconded the suggestions of the queen; and Louis was once more instigated to adopt measures of severity. MM. d'Espremenil and Monsambert, whose bold and pointed harangues had given the greatest offence, were doomed to experience the immediate resentment of the court. A body of armed troops having surrounded the hôtel in which the parliament were convened, Colonel Degout entered the assembly and secured the persons of the obnoxious members, who were instantly conducted to different prisons. This new instance of arbitrary violence drew forth a remonstrance from parliament, which in boldness far exceeded all the former representations made by that body. They declared they were now more firmly convinced than ever, that the entire subversion of the constitution was aimed at; but they added, that the French nation would never sanction the despotic measures which the king had been advised to adopt; that the fundamental laws of the kingdom must not be trampled on; and that the royal authority could only be esteemed as long as it was tempered with justice.

Assembly of the Notables again convened.

Language so pointed and decisive, asserting the controlling power of the laws above the regal authority, could not fail to alarm the king; and, with a view to diminish the influence of the parliament, it was determined again to convene the Notables. Accordingly, about the beginning of May, Louis appeared in that assembly, and after complaining of the excesses in which the parliament of Paris had indulged, and which had drawn down his reluctant indignation on a few of the members, he declared his resolution, instead of annihilating them as a body, to recall them to their duty and obedience by a salutary reform. M. de la Moignon, as keeper of the seals, then explained his majesty's intention to establish a plenary court, or supreme assembly, composed of princes of the blood, peers of the realm, great officers of the crown, the clergy, marshals of France, governors of provinces, knights of different orders, a deputation of one member from every parliament, and two members from the chambers of council, which should be summoned as often as any public emergency should, in the royal opinion, render it necessary to do so.

But if the Assembly of the Notables listened in silent deference to the project of their sovereign, the parliament of Paris received it with undisguised aversion. That body protested in the strongest manner against the establishment of any other tribunal, and declared their unalterable resolution not to assist at any deliberations in the supreme assembly which his majesty proposed to institute. A more unexpected mortification occurred to the king in the opposition of several peers of the realm, who expressed their regret at beholding the fundamental principles of the constitution violated; and, though lavish in professions of attachment to the person of the sovereign, concluded with apologizing for not entering on the functions assigned them in the plenary court, which, in their opinion, was inconsistent with the true interests of his majesty, no less than with those of the nation at large. Nor was this opposition confined to the parliament. The flame quickly spread throughout the more distant provinces. At Rennes in Bretagne, and at Grenoble in Dauphiné, the populace broke out into acts of the most daring outrage. In the latter city several hundred of the inhabitants perished in a conflict with the military; but they nevertheless maintained their ground against the regulars, and the commanding officer, on the entreaty of the first president, withdrew his troops from a contest into which he had entered with reluctance. The different parliaments of the kingdom at the same time expressed their feelings in the most animated language, strongly urging the necessity of calling together the States General, the lawful council of the kingdom, as the only means of restoring public tranquillity and promoting needful reforms.

It now became evident to the king, that a compliance with the public wishes for the convocation of the States General was absolutely necessary, to avoid the calamities of a civil war, which a refusal would render inevitable. In such event he must have expected to encounter the majority of the people, animated by the exhortations and example of their magistrates; the peers of the realm had also expressed the strongest disapprobation of his measures; nor could he even depend on the support of the princes of the blood. But what afforded the most serious ground of alarm, was the spirit recently displayed by the military, who, during the disturbances in the provinces, had with difficulty been brought to act against their countrymen; whilst many of their officers, who had been engaged in assisting to establish the independence of America, publicly declared their abhorrence of despotism. It was not, however, until after many a painful struggle that Louis could bring himself to restore an assembly, the influence of which would naturally overshadow that of the crown, whilst its jurisdiction would confine within narrow limits the uncontrolled power which he had inherited from his predecessors. In the two preceding reigns the States General had been wholly discontinued; and though the queen-regent, during the troubles attending the minority of Louis XIV. had frequently expressed her intention of calling them together, she was constantly dissuaded by the representations of Mazarin. It is probable, however, that Louis XVI. still flattered himself with the hope of alluring the members of that assembly to the side of the court, and, having employed them to establish some degree of regularity in the finances, and to curb the spirit of the parliament, of again dismissing them to obscurity.

Convocation of the States General.

But be this as it may, an arrêt was issued in August, fixing the meeting of the States General for the first day of May in the ensuing year; and, during the interval, every step was taken to secure the favourable opinion of the public. New arrangements took place in the administration; Neckar, who had long enjoyed the confidence of the people, was again called to the management of the finances; the torture, which by a former edict had been in part restricted, was now entirely abolished; every person accused was allowed the assistance of counsel, and permitted to avail himself of any point of law necessary to his defence; and it was decreed, that in future sentence of death should not be passed on any person, unless the accused had been pronounced guilty by a majority of at least three judges.

As the time appointed for the convention of the States General approached, the means of assembling them formed a matter of very grave deliberation in the cabinet. The last meeting, in 1614, had been convened by application to the bailiwicks. But this mode was liable to strong objections, as the bailiwicks had been increased in number and jurisdiction, several provinces having since that period been united to France; and as the numbers and quality of the members were no less an object of serious attention, it was not till the close of the year that the proposal of Neckar, which fixed the number of deputies at a thousand and upwards, and ordained that the representatives of the third estate or commons should equal in number those of the nobility and clergy united, was adopted. Meanwhile the eyes of all Europe were turned towards the States General; but the moment of their meeting was far from being auspicious. The minds of the French had long been agitated by various rumours; the unanimity which had been expected from the different orders of the states was destroyed by the jarring pretensions of each; and their mutual jealousies were attributed by the suspicions of the people to the intrigues of the court, which, it was supposed, already repented of the hasty assent which had been extorted from it. A scarcity which pervaded the kingdom increased the general discontent; and the people, pressed by hunger, and inflamed by resentment, were ripe for revolt. The sovereign also, impatient of the obstacles which he continually encountered, could not conceal his chagrin; whilst the influence of the queen in the cabinet manifested itself by the immediate removal of Neckar. The dismission of this minister, who had so long been the favourite of the public, was the signal of open insurrection. The Parisians assembled in great numbers; the guards refused to stain their arms with the blood of their fellow-citizens; the Count d'Artois and the most obnoxious of the nobility thought themselves happy in eluding by flight the fury of the insurgents; and in a moment a revolution was accomplished, which, in all its circumstances, is the most remarkable of any recorded in history.

Causes of the Revolution.

The moral history of man is always more important than the mere recital of such physical occurrences as diversify his existence. It is not the fall of a mighty monarch and the overthrow of his dynasty, it is not the convulsion of empires, and the rivers of human blood which have been shed, that render the French Revolution peculiarly interesting. Such events, however deplorable, are far from being without example in the history of mankind. In the populous regions of the East, where superstition and slavery have always prevailed, these are regarded as forming part of the ordinary course of human affairs, because an intrepid and skilful usurper always finds it easy to intimidate millions of ignorant and credulous men. But in Europe the case is very different indeed. No adventurer can advance far without encountering thousands as artful and as daring as himself. Events are not the result either of blind hazard or of individual skill. Conspiracies or plots produce but little effect. Like other arts, that of government has been much improved; and an established constitution can only be shaken by a strong convulsion produced by national passions and national efforts. The wonderful spectacle which we are now to contemplate, is that of an enlightened and polished people becoming in an instant fierce and sanguinary; a long established government, fortified by the recollections of ages, and forming as it were part of the national character, overturned almost without a struggle; a whole nation apparently uniting to destroy every institution which time had hallowed or education had taught them to revere; a superstitious people treating the religion of their forefathers with contempt; a long-enslaved race, whose very chains had become dear to them, occupied in the discussion of refined and even visionary schemes of freedom; in short, twenty-five millions of men suddenly treading under foot every sentiment and every prejudice which they themselves had once regarded as sacred and venerable.

Like the other nations of Europe, France was anciently governed by a rude and fierce aristocracy, the different members of which were feebly united by the authority of a succession of kings destitute of power or influence. The nobles, within their own territories, enjoyed privileges almost royal. They made peace and war; they coined money; they were judges in the last resort; their vassals were their slaves, whom they bought and sold along with the lands; and the inhabitants of cities, although freemen, were poor, depressed, and dependent on the protection of some baron in their neighbourhood. But, by the progress of the arts, the cities at length rose into importance, and their inhabitants, along with such freemen of low rank as resided in the country, were considered as entitled to a representation in the States General of the kingdom, under the appellation of *tiers état*, or third estate. When in process of time, however, the power of the crown had crushed that of the barons, and the sovereign became despotic, the meetings of the States General were discontinued. But absolute authority on the part of the crown was not acquired, as it was in England under the house of Tudor, by abolishing the pernicious privileges of the nobles, and elevating the commons: it was obtained by skilful encroachments, by daring exertions of prerogative, and by the employment of a regular military force. In France, therefore, the monarch was absolute, whilst the nobles retained their feudal privileges, and the ecclesiastical hierarchy also enjoyed its peculiar rights and immunities.

But the kingdom of France, previously to the Revolution, had never been reduced to one homogeneous mass. It consisted of a variety of separate provinces acquired by different means; some by marriage, others by legacy, and others again by conquest. Each province retained its ancient laws and privileges, whether political or civil, as expressed in the capitularies or conditions by which it was originally acquired. In one part of his dominions the French monarch was a count, in another he was a duke, in a third he was a king; whilst the only bond which united his vast empire was the strong military force by which it was overawed. Each province had its barriers; and the intercourse between one province and another was often more restricted by local usages than the intercourse of either with a foreign country. Some of the provinces, as Bretagne and Dauphiné, even retained the right of assembling periodically their provincial states; but these constituted no barrier against the power of the court.

The clergy formed the first estate of the kingdom in point of precedence. In number they amounted to about a hundred and thirty thousand. The higher orders enjoyed immense revenues; but the *curés* or great body of the working clergy seldom possessed more than about L.28 sterling a year, whilst their *vicaires* had only about half that sum. A few of the dignified clergy were men of great piety, who resided constantly in their dioceses, and attended to the duties of their office; but by far the greater number passed their lives at Paris and Versailles, immersed in all the intrigues and dissipation of a corrupt court and a profligate capital. They were almost exclusively selected from amongst the younger branches of the families of the high nobility; and it had even come to be accounted a species of dishonour for any persons of low rank to be admitted into the episcopal order. The lower clergy, on the contrary, were for the most part persons of mean birth, who had little chance of preferment, but who, by living constantly among the people, naturally participated in their feelings and opinions. As a body, the clergy possessed, independently of the tithes, a revenue arising from their property in land, which amounted to four or five millions sterling annually, and they were at the same time exempt from taxation. The crown had latterly attempted to break down this privilege; but, to avoid the danger, the clergy had presented to the court, as a free gift, a sum of money somewhat short of a million sterling every five years.

The nobility was nominally the second order of the state, but it was in reality the first. The nobles amounted to no less than two hundred thousand in number. The title and rank descended to all the children of the family, but the property went to the eldest alone; and hence vast multitudes of penniless nobles were entirely dependent upon the bounty of the court. They regarded the useful and commercial arts as dishonourable, and even the liberal professions of the law and physic they considered as in a great measure beneath their dignity, disdaining to intermarry with the families of their professors. The feudal system in its purity was favourable to the production of respectable qualities in the minds of those who belonged to the order of the nobles; but the introduction of commerce had rendered its decline equally unfavourable to that class of persons. Instead of the ancient patriarchal attachment between the feudal chieftain and his vassals, the nobility had become greedy landlords in the provinces, that they might appear in splendour at court and in the capital, where, plunged in intrigue and sensuality, their characters became frivolous and contemptible. Such of the French nobility, however, as remained in the provinces, regarded with indignation this degradation of their order, and still retained a proud sense of honour and of courage, which has always rendered them respectable. The order of the nobles was exempted from the payment of taxes, although the property of some of them was immense. The estates of the prince of Conde, for example, were worth L.200,000 a year, and those of the Duke of Orleans nearly twice as much. The crown had indeed imposed some trifling taxes upon the nobility, but these they contrived, in a great measure, to elude.

Next to the nobles, and as a privileged order possessing a secondary kind of nobility of their own, may be mentioned the parliaments. These consisted of large bodies of men, in different provinces, and served as courts of law for the administration of justice. In consequence of the corruption of the officers of state, the members purchased their places, which they held for life; but the son was usually preferred when he offered to purchase his father's place. Practising lawyers had but little chance of ever becoming judges. In courts thus constituted, consisting of a motley mixture of old and young, learned and ignorant, justice was of course indifferently administered. The judges allowed their votes in depending causes to be openly solicited by the parties or their friends. No wise man ever entered into a litigation against a member of one of these parliaments, and no lawyer would undertake to plead his cause; such a suit never came to a successful issue, and usually came to no issue at all. But after the States General had fallen into disuse, the parliaments acquired a certain degree of political consequence, and formed the only check upon the absolute power of the crown. The laws, or royal edicts, before being put in force, were always sent to be registered in the books of the parliaments. Taking advantage of this practice, in favourable times and circumstances, the latter often delayed or refused to enregister the royal edicts, and presented remonstrances against them. And this was done under cover of a legal fiction. For they pretended that the obnoxious edict, being injurious to the public welfare, could not be the will of the king, but must either be a forgery or an imposition by the ministers. Objections of this kind were, however, got rid of, either by a positive order from the king, or by his coming in person and ordering the edict to be registered. The parliaments, nevertheless, often carried their opposition a great length, indeed even to the ruin of themselves and their families as individuals. This rendered them extremely popular with the nation, and enabled them to embarrass a weak administration. But, after all, the opposition of the parliaments proved so feeble, that it was not thought worth while to abolish them entirely till towards the end of the reign of Louis XV.; and they were restored as a popular measure at the beginning of that of Louis XVI.

The *tiers état*, or commons, formed the lowest order of the state in France, and they were depressed and miserable in the extreme. To form a conception of their situation, it is necessary to observe that the whole pecuniary burdens of the state were laid on them. They alone were liable to taxation. An expensive and ambitious court; an army of two hundred thousand men in time of peace, and twice that number in war; a considerable marine establishment; public roads and works; all were supported exclusively by taxes levied from the lowest of the people. The revenues also were collected in a wasteful and oppressive manner. They were farmed out at a certain estimated sum, over and above which the farmers-general not only acquired immense fortunes for themselves, but were also enabled to advance enormous presents to those favourites or mistresses of the king or the minister by means of whom they procured their contracts. In raising all this money from the people, they were guilty of the most cruel oppression; as they had it in their power to obtain whatever revenue laws they pleased, and to execute these in the severest manner, their exactions were measured by their own cupidity alone. For this purpose they kept in pay an army of clerks, subalterns, scouts, and spies, amounting, it is said, to about eighty thousand. This class of persons were equally detested by the king, whom they deceived and kept in poverty; by the people, whom they oppressed; and by the ancient nobility, whom they eclipsed by the splendour of their establishments and the prodigality of their expenditure. But the court of France could never contrive to dispense with these financial middle-men. The peasants were also liable to be called out by the intendants of the provinces, in what were called *corvées*, to work upon the high roads for a certain number of days in the year. This was a source of severe oppression, as the intendant had the choice of the time and place of their employment, and was not bound to accept of any commutation in money. They were moreover subject to the nobles in a great variety of ways. The latter retained all their ancient manorial or patrimonial jurisdictions. The common people being anciently slaves, had obtained their freedom upon different conditions. In many places they and their posterity remained bound to pay a perpetual tribute to their feudal lords; and such tributes formed a considerable part of the revenue of many of the provincial nobles. By a recent regulation, no man could be appointed an officer of the army until he had produced proofs of nobility for four generations. The parliaments, although originally of the *tiers état*, attempted also to introduce a rule that none but the nobility should be admitted into their order. It will not be accounted surprising, therefore, that the common people of France were extremely ignorant and superstitious. They were, however, passionately devoted to their monarch, and all that concerned him. In 1754, when Louis XV. was taken ill at Metz, the whole nation was thrown into a kind of despair. The courier who brought the news of his recovery to Paris was almost suffocated by the embraces of the populace, who even extended their loyal endearments to the horse which had carried him.

The French monarch was, in every sense of the word, despotic. His power was supported by the army, and by a watchful police with an infinite host of spies and other servants in its pay. In France no man was safe. The secrets of private families were searched into. Nothing, in fact, escaped the jealous inquisition of the police. Men were seized by *lettres de cachet* when they least expected it, and their families had no means of discovering their fate. The sentence of a court of law against a nobleman was usually reversed by the minister. No book could be published without the license of a censor-general, appointed by the court, and the minister was accountable to none but the king. No account was given of the expenditure of the public money. Enormous gratifications and pensions were often bestowed as the reward of the most infamous services. The supreme power of the state was commonly lodged with a favourite mistress, who was sometimes a woman taken from the stews. This was not indeed the case under Louis XVI., but it was nevertheless one of the misfortunes of his life that he was far from being absolute in his own family. Still, however, with all its manifold faults, the French court was the most splendid and polished in Europe. It was more the resort of men of talents and literature of every kind, and there they met with more ample protection, than anywhere else. The court was often jealous of their productions; but they met with the most distinguished attention from men of fortune and rank; insomuch that for a century previous to this the French had given the law to Europe in all questions of taste, literature, and polite accomplishment. The gaiety and elegance which prevailed at court diffused itself throughout the nation, and, amidst much internal misery, gave it an external appearance of happiness, or at least of levity and vanity.

But, such as it was, this government had stood for ages, and might have continued much longer, had not a concurrence of causes contributed to its overthrow. The inferior orders of the clergy, excluded from all chance of preferment, regarded their superiors with jealousy and envy, and were ready to join the laity of their own rank in any popular commotion. The inferior provincial nobility beheld with contempt and indignation the vices and the power of the courtiers, and the higher nobility desired to diminish the power of the crown. The practising lawyers, being almost entirely excluded from the chance of becoming judges, wished eagerly for a change of system, not doubting that their talents and professional skill would render them necessary amidst any alterations which might occur; and accordingly they were the first instruments in producing the Revolution, and amongst its most active supporters. The monied interest eagerly longed for the downfall of the ancient nobility. With respect to the great mass of the common people, they were too ignorant, too superstitiously attached to old establishments, and too much depressed, to have any distinct conception of the nature of political liberty, or any hope of obtaining it; but their minds were nevertheless in some measure prepared for change, by the contagious influence, as it were, of the passions which were fermenting around them.

For forty years the principles of liberty had been disseminated with eagerness in France by men of great talents, as Rousseau, Voltaire, Helvetius, and Raynal, to whom the celebrated Montesquieu had led the way. Besides these, there was in France a vast multitude of what were called men of letters, or persons who gave this account of the manner in which they spent their time; and all these were deeply engaged on the side of some kind of political reform. The men of letters in Paris alone are said to have amounted to twenty thousand. One of the last acts of the administration of the Archbishop of Toulouse was to publish a resolution of the king in council, dated 5th July 1780, inviting all his subjects to give him their advice with regard to the state of affairs. This was considered as the concession of an unlimited liberty of the press; and it is scarcely possible to form an idea of the infinite variety of political publications which from that period diffused amongst the people a dissatisfaction with the order of things under which they had hitherto lived. The established religion of France had for some time past been gradually undermined. It had been solemnly assaulted by philosophers in various elaborate performances; and the men of wit, amongst whom Voltaire took the lead, had attacked it with the dangerous weapon of ridicule, which in France is so much more effective than argument. The Roman Catholic religion is much exposed in this respect, in consequence of the multitude of false miracles and legendary tales with which its history abounds. But, without discriminating between the principles on which it rests, and the superstitious follies by which these had been defaced, the French nation learned to laugh at the whole, and rejected instead of reforming the religion of their fathers. Thus the first order in the state had already begun to be regarded as useless, and the minds of men were prepared for important changes.

Upon the whole, then, it appears that a great variety of causes contributed, some more and others less directly, to bring about that grand social and political movement which, in the early part of its career, dashed in pieces the oldest monarchy in Europe, and gave to the regenerative principle an impulse which has been felt even in distant nations, and the ultimate effects of which no one can as yet compute. In the first place, the destruction of the power of the great vassals of the crown, and the consolidation of the monarchy into one great kingdom, during the reigns of Louis XI., Francis I., and Henry IV., was essential to the Revolution; for, had the central power been weaker, and the privileges of the great feudatories remained unimpaired, France, like Germany, would most probably have been split into a number of independent principalities, all unity of feeling or national energy would have been lost in the division of interests, and a revolution would no more have happened in France than in Silesia or Saxony. Secondly, the military spirit of the French, and the native valour which a long series of national triumphs had sustained, inspired them with the moral courage to commence, and the fortitude to maintain, a conflict, under which a people differently circumstanced would have speedily sunk. Thirdly, the spirit of free investigation which distinguished the eighteenth century, and which, from expatiating in the regions of taste and philosophy, passed, by an easy transition, into those of politics and religion, no doubt contributed powerfully to produce that change of opinion which sooner or later brings about important alterations in the institutions of a country. This freedom of inquiry and discussion, which assumed its greatest latitude in the writings of Voltaire, Rousseau, Raynal, and the Encyclopædists, existed by sufferance, it is true, and was confined to abstract questions alone; yet the fact of its having been tolerated is a proof that the minds of men were prepared to re-consider all received opinions, and that the religious and political speculations which are commonly supposed to have created the revolutionary spirit, were in reality the symptoms of a change already operated, but which they contributed incalculably to extend and confirm. Fourthly, the church in France experienced the fate of all attempts in an advancing age to fetter the human mind by the shackles of an antiquated creed, or the tyranny of an overgrown and corrupt hierarchy; the resistance to its authority became general, the good and the bad parts of its doctrine were indiscriminately rejected, and blind belief gave place to the most uncompromising scepticism. Infidelity became a test of mental independence; and the progress of philosophical speculation, as evinced in the writings of Raynal, Voltaire, Diderot, and Rousseau, served more and more to confirm the tendency to which we have alluded. Fifthly, the exclusive immunities enjoyed by the nobility, the grievances which the French nation suffered in consequence, and the insolence of privileged tyranny, which is even more keenly resented than the tyranny itself, were mainly instrumental in bringing about the Revolution. "Numerous and serious as the grievances of the French nation were," says Rivarol, "it was not these that occasioned the Revolution. Neither the taxes, nor the *lettres de cachet*, nor the other abuses of authority, nor the vexations of the prefects, nor the ruinous delays of justice, irritated the nation: it was the *prestige* of nobility which excited all the ferment, a fact which proves that it was the shopkeepers, the men of letters, the monied interest, in a word, all those who were jealous of the nobility, who roused against them the lower classes in the towns, and the peasantry in the country. In truth, it was an extraordinary circumstance that the nation should say to a child possessed of parchment, 'You shall one day be either a prelate, or a marshal, or an ambassador, as you choose,' whilst it has nothing to offer to its other children." And to all these may be added, as concurring and co-operating causes, first, the unprecedented inequality of taxation; secondly, the state of the labouring poor, who had been reduced to the most abject misery; thirdly, the non-residence of the landed proprietors, drawing after it, as is almost invariably the case, a discontented tenantry and a neglected country; fourthly, the local burdens and feudal services due by the tenantry to their feudal superiors, which were to the last degree vexatious and oppressive; fifthly, the royal prerogative, which, by a series of successful usurpations, had reached a height inconsistent with any thing like real freedom; sixthly, the corruption which had long tainted the manners of the court, and poisoned all the sources of influence; seventhly, the American war, which, whilst the minds of the people were in a ferment, lighted a spark that speedily set fire to the train; eighthly, the state of the army, both in point of feeling and discipline; and, lastly, the spirit of innovation, which may justly be considered as "the joint effect and full result" of all the causes we have enumerated. But so many causes of disaffection did not come all at once into action; many of them had long been in operation. During the whole reign of Louis XV. the discontents of the people were gradually increasing, and it was already foreseen that the reign of his successor would be one of anxiety and trouble. "I have had great difficulty," said Louis XV. "in extricating myself from the quarrels with the parliaments during my whole reign; let my grandson take care of them, for it is more than probable they will endanger his crown." Subsequently to the peace of 1763, a growing discontent prevailed in the nation; headed, in the first instance, by a portion of the nobility, who were either impelled by the force of public opinion, or ambitious of popular applause, and augmented latterly by the numberless faults of the government, the corruption of the court, and the misery of the country.

The immense population of the city of Paris rendered it an important engine in the hands of the fomenters and conductors of the Revolution. An overgrown capital has always proved dangerous to a government which is or attempts to be despotic; as appears from the history of ancient Babylon and Rome, as well as that of modern Constantinople, London under Charles I., and Paris in the times of the League and the Fronde. The general scarcity of grain which occurred about this period also assisted not a little in producing many of the convulsions attending the Revolution. On Sunday the 13th of July 1788, about nine in the morning, without any eclipse, darkness suddenly overspread several parts of France; a phenomenon which formed the prelude to a tempest unexampled in the temperate region of Europe. Wind, rain, hail, and thunder, seemed to contend in impetuosity; but the hail proved the greatest instrument of destruction. Instead of the rich prospects of an early autumn, the face of nature in the space of an hour presented the dreary aspect of universal winter. The soil was converted into a morass, and the standing corn beaten into the quagmire; the vines were broken to pieces, and the fruit trees demolished; whilst unmelted hail lay in heaps like rocks of solid ice. Even the most robust forest trees were unable to withstand the fury of the tempest. The hail was composed of large, solid, angular pieces of ice, some of them weighing from eight to ten ounces. The country people, beaten down in the fields on their way to church, amidst this concussion of the elements, concluded that the last day had arrived; and, scarcely attempting to extricate themselves, lay despairing and half suffocated amidst the water and the mud, expecting the immediate dissolution of all things. But the storm was irregular in its devastations. Whilst several rich districts were laid entirely waste, some intermediate portions of country remained comparatively little injured. One district of sixty square leagues had not a single ear of corn or fruit of any kind left. Of the sixty-six parishes in the district of Pontoise, forty-three were entirely desolated; and of the remaining twenty-three some lost two thirds and others half their harvest. The Isle of France, being the district in which Paris is situated, and the Orleannois, appear to have suffered most severely. The damage done there, upon a moderate computation, amounted to eighty millions of livres, or between three and four millions sterling. Such a calamity must at any period have been severely felt; but occurring on the eve of a great political revolution, and amidst a general scarcity throughout Europe, it was peculiarly unfortunate, and occasioned more embarrassment to the government than perhaps any other event whatever. Numbers of families found it necessary to contract their mode of living for a time, and to dismiss their servants, who were thus left destitute of bread. Added to the public discontent and political dissensions, this calamity produced such an effect upon the people in general, that the nation seemed to have changed its character; and instead of that levity by which it had ever been distinguished, a deep gloom seemed now to settle down on every countenance.

Attempt to reduce the powe of the crown.

The spring of the year 1789 was a period of much political anxiety in France. The superior orders wished to reduce the power of the crown, but were jealous of their own privileges, and determined to retain them; whilst the popular philosophers and others were endeavouring to render them odious, and to rouse the people to a love of freedom. Still, however, the great body of the common people remained careless spectators of the struggle, and unconscious of the approaching convulsion. Such was their indifference, indeed, that few of them took the trouble even to attend and vote at the elections of the deputies to the States General. In many places where a thousand voters were expected, scarcely fifty came forward; but such of them as did appear showed that a seed had been sown which might one day produce important fruits. In the instructions which they gave to their deputies, the British constitution formed in general the model upon which they wished their government to be reconstructed. They demanded equal taxation, the abolition of *lettres de cachet* or arbitrary imprisonment, the responsibility of ministers, and the extinction of the feudal privileges of the nobles; but they wished that the whole three orders of the state should sit and vote in one house, well knowing that their nobility were not prepared to act the moderate part of the British House of Lords. The nobles, on the other hand, though willing to renounce some of their pecuniary immunities, and to sacrifice the power of the crown, were most decidedly resolved neither to surrender their feudal prerogatives, nor to give up the right of sitting in three separate assemblies; by means of which each of the orders could easily resist the encroachments of the two others. M. Neckar has been severely censured for not deciding this last and important question previously to the meeting of the States General; but it must be observed, that the very purpose of calling that assembly together was to overturn, through its medium, and without any direct interposition on the part of the ministers, the unjust privileges of the higher orders. Had the king positively decided in favour of three chambers, the nobles and the clergy would have retained all those ancient privileges established in their favour, of which it was his wish to deprive them, and the crown and its prerogatives would have been the only objects of sacrifice. It was therefore thought safer to leave the *tiers état* to fight its own battle; nor was it yet imagined that the commons of France, depressed, and poor, and dispersed over a multitude of provinces, could ever unite in enterprises dangerous to the power of the sovereign.

Meeting of the States.

The States had been summoned to meet at Versailles on the 27th of April, and most of the deputies arrived at that time; but as the elections for the city of Paris were not concluded, the king deferred the commencement of their sessions until the 4th of May. During this period the members, left in idleness, began to find out and form acquaintance with one another. In particular, a few from Bretagne formed themselves into a club, into which they gradually admitted such other deputies as were found to be zealous in the popular cause, and also many persons who were not deputies. This society, which took the name of the *Comité Bréton*, was originally established at Versailles, and was destined, under the appellation of the Jacobin Club, to give laws to France, and to diffuse terror and alarm throughout Europe. On the other hand, the aristocratic party established conferences at the house of Madame de Polignac, for the purpose, as was alleged, of uniting the nobles and the clergy. An event occurred at this time which all parties ascribed to some malicious motive. In the populous suburb of St Antoine, where a person named Reveillon carried on a great paper manufactory, a false report was spread that this individual intended to lower the wages of his workmen, and that he had declared that bread was too good for them, and that they might subsist well enough on patato-flour. A commotion was raised, Reveillon was burned in effigy, and his house thereafter burned and pillaged by the mob, who were not dispersed till the military had been called in, and many lives lost. The popular party asserted that this commotion had been artfully excited by the party of the queen and the Count d'Artois, to afford a pretence for bringing great bodies of the military to the neighbourhood, in order to overawe the States General, or induce the king to resolve on assembling that body at Versailles in preference to Paris, where they and the popular minister Neckar wished the assemblage to take place.

On the 4th of May the States General assembled at Versailles, and commenced business by going to church in solemn procession, preceded by the clergy, and followed by the king, according to ancient custom, to perform an act of devotion. The nobles were arrayed in splendid robes, and, like the higher clergy, glittered in gold and jewels. The commons appeared in black, the dress belonging to the law. The assembly was thereafter opened by a short speech from the throne, in which the king congratulated himself on thus meeting his people assembled; alluded to the national debt, and the taxes, which were severely felt because unequally levied; and noticed the general discontent and spirit of innovation which prevailed; but declared his confidence in the wisdom of the assembly for remedying every evil. M. Barretin, the keeper of the seals, next addressed the assembly in a congratulatory speech, and was followed by Neckar. The latter spoke for three hours; but though much applauded on account of the clear financial details which his speech contained, he encountered a certain degree of censure from all parties, on account of the cautious ambiguity which he observed regarding the future proceedings of the States General.

The following day the three orders assembled separately. The deputies of the *tiers état* amounted to six hundred in number, and those of the nobles and clergy to three hundred each. During the earlier sittings much time was spent in unimportant debates about trifling points of form; and the first important question which came under discussion was the verification of their powers, or production of the commissions of the members, and the investigation of their authenticity. The commons laid hold of this as a pretext for opening the grand controversy, whether the States General should sit in one or in three separate chambers; and they sent a deputation inviting the nobles and the clergy to meet along with them in the common-hall, for the purpose of verifying their powers in one common assembly. In the chamber of the clergy a hundred and fourteen members voted for the performance of this ceremony in the general assembly, and a hundred and thirty-three against it; but in the order of the nobles the resolution for the verification in their own assembly was carried by a majority of a hundred and eighty-eight to forty-seven. The commons, however, paid no regard to this. Conducted by bold and skilful leaders, who discerned the importance of the point in contest, they resolved not to abandon it. Hence the latter, though fully cognisant of the exigencies of the state, and aware that, owing to the deficiency in the revenue, a short delay might lead to the absolute dissolution of the government, suffered five weeks to pass away in total inactivity. During this period proposals were made on the part of the ministry for a pacification between the three orders, and conferences were opened by commissioners from each; but no art could induce the commons to abandon their original purpose, or prevail with them to enter upon the business of the state.

Popularity of the *tiers état*.

The nation having expected much from the assembling of the States General, received the intelligence of their inaction with no small degree of concern. But as the *tiers état* was naturally popular, public censure could not readily fall upon that favourite order. Besides, from the period of their assembling, the commons had made every effort to augment their own popularity. They admitted all persons promiscuously into the galleries, and even into the body of their hall; no restraint was attempted to be laid upon the most vehement marks of popular applause or censure; lists of the names of the voters were publicly taken and sent to Paris upon every remarkable occasion; and thus the members suddenly found that, according to their political sentiments, they became objects of general execration or applause. The new and bold notions of liberty which were daily advanced by the leaders of the *tiers état* were received with acclamation by their hearers; the capital became interested in the issue of every debate; and the political fervour thus generated thrilled along every nerve and sinew of society. The commons accused the nobles of obstinately impeding the business of the state, by refusing to verify their powers in one common assembly; and the accusation was greedily swallowed by the multitude. The nobles accordingly became every day more unpopular. Their persons were insulted; and new publications daily appeared, in which their order was reviled, and represented as an useless or pernicious incumbrance, not to be tolerated in a free state. Whoever adhered to them was branded with the odious appellation of aristocrat. The clergy, from the influence of the parish curés or parsons, seemed ready to desert their cause; and they were even opposed by a minority of their own body, which derived lustre from having at its head the Duke of Orleans. Still, however, the majority of the nobles remained firm; well aware, that if they once consented to sit in the same assembly, and to vote promiscuously, with the more numerous body of the commons, their whole order, with all its exclusive privileges, must speedily be overthrown.

Meanwhile the leaders of the commons saw that a change was taking place in the minds of men; and regarding the period as at length arrived when they might emerge from their inactivity, and seize the whole legislative authority, they declared that the representatives of the nobles and the clergy were only the deputies of particular incorporations, who might sit and vote along with them, but who had no title in a collective capacity to act as the legislators of France. For conducting business with more facility, twenty committees were named. On the suggestion of the Abbé Sieyes, a final message was sent to the privileged orders, requiring their attendance as individuals, and intimating that the commons, as the deputies of ninety-six out of every hundred of their countrymen, were about to assume the exclusive power of legislation. None of the nobles obeyed the summons; but three curés, named Cesve, Ballard, and Jallot, presented their commissions, and were received with loud acclamations; and the following day these were followed by five more, amongst whom were Grégoire, Dillon, and Bodineau. After some debate concerning the appellation which they ought to assume, the commons, with such of the clergy as had joined them, solemnly voted themselves the sovereign legislators of their country, under the name of the National Assembly. When the result of the vote was declared, the hall resounded with shouts, from an immense concourse of spectators, of *Vive le Roi et vive l'Assemblée Nationale.* M. Bailly was chosen president for four days only, MM. Camus and Pison de Galand were appointed secretaries, and the assembly proceeded to business.

The first acts of the National Assembly were decisively expressive of its own sovereignty. All taxes imposed without the consent of the representatives of the people were declared to be null and void; but a temporary sanction was given to the existing taxes, though illegal, till the dissolution of the assembly, and no longer; and it was added, that as soon as the assembly should be able to fix, in concert with his majesty, the principles of national regeneration, it would take into consideration the national debt, and place the creditors of the state under the safeguard of the national honour.

Union of the clergy with the commons.

The popular cause now gained ground so fast, that on the 19th of June a majority of the clergy voted for the verification of their powers in common with the National Assembly, and resolved to unite with them on the following day. Affairs had thus come to a crisis, and the nobles perceived that they must instantly make a decisive stand, or yield up their cause as utterly lost. So great indeed was their alarm, that M. d'Espremenil proposed, at one of the sittings of their order, to address the king, entreating him to dissolve the States General. Hitherto that prince had gone along with Neckar in favouring the popular cause in opposition to the aristocracy. But every art was now used to alarm his mind regarding the late assumptions of power on the part of the commons; and these arts were at length successful. Repeated councils were held; and as Neckar was absent attending a dying sister, the king was prevailed upon to enter into the views of the aristocratical leaders. But the first measure which they adopted was so ill conducted as to afford little prospect of final success to their cause. On the 20th of June, when the president and members were about to enter as usual into their own hall, they found it unexpectedly surrounded by a detachment of the guards, who refused them admission, whilst the herald at the same time proclaimed a royal session. Alarmed at this unforeseen event, the meaning of which they knew not, but apprehending that an immediate dissolution of the assembly was intended, they instantly retired to a neighbouring tennis-court, where, in the heat of their enthusiasm, they took a solemn oath never to separate until the constitution they had promised the country should be completed. On the 22d a new proclamation intimated that the royal session was deferred till the following day. It was now alleged that the assembly had been excluded from their hall merely because the workmen were occupied in preparing it for the intended solemnity. But this information was not calculated to excite favourable expectations of the measures about to be adopted at a royal session, ushered in by such circumstances of disrespect to the representatives of the people. The assembly, after wandering about in quest of a place of meeting, at length entered the church of St Louis, and were immediately joined by the majority of the clergy, with their president the Archbishop of Vienne at their head. Two nobles of Dauphiné, the Marquis de Blaçon and the Count d'Agoult, at the same time presented their commissions. Encouraged by these events, and by the applause of the multitude, the assembly now waited with firmness the measures about to be adopted.

Discour of the k

The royal session was held in the most splendid form, but altogether in the style of the ancient despotism. Soldiers surrounded the hall. The two superior orders were seated, whilst the representatives of the people, who had been left standing a full hour in the rain, were in no humour, when at last admitted, to receive with much complacency the commands of their sovereign. The king read a discourse, in which he declared null and void the resolutions of the 17th, but at the same time presented the programme of a constitution for France. This scheme contained many good and patriotic principles, but preserved the distinction of orders, and the exercise of *lettres de cachet;* it said nothing about any active share in the legislative power to be possessed by the States General, and was silent respecting the responsibility of ministers and the liberty of the press. The king concluded by commanding the deputies immediately to retire, and to assemble again on the following day; after which he then withdrew, and was followed by all the nobles and a part of the clergy. The commons remained on their seats in gloomy silence; but this was at length interrupted by the grand master of the ceremonies, who reminded the president of the intentions of the king. The words were scarcely uttered when Mirabeau, starting from his seat, exclaimed, "The commons of France have determined to debate. We have heard the intentions which have been suggested to the king; and you, who cannot be his agent with the States General, you, who have here neither seat nor voice, nor a right to speak, are not the person to remind us of his speech. Go tell your master, that we are here by the power of the people, and that nothing shall expel us but the bayonet." The applause of the assembly seconded the enthusiasm of the orator, and the master of the ceremonies withdrew in silence. M. Camus then rose, and having in a vehement speech stigmatized the royal session by the obnoxious appellation of a bed of justice, he concluded by moving that the assembly should declare their unqualified adherence to their former decrees. This motion was followed by another, declaring the persons of the deputies inviolable; and both were unanimously decreed. The assembly accordingly continued their sittings in the usual form. On the following day the majority of the clergy attended as members; and on the 25th the Duke of Orleans, along with forty-nine of the deputies belonging to the order of nobility, also joined them. The remaining nobles, as well as the small minority of the clergy, now found themselves awkwardly situated; but whether on this account, or because their leaders had by this time formed a plan for carrying their point by the aid of a military force, the king, by a pressing letter, invited both orders to join the commons; and this request was immediately complied with, though many of the nobility highly disapproved of the measure.

Situation of France.

The situation of France had now become truly alarming. When the king retired from the assembly after the royal session, he was followed by more than six thousand citizens, with loud clamours and every mark of disapprobation. At Versailles all was speedily in an uproar. Neckar had repeatedly solicited his dismission, the report of which increased the popular clamour. The court was in consternation. The king now discovered that his minister was more popular than himself. At six o'clock in the evening the queen sent for M. Neckar; and when he returned from the palace, he assured the crowd who waited for him that he would not abandon them, upon which they retired satisfied. At the same time the news of the royal session had thrown the city of Paris into violent agitation. The peace of that capital was at this time endangered by a variety of causes. A dreadful famine raged throughout the land, and, as is usual in such cases, was most severely felt in the capital. This prepared the minds of men for receiving unfavourable impressions as to the political state of the country; and, besides, every effort was made to disorganize the government, and produce a dislike of the ancient order of things. The press poured forth innumerable publications, filled with new and seducing, though generally impracticable, theories of liberty; and these were not only distributed gratis amongst the people of Paris, but dispersed in the same manner throughout the provinces. Philip duke of Orleans, presumptive heir to the crown after the children and brothers of the king, is with good reason believed to have supplied out of his more than princely revenues the expense of these publications. In the gardens of the Palais Royal, which belonged to him, an immense multitude was daily assembled, listening from morning till night to orators who descanted upon the most exciting topics of popular politics, and many of whom were suspected to be in his pay. It was even believed, we wish we could say without reason, that his money found its way into the pockets of some of the most distinguished leaders in the National Assembly.

Seduction of the military.

But the government was, if possible, still more endangered by the methods which were now employed to seduce the military from their duty. Every officer of the French army belonged to the order of nobility; and hence it might have been imagined that but little danger was to be apprehended from a body so commanded. But this very circumstance became the means of disorganizing that great engine of despotism. As the soldiers could not avoid imbibing the new opinions, their officers became the first objects of their jealousy, especially in consequence of the impolitic edict of Louis XVI. which required every officer to produce proofs of four degrees of nobility, and thus insulted, by avowedly excluding, the plebeians from promotion. With a view to what might eventually occur, the instructions to the deputies of the *tiers état* had recommended an increase of the pay of the soldiers; and now every art was employed to gain them to the popular cause. They were conducted to the Palais Royal, and there caressed and flattered by the populace, whilst they listened to the popular harangues. Nor were the arts of corruption unsuccessful. On the 23d of June the military refused to fire on the mob in a tumult; and when some of their number were on the 30th reported to be in confinement for this offence, a crowd instantly collected and rescued them, the dragoons who were brought to suppress the tumult grounding their arms. A deputation of the citizens solicited the assembly to obtain the pardon of the prisoners; and the assembly applied to the king, who pardoned them accordingly.

All these events, together with the tumultuous state of the capital, which was daily increasing, rendered it necessary for the king to call out the military force, in order, if possible, to restore the public peace. That his intentions were to re-establish order, the actual state of affairs will not permit us to doubt; but the aristocracy, with the Count d'Artois at their head, were engaged in bringing forward other measures, which ultimately contributed to ruin the king and the monarchy. Crowds of soldiers were collected, from all parts of the kingdom, around Paris and Versailles; and it was observed, that these consisted principally of foreign troops. Camps were traced out, and Marshal Broglio, an officer of exaggerated reputation, was placed at the head of the army. The king was supposed to have entirely yielded to new counsels, and every thing betokened a desperate effort to restore the energy of the ancient government. This was indeed the most interesting and important period of the French revolution; it formed as it were the pivot on which the whole movement turned; yet the specific designs of the leading actors have never been clearly understood, though their general tendency has always been perfectly intelligible. It was rumoured at the time, that Paris was to be subdued by a bombardment, and that the assembly was to be dissolved, and its leaders put to death. But although such reports were entitled to small credit, the crisis of French liberty was at hand, and the existence of the National Assembly as an independent body, at least upon any other footing than that proposed by the king on the 23d of June, was also involved. An able and eloquent address to the king against the assemblage of foreign troops in their neighbourhood was in the mean time brought forward by Mirabeau, and voted by the assembly. The king replied that the state of the capital was the cause of assembling the troops, and offered to transfer the States General to Noyons or Soissons. "We will remove neither to Noyons nor to Soissons," exclaimed Mirabeau; "we will not place ourselves between two hostile armies, that which is besieging Paris, and that which may fall upon us through Flanders or Alsace: we have not asked permission to run away from the troops; we have desired that the troops should be removed from the capital."

Thirty-five thousand men were now stationed in the neighbourhood of Paris and of Versailles. The posts which commanded the city were occupied, and camps were marked out for a greater force. The Count d'Artois and his party regarded their plans as ripe for execution; and Neckar received an order from the king, ordaining him to quit the kingdom in twenty-four hours. That popular minister dined with his family after receiving the commands of his sovereign, and the same evening set out for Brussels. In his dismission the democratic party perceived that a resolution had been adopted to accomplish their ruin. The assembly therefore again addressed the throne, and requested anew the removal of the troops, offering to become responsible for the public peace, and to proceed in a body to Paris to encounter personally every danger which might occur. But they were coolly told that the king was the best judge of the mode of employing the troops, and that the presence of the assembly was necessary at Versailles. On receiving this reply, it was instantly decreed, on the motion of the Marquis de Lafayette, that the late ministry had carried with them the confidence of the assembly; that the troops ought to be removed; that the ministry should be held responsible to the people for their conduct; that the assembly persisted in all its former decrees; and that as it had taken the public debt under the protection of the nation, no power in France was entitled to pronounce the degrading word bankruptcy.

Consternation in Paris.

The city of Paris was thrown into great consternation by the news of Neckar's retreat. His bust and that of the Duke of Orleans were dressed in mourning, and carried through the streets. But the royal Allemand, a German regiment, having broken in pieces the busts, dispersed the populace; and the Prince de Lambesc, grand-ecuyer of France, was ordered to advance with his regiment of cavalry, and take post at the Tuilleries. Being a man of a violent temper, and enraged at the appearances of disapprobation which were visible around him, the latter furiously cut down with his sword an old man who was walking peaceably in the gardens. The consequences of this inhuman act were such as might have been expected. A shout of execration instantly arose; the cry to arms was heard; the military was assaulted on all sides; the French guards joined their countrymen, and compelled the Germans, overpowered by numbers, and unsupported by the rest of the army, to retire. All order was now at an end, and as night approached universal terror diffused itself throughout the city. Bands of robbers were collecting; and from them, or from the foreign soldiery, a general pillage was expected. The night passed away in consternation and tumult; and it was found in the morning that the hospital of St Lazare had already been plundered. The alarm bells were rung; and the citizens having assembled at the Hôtel de Ville, adopted a proposal which was there made for enrolling themselves as a militia, under the appellation of the National Guard. This day and the succeeding night were spent in tolerable quietness, without any attempt being made on the part of the army. But on the morning of the 14th of July it was discovered that the troops encamped in the Champs Elisées had moved off, and an immediate assault was therefore expected. The national guard now amounted to a hundred and fifty thousand men; but they were in general destitute of arms. They assumed a green cockade; but on recollecting that this was the livery of the Count d'Artois, they adopted one of red, blue, and white; and this was the origin of the tricolor cockade. M. de la Salle was named commander in chief; officers were chosen; and detachments were sent round in quest of arms. In the Hôtel des Invalides were found upwards of thirty thousand stand of arms, together with twenty pieces of cannon. A variety of weapons were also procured from the *garde-meuble de la couronne*, and from the shops of armourers, cutlers, and others.

Capture of the Bastille.

The too famous fortress of the Bastille was an object of natural hatred to the Parisians. Within its walls, courage, genius, and innocence, had long wept unseen, and its doleful echoes had often responded to the stifled cries of despair. At eleven o'clock in the morning, M. de la Rosière, at the head of a numerous deputation, waited upon M. Delaunay, the governor, who promised, along with the officers of his garrison, that they would not fire upon the city unless they were attacked. But a report was soon spread throughout Paris that M. Delaunay had a short time thereafter admitted into the fortress a multitude of persons, and then treacherously massacred them. The origin of this rumour has never been discovered. The fact itself has been denied; but it was attested at the time by the Duke of Dorset, then British ambassador at the court of France. The effect of it was the adoption of a resolution to assault the Bastille; in consequence of which an immense and furious multitude rushed into its outer, and soon forced their way into its inner, courts, where they received and returned a severe fire for the space of an hour. The French guards, who were now embodied into the national guard, conducted the attack with equal skill and coolness. They dragged three waggons loaded with straw to the foot of the walls, and there set them on fire, by which means the garrison were prevented from taking aim, whilst the smoke proved no hindrance to the assailants. The besieging multitude pressed the attack with incredible obstinacy for the space of four hours; the garrison was thrown in confusion; the officers served the cannon in person, and fired muskets in the ranks; whilst the governor in despair thrice attempted to blow up the fortress. A capitulation was at length sought, but refused to the garrison, and an unconditional surrender demanded. This at length took place, and the governor, with M. de Losme Salbrai, his major, became victims of the popular fury, in spite of every effort which could be made for their protection; but the French guards succeeded in saving the lives of the garrison. Only seven prisoners were found in the Bastille. A guard was placed in it, and the keys were sent to the celebrated M. Brissot, who a few years before had inhabited one of its dungeons. The remaining part of this eventful day was spent at Paris in a mixture of wild triumph and excessive alarm. In the pocket of the governor of the Bastille there had been found a letter written by M. de Flesselles, the *prévot des marchands*, or chief city magistrate, who had pretended to be a most zealous patriot, encouraging him to resistance by the promise of speedy support. This piece of treachery was punished by instant death; and the bloody head of Flesselles was carried through the city on a pole, along with that of M. Delaunay. On the approach of night a body of troops advanced towards the city by the Barrière d'Enfer; but the national guard hurried thither, preceded by a train of artillery, and the troops withdrew upon the first fire. Barricades were everywhere formed, the alarm-bells were rung, and a general illumination continued throughout the night.

A new m nistry appointed.

In the mean time it was obvious that the new ministry were entering upon a difficult scene of action, where one false step might lead to ruin, and where their own plans of conduct required to be maturely digested. Marshal Broglio was appointed minister of war; the Baron de Breteuil, president of finance; M. de la Galezière, comptroller-general; M. de Laporte, intendant of the war department; and M. Foulon, intendant of the navy: but they were only destined to act as official men under the Count d'Artois, and the other leaders of the aristocracy. To the latter there scarcely remained even a choice of difficulties; in fact no resource was left but that of overawing by military force the National Assembly and the capital, and risking the desperate measure of a national bankruptcy, to avoid which the court had convoked the States General. But no trace exists of any attempt to employ this last and desperate resource. The evening after the departure of M. Neckar was spent by the court of Versailles in festivity, as if a victory had been gained; and the courtiers of both sexes went round among the soldiery, striving to secure their fidelity by caresses, and every species of flattering attention. The ministry, however, not only failed to support the Prince de Lambesc in the post which he had been sent to occupy, but suffered the whole of the 13th to pass in indecision, whilst the capital was in a state of rebellion, an army formally mustering within its walls, and the names of the principal nobility publicly exposed in lists of proscription. They accordingly received with confusion and dismay the news of the capture of the Bastille; and these feelings were increased by information received from Marshal Broglio that the troops refused to act against the Parisians or the National Assembly. In this perplexity they adopted the miserable device of concealing from the king the real state of public affairs; and that unfortunate prince was thus perhaps the only person who remained ignorant of the convulsions in which his country was involved. At length, about midnight, the Duke of Liancourt forced his way into the king's apartment, and informed him of the revolt of the capital and the army, and of the surrender of the fortress of the Bastille. The Count d'Artois, who was present, still attempted to retain the monarch under the fatal delusion which it had been the object of this communication to destroy; but the Duke of Liancourt, turning round, exclaimed, "As for you, Sir, your life can only be saved by instant flight; I have seen with horror your name in the bloody list of the proscribed." The count, with the members of his short-lived administration and their adherents, accordingly fled to the frontiers; and thus commenced an emigration which, depriving the throne of its natural supporters, left the field open to the declared enemies of the monarchy. This ministry had, no doubt, many difficulties to contend with; but an accurate examination of their conduct excites a suspicion which, whilst it exculpates them from much that has been laid to their charge, does little honour either to their talents or their character, namely, that they had come into office without having formed any regular plan of conduct, and that, acting without decision, they became the sport of events which they wanted skill and vigour to direct or control.

The king visits the assembly and the capital.

But in spite of all that had occurred, the monarch was still personally beloved. Early the following morning the king went to the assembly, though with none of the usual solemnities. He regretted the commotions of the capital, disavowed any knowledge of an intention against the persons of the deputies, and intimated that he had commanded the removal of the troops. A deep silence prevailed for some moments, but this was succeeded by vehement and universal shouts of applause. When the king rose to depart, the whole assembly instantly crowded around him, and attended him to his palace. The queen appeared at a balcony with the dauphin in her arms; and the music played the pathetic air *Où peut on être mieux qu'au sein de sa famille.* The enthusiasm of loyalty communicated itself to the surrounding multitudes, and nothing was heard but acclamations of joy. On the following day the king declared his resolution to visit in person the city of Paris; and accordingly he set out, attended by some members of the assembly, and by the militia of Versailles. He was met by Lafayette at the head of a body of the national guard, of which he had been chosen commander in chief; and M. Bailly, in whose person the ancient office of mayor of Paris had been revived, received the king at the gates, and delivered to him the keys. During all this time no shout was heard from the innumerable crowd of spectators but that of *Vive la Nation.* The king advanced to the Hôtel de Ville, where the tricolor cockade was presented to him, which he put on, and with this badge on his breast presented himself at the window. At the sight of the patriotic emblem an universal shout of *Vive le Roi* burst forth from every quarter, and Louis returned to Versailles amidst loud demonstrations of apparent loyalty and attachment. But much confusion still prevailed in the capital, notwithstanding there was more appearance of order than might have been expected at such a crisis. This arose from a casual concurrence of circumstances. In order to conduct the elections with facility, Paris had been divided into sixty districts, each of which had a separate place of meeting. The people did not elect the members of the States General, but they chose delegates, who, under the name of electors, voted for the members. At the commencement of the disturbances, the electors, at the request of their fellow-citizens, assumed a temporary authority; but of this they speedily became weary, and as soon as possible procured the public election of a hundred and twenty persons, as municipal officers, for the government of the city. The citizens, having acquired the habit of meeting in their districts, grew fond of doing so; and assembling frequently, they made rules for their own government, and sent commissioners to communicate with other districts. The tumultuous nature of these meetings, and the vehemence of debate which prevailed in them, were incredible; but they gradually ripened into clubs, which ere long assumed the whole power of the state.

Neckar's return.

The banishment of Neckar was of short duration. He returned to France in consequence of an invitation by the king, and was received with equal joy by the assembly and the capital. But on this occasion he committed what has been considered as a great political error. In deploring the late excesses and murders, and in noticing the arrest of M. Bezenval, an officer of the Swiss guards, he recommended to the electors at the Hôtel de Ville, in a solemn harangue, that the past should be forgotten, that proscriptions should cease, and that a general amnesty should be proclaimed. In a moment of enthusiasm, this was agreed to, and the electors decreed what unquestionably exceeded their powers. The districts of Paris were instantly in commotion. The electors, alarmed, declared that they only meant that henceforth the people would punish no man except according to law; and to prove that they themselves were free from ambition, they formally renounced all their own powers. The assembly now took up the question, upon which Lally-Tolendal, Mounier, Clermont-Tonnerre, Garat, and others, declared that no person ought to be arrested without a formal accusation; whilst Mirabeau, Robespierre, Barnave, and Gleizen, alleged, on the contrary, that the people were entitled to lay hold of any man who had publicly appeared at the head of their enemies. The debate ended by admitting the explanation of the electors, and by a declaration that it was the duty of the assembly to see justice executed in all cases.

State of the country.

The commotions and enthusiasm which distracted the capital were speedily communicated to the provinces. In every quarter the people seized upon all the arms which could be found, and the military uniformly refused to act against them. Many acts of outrage were committed in Bretagne, at Strasbourg, in the Lyonnois, and elsewhere, in which the nobility were the sufferers. The mischiefs which occurred were usually magnified at a distance; but that very circumstance constituted an additional evil. It was stated in the National Assembly that M. de Mesmay, lord of Quincey, had invited to his house a number of patriots, amongst whom were the officers of a neighbouring garrison, to a splendid entertainment, in celebration of the happy union of the three orders; and that in the midst of the feast the master of the house contrived to withdraw unnoticed, and to set fire to a train previously laid, which communicated with a quantity of gunpowder in the cellars, by the explosion of which the whole company were blown into the air. On inquiry, however, it was found that the story was utterly destitute of truth. But before the fact could be ascertained, all France had resounded with accounts of the bloody tragedy; and the whole nobility of the kingdom suffered in a greater or less degree from the prejudices excited by this unhappy report, the origin of which has never been well explained. It would be vain to state all the idle rumours to which at this time the blind credulity of the multitude gave currency. At one time the aristocrats were cutting down the green corn; at another they were burying flour in the common sewers, or casting loaves into the river Seine. One report had no sooner been proved to be false than another was invented, and the whole nation was agitated by suspicion and alarm. The National Assembly were engaged in framing the declaration of the Rights of Man, which was to form the basis of the new constitution, when the alarming accounts, received from all quarters, of the state of anarchy into which the kingdom was falling, obliged them suddenly to turn their attention to questions of practical necessity. The privileged orders finding themselves objects of universal jealousy and hatred, became convinced that something must instantly be done to save their families and property, which were menaced on every side with persecution and pillage; and regarding the popular torrent as irresistible, they resolved to sacrifice a part in order to save something out of the general wreck.

1789. Night of sacrifices.

On the afternoon sitting of the 4th of August the Viscount de Noailles, seconded by the Duke d'Aguillon, opened one of the most important scenes in the French Revolution, or in the history of any country. These noblemen stated, that the true cause of all the commotions which had convulsed the kingdom was to be found in the misery of the people, who groaned under the double oppression of public contributions and of feudal services. "For three months," said M. de Noailles, "the people have beheld us engaged in verbal disputes, whilst their own attention and their wishes are directed only to things. What is the consequence? They have armed to reclaim their rights, and they see no prospect of obtaining them except by force." He therefore proposed to do justice, as the shortest way of restoring tranquillity, and for this purpose to decree that henceforth every tax should be imposed in proportion to the wealth of the contributors, and that no order of the state should be exempted from the payment of public burdens; that feudal claims should be redeemed at a fair valuation, but that such claims as consisted of personal services on the part of the vassal should be abolished without compensation, as contrary to the imprescriptible rights of man. The extensive possessions of the noblemen with whom these proposals originated, added lustre to the disinterested sacrifice which they had made; the speeches delivered on the occasion were received with the most enthusiastic applauses by the assembly and the galleries, and their proposals were decreed by acclamation. In fact, no nation is so powerfully influenced by sudden emotions as the French. On this occasion the patriotic contagion spread with inconceivable rapidity, and a contest of generosity ensued. The hereditary jurisdictions possessed by the nobles within their own territories were unconditionally sacrificed. All places and pensions granted by the court were suppressed, unless given as the reward of merit or of actual services. The game laws, which condemned the husbandman, under severe penalties, to leave his property a prey to infinite multitudes of animals preserved for pastime, having always been numbered amongst the most severe grievances of the French peasantry, were renounced, along with the exclusive rights of rabbit-warrens, fisheries, and dove-cots. The sale of offices was abolished, and the fees exacted from the poor, together with the privilege of holding a plurality of livings, were relinquished by the clergy. The deputies of the Pais d'Etat, or privileged provinces, with the deputies of Dauphiné at their head, next came forward, and offered to surrender their ancient privileges, requesting that the kingdom might no longer remain parcelled out amongst Dauphinois, Bretons, Provençaux, and others, but that they should all form one great mass of French citizens. They were followed by the representatives of Paris, Marseilles, Lyons, Bordeaux, Strasbourg, and other places, who requested leave to renounce all their separate privileges as incorporations, for the sake of placing every man and every village in the nation upon a footing of equality. And thus the assembly proceeded, until every member had exhausted his imagination upon the subject of reform. To close the whole, the Duke of Liancourt proposed that a solemn *Te Deum* should be performed, and a medal struck in commemoration of the events of that night of sacrifices; and that the title of Restorer of Gallic Liberty should be bestowed upon the reigning monarch. Several days were necessary to form into laws the decrees of the 4th August, and committees were appointed to make out reports for the purpose. But as one of these included the tithes and revenues of the clergy amongst the abuses which were to be done away with, and proposed in lieu of these to grant to the different ministers of religion a certain stipend payable by the nation, the clergy now attempted to make a stand in defence of their property; and violent debates ensued, in which they were ably supported by the Abbé Sieyes. As the clergy, however, had formerly deserted the nobles, so they were now in their turn abandoned to their fate by the hereditary aristocracy; and the popular party had long regarded the wealth of the church as an easy resource for supplying the wants of the state. Never, indeed, was there a more complete proof of the influence of opinion over the affairs of men. The Catholic clergy of France, though possessed of more property than at the time when princes took up arms or laid them down at their command, now found so few defenders, that they were terrified into a voluntary surrender of all which they and their predecessors had enjoyed for ages. In their overthrow they had not even the barren honour of falling the last of those privileged orders which had so long ruled over this ancient kingdom. They, as well as the nobles and the king, still possessed their former titles and nominal dignity; but all of them were now subdued, and completely at the mercy of the commons of France, who could now dismiss them at pleasure.

New ministry.

As a short season of tranquillity in the country and in the National Assembly succeeded these great popular sacrifices, the king thought it a fit opportunity for the appointment of a new ministry, consisting of the Archbishop of Vienne, the Archbishop of Bordeaux, M. Neckar, the Count de St Priest, Count de Montmorin, the Count de la Luzerne, and the Count de la Tour du Pin Paulin. M. Neckar, as minister of finance, stated the distressed situation of the revenue, and presented the plan of a loan of thirty millions of livres. But Mirabeau prevailed with the assembly to alter and narrow the conditions to such a degree that very few subscribers were found, and the loan could not be filled up. This failure involved the assembly in considerable unpopularity, and they allowed M. Neckar to prescribe his own terms for the purpose of obtaining a loan of eighty millions. But the moment of public confidence had been allowed to pass away, and the loan was never more than half filled up. Recourse was next had to patriotic contributions; and great numbers of gold rings, silver buckles, and pieces of plate, were presented to the assembly. The royal family themselves sent their plate to the mint, either to give countenance to these donations, or, as Neckar has since asserted, through absolute necessity, for the purpose of supporting themselves and their family. The confusion into which the nation had been thrown by recent events had produced a suspension in the payment of all taxes. There existed, in fact, no efficient government; and if society escaped dissolution, it was only in consequence of those habits of order which are produced by a state of long-continued civilization. The business of government could not be transacted without money, and many vain efforts were made by the ministry to procure it. At length M. Neckar was driven to the desperate resource of proposing a compulsory loan, by which every individual possessed of property was to advance to the state a sum equal to one fourth of his annual income. This bold but unwise proposition was supported by Mirabeau, and adopted by the assembly; but it does not appear to have ever been effectually executed.

Rights o Man, anc the king' veto.

In the mean time the assembly was busily occupied in framing the celebrated declaration of the Rights of Man, which was afterwards prefixed to the new constitution; and this was followed by the discussion of a point of much delicacy and difficulty, namely, what share of legislative authority the king ought to possess under the new constitution, whether an absolute veto or negative, a suspensive veto, or no veto at all. This question operated like a touchstone for trying the sentiments of every person; and the assembly, consisting of twelve hundred men, was now seen to arrange itself into two factions, which soon came into violent conflict. The debates, which were vehement and tumultuous, continued for several days. But as the assembly sat in public, and as multitudes of people of all descriptions were admitted into the galleries, and even into the body of the hall among the members, the public at large became speedily interested in the discussion; the city of Paris took a side in opposition to the veto; and the whole empire was thrown into agitation by new and speculative questions. In fact, rumours of plots were spread throughout the country, and a new storm was obviously gathering, when the question was got rid of by a sort of compromise, which, however, involved an abridgment of the royal authority. Mounier observed, that the executive power could possess no negative against the decrees of the present assembly, which had been nominated by the nation with supreme powers for the express purpose of framing a constitution, to remain binding on all orders of men in the state; and with regard to future legislatures, the king by a message declared that all he desired to possess was a suspensive veto. It is not a little remarkable that Mirabeau concluded a speech in favour of the absolute veto of the crown, by declaring that it would be better to live in Constantinople than in France, if laws could be made without the royal sanction. He is, however, accused of having caused a report to be circulated in Paris that he had opposed the veto with all his influence; and, to give credit to the story, he is said to have quitted the assembly immediately before the division, that his vote might not appear on record against him.

Constitution of the legislative body.

The month of August was spent in the debates about the veto; but in the beginning of September a new constitutional question was presented to the assembly by one of its numerous committees. This was, whether the legislative body should consist of one or of two chambers. Mounier, Lally-Tollendal, Clermont-Tonnerre, and others, who were zealous lovers of freedom upon moderate principles, supported eagerly the idea of establishing two independent chambers, in imitation of the British constitution; but they were deserted both by the democratic and the aristocratic parties. The former regarded an upper house or senate as a refuge for the old aristocracy, or at least as the cradle of a new one; whilst the nobility and clergy were afraid lest such an arrangement might prevent the future re-establishment of the ancient division into three orders. Accordingly, of a thousand members who voted, only eighty-nine supported the proposal for dividing the legislature into two chambers. Soon after this the king gave his sanction to the important decrees of the 4th of August, though not without hesitation, and expressing doubts of the wisdom of some of them in a letter to the assembly. At the same time were decreed the inviolability of the person of the monarch, the indivisibility of the throne, and its hereditary descent from male to male in the reigning family.

State of parties.

In consequence of the debates on the subject of the veto and that of the two chambers, the minds of parties had become much excited. Paris wore the same threatening aspect as it had done in the months of June and of July preceding; and every thing seemed tending towards a crisis. The aristocratic party accused their antagonists of a design to excite new insurrections; and the charge was retorted by circulating a report that a plot for conveying the king to Metz was already ripe for execution. From the period of the defection of the French guards, who were now in the pay of the capital, the protection of the royal family had been intrusted to the militia or national guard of Versailles, together with the regiment of the *gardes du corps*, which was composed entirely of gentlemen. But when the report of the intended flight of the king was circulated, the French guards desired to be restored to their ancient employment of attending his person, in order to prevent any attempt of the kind. This idea was eagerly caught hold of in the capital; and, notwithstanding every effort which M. de Lafayette could use, the approach of disturbances became every day more obvious. The popular party perceived the advantage which they would derive from placing the assembly and the king in the midst of that turbulent metropolis, which had given birth to the Revolution, and upon the attachment of which they could most securely depend; and every encouragement was therefore given by the most active leaders of what was now called the democratic party to the project of establishing the court at Paris. The ministry were under no small degree of apprehension; and the Count d'Estaing, who commanded the national guard of Versailles, requested the aid of an additional regiment. The regiment of Flanders was accordingly sent for, and its arrival caused no small degree of anxiety; but every artifice was instantly employed in order to gain over both officers and soldiers to the popular cause.

On the first of October the *gardes du corps*, probably for the purpose of ingratiating themselves with the newly-arrived corps, and perhaps to attach them more steadily to the royal cause, invited the officers of the regiment of Flanders to a public entertainment; and several officers of the national guard, and others of the military, were also invited. The entertainment was given in the opera-house adjoining to the palace, and several loyal toasts were drunk; but it is asserted, that when the favourite popular toast, The Nation, was given, the *gardes du corps* refused to drink it. In ordinary cases, so trifling a circumstance as this would be regarded as unworthy of notice; but such was now the position of affairs, that the most trivial occurrences became instrumental in producing important consequences. The queen, having seen from a window of the palace the gaiety which prevailed amongst the military, prevailed on the king, who had just returned from hunting, to visit them, in company with herself and the dauphin. The sudden appearance of their majesties in the saloon kindled in an instant the ancient enthusiasm of French loyalty. The grenadiers of the regiment of Flanders, along with the Swiss chasseurs, had been admitted to the dessert; and they, as well as their officers, drank the health of the king, queen, and dauphin, with their swords drawn. The royal family then bowed to the company and retired. As they withdrew, the music played the favourite air, *O Ricard, O mon roi, l'univers t'abandonne;* and, in the enthusiasm of the moment, the national cockade was thrown aside, and white cockades mounted as fast as they could be made by the ladies of the court. When these circumstances were next day reported in Paris, with the usual amount of exaggeration, they gave rise to the most violent alarm. The capital was at that time suffering all the horrors of famine; and in such a situation, the news of a feast enjoyed by others seldom gives much pleasure to hungry men. A rumour of an intended flight on the part of the royal family was also got up: it was also asserted that a counter revolution was speedily to be attempted by force of arms; and the people were told that the present scarcity had been artificially created by the court for the purpose of reducing them to submission.

For several days no notice was taken in the assembly of what had passed at the entertainment given by the *gardes du corps;* but on the 5th of October Petion mentioned it for the first time, and a violent debate ensued, during which Mirabeau rose and exclaimed, "Declare that the king's person alone is sacred, and I myself will bring forward an impeachment;" thereby alluding to the conduct of the queen. During this debate at Versailles, Paris was in the most violent commotion. A vast multitude of women of the lowest rank, with some men in women's clothes, having assembled at the Hôtel de Ville, they resolved to proceed instantly to Versailles, to demand bread from the king and from the National Assembly. Lafayette in vain opposed them; for his soldiers refused to turn their bayonets against the women. Upon this Stanislaus Maillard, who had distinguished himself at the taking of the Bastille, having offered himself as leader of the insurgents, had the address to prevail on them to lay aside the arms which they had procured; and about noon he set out for Versailles, having established as much order amongst his followers as could well be expected in such a motley assemblage. The mayor and municipality of Paris also gave orders to Lafayette instantly to set out for that place at the head of the national guard.

In the mean time Maillard approached Versailles with his tumultuous band, which he had arranged in three divisions, and persuaded to behave with tolerable decency. The king was hunting in the woods of Mendon when he was informed of the arrival of a formidable band of women calling aloud for bread. "Alas," replied he, "if I had it, I should not wait to be asked." Maillard entered the assembly, accompanied by a deputation of his followers, to state the object of their journey; and, in order to pacify them, that body sent a deputation of their own number along with them to lay their complaints before the king. His majesty received them with great politeness, and readily agreed to go into any measures which could be suggested for the supply of the capital. The report of this gracious conduct produced a great effect upon the multitude collected around the palace, and they began to disperse; but they were speedily succeeded by another crowd not less numerous. A sudden resolution to fly seems now to have been proposed by the court, as the king's carriages were brought to the gate of the palace which communicates with the orangery; but the national guard of Versailles refused to allow them to pass, and the king himself declined to remove, or to permit any blood to be shed in his cause.

At length Lafayette, with his army, arrived, about ten o'clock at night, and found the assembly in a very unpleasant predicament, their hall and galleries being crowded by the Parisian fishwomen and others of the mob, who at every instant interrupted the debates. Lafayette waited upon the king, and informed him of the proceedings of the day; planted guards in every direction; and, after a scanty banquet had been procured for the multitude, prevailed with the assembly to close their sitting for the night. For this last part of his conduct Lafayette has been much censured, and not without reason; for it could scarcely be expected that such an immense assemblage of turbulent characters as were now brought together would pass the night without disorder. All remained tranquil, however, until about six in the morning of the 6th, when a great number of women and desperate persons rushed towards the palace, and attempted to force their way into it. Two of the *gardes du corps* were killed, and the crowd ascended the staircase leading to the queen's apartment, but were bravely resisted by a sentinel named Miemandre, who gave the alarm, and defended his post until he fell covered with wounds, from which, however, he afterwards recovered. The ruffians, reeking with blood, rushed into the chamber of the queen, and pierced with bayonets and poniards the bed whence she had scarcely had time to fly almost wholly undressed, and, through passages unknown to the murderers, escaped to seek refuge at the feet of the king, who, already alarmed, had gone to seek her. The tumult became every moment more violent, and sudden death seemed to threaten the royal family; but Lafayette was by this time at the head of his troops, whom he earnestly beseeched to save the *gardes du corps* from massacre; and in this he was happily successful. Some who had been taken prisoners were surrounded by the grenadiers of the French guards, who protected them, and the retreat of the whole corps was secured. The crowd was speedily driven from the different parts of the palace, which they had already begun to pillage; and the royal family at length ventured to show themselves at a balcony. A few voices now exclaimed *Le roi à Paris*, the king to Paris; the shout became general, and the king, after consulting with Lafayette, declared that he had no objection to take up his residence at Paris, provided he was accompanied by the queen and his children. When this proposal was reported to the assembly, the popular leaders expressed much satisfaction; they ordered a deputation of a hundred members to attend the king thither, and voted the National Assembly inseparable from the king. At two o'clock his majesty set out a prisoner in the custody of a turbulent mob; and thus humbled, the royal captives were conducted so slowly that a short journey of twelve miles was protracted during six hours. The king, the queen, and their children, were lodged in the old palace of the Louvre, whilst Monsieur went to reside at the Luxembourg; the city was illuminated, and the evening spent in triumph by the Parisians. The removal of the king to Paris was justly regarded as a triumph by the popular party. The higher order of nobility considered it as completely ruinous to their hopes; and many men of talents, such as Mounier, Lally-Tollendal, and others, now regarded every prospect of attaining constitutional freedom as at an end, seeing the national representatives would now be exposed to the insults, and overawed by the influence, of a turbulent capital. Several members of the assembly accordingly took refuge in foreign countries, and used every effort to excite other nations against France. As the Duke of Orleans had been regarded as the chief promoter of the late disturbances, Lafayette waited on him, and insisted on his leaving the kingdom for a time. The duke, not less timid than intriguing, felt overawed, and, on pretence of public business, proceeded to England, where he remained during several months.

First session of th assembly in Paris.

On the 19th of October the National Assembly held its first session in Paris. The king was closely guarded in his own palace; and no apparent obstacle now remained to prevent the popular party giving to their country such a constitution as they might judge expedient. Much, however, was still to be done, and many difficulties, arising from the habits of men educated under a different order of things, yet remained to be overcome. Two days after the assembly had gone to Paris, a baker was publicly murdered by the mob, upon a charge of having concealed a quantity of bread. Whilst the assembly was at a distance, events of this nature had been little attended to, as the leading party did not attempt to check those ebullitions of popular fury, from which they had derived so much advantage; but that party had now become all-powerful, and so flagrant an offence committed against the law was regarded as an insult to the sovereignty of the National Assembly. Two leaders of the mob were therefore tried and publicly executed; and a severe law was passed, of the nature of our riot act, authorizing the magistrates to act by military force against any assemblage of persons who should refuse to disperse when legally required to do so. The peace of the capital was thus secured for several months; but in the country no small degree of anxiety and excitement still existed. The same suspicious temper which had prevailed at Paris agitated the provinces with the apprehension of plots and monopolies of grain. Besides, the nobility in the country were by no means satisfied with the liberality which their representatives had evinced upon the 4th of August, in voting away their privileges and their property; a circumstance which produced violent jealousies between the peasantry and their landlords, and gradually conveyed to every corner of the kingdom the political ferment which had commenced at Paris.

The kingdom divided into departments.

The National Assembly being now in tolerable security, proceeded with the arduous task of framing a free constitution for the kingdom of France. The Abbé Sieyes presented a plan for dividing the kingdom into eighty-three departments, of about three hundred and twenty-four square leagues each, the department into several *arrondissemens* or districts, and the district into *communes* or cantons, of about four square leagues in extent. Thus all the ancient divisions of the kingdom into governments, generalities, and bailiwicks, was in an instant overturned. An attempt was also made to simplify in an equal degree the relative situation of individuals in civil life, by a decree which put an end to all distinction of orders and immunities, as far as privileges were concerned. A bold and important measure was at the same time adopted, namely, the confiscation of the whole lands belonging to the church, for the purpose of supplying the exigencies of the state. In this transaction all regard to justice was of course thrown aside. The lands of the church were as certainly the property of those who then possessed them, as any entailed estate amongst us is the property of the holder. In the former the clergy had as clear a life interest as the heir of entail could by possibility possess in the latter. The state may have had a right to appropriate to itself the church lands upon the death of the incumbents; but it might with as much justice have seized on the enormous revenues of the Duke of Orleans, as confiscated a single acre belonging to the most useless abbot in the kingdom. This iniquitous measure was proposed by the Bishop of Autun, M. de Talleyrand Perigord, who had been promoted to the episcopal bench in an irregular manner, in order to accomplish this premeditated robbery. On the property thus confiscated it was resolved to issue assignats, which were to be received by the state in payment of taxes, and of church lands when set up to sale. A provision was at the same time made for the national clergy, who were in future to be paid by the state. On the day following that upon which this important measure was adopted, a decree was also passed, suspending the functions of the different parliaments of the kingdom.

Fruitless attempts of the parliaments.

But proceedings in which the interests of so great a multitude of individuals were involved, could not be carried into effect without opposition. The parliaments in particular exerted themselves, by protests and other publications, to invalidate the decrees of the assembly; but these privileged bodies, who had long been accustomed to contend against the despotic administration of their country, and who on that account had for ages been objects of public favour, now found themselves unable to resist the mandate of a popular assembly; and, after a few fruitless struggles, they were all of them under the necessity of submitting to their fate. The assembly then proceeded to organize the kingdom by the establishment of municipalities, and by reforming the jurisprudence of the country. When the parliament of Paris had been abolished, however, the second court in that city, called the Châtelet, was retained for the purpose of trying such persons as had become obnoxious by their attachment to the royal cause; and this tribunal had the spirit to acquit the Baron de Bezenval, Marshal Broglio, and the Prince de Lambesc. But having incurred much popular odium by this acquittal, they sought to regain credit by condemning to death the Marquis de Favres, for a pretended conspiracy to massacre Lafayette, Bailly, and Neckar, and to convey the king to Peronne.

During the whole of this winter the king had been so strictly watched by numerous guards placed round his palace, that in other nations he was naturally considered as in a state of captivity. To do away with this impression, if possible, and to make the king appear a voluntary agent in the measures which had lately been adopted, every effort was employed to prevail on him to repair to the assembly, and there, as of his own voluntary motion, to declare his adherence to the measures in question. For some time, however, he resisted the proposal to take such a step; but at length, on the 4th of February, he suddenly appeared in the National Assembly, where he complained of the attempts which had been made to shake the new constitution, and declared his wish that it should be universally known that the monarch and the representatives of the nation were united, and their wishes the same; that he would defend the constitutional liberty of the state; and that, in conjunction with the queen, he would early form the sentiments of his son in strict accordance with the new order of things which the circumstances of the empire had introduced. This declaration dispirited the aristocratical party, and increased the unhappy tendency to look for aid from foreign countries, which they had always been too prone to indulge. On the 13th of February, monastic establishments were suppressed, and their lands confiscated; but the inmates of these establishments were allowed pensions for their subsistence, and permitted to continue the observance of their monastic vows if they thought fit to do so.[1]

An event occurred at this time (March 15th), which tended in no small degree to increase the odium under which the old government already laboured. This was the publication of the Red Book, or list of pensions and donations granted by the crown. After many entreaties on the one hand, and the most solemn promises of secrecy on the other, it had been communicated by M. Neckar to a committee of the assembly; but it afforded too striking an advantage to the popular party not to be made use of, and in a few days the minister, to his no small surprise, found this register publicly sold by every bookseller in Paris. He ought not, indeed, to have been surprised; and, in fact, the giving up of this list forms one of the many proofs which the transactions of this period afford of his utter unfitness for the office which he held. With much indignation, however, he demanded why the committee had published it without the permission of the assembly or the king; but he was told, that as to the assembly, they were sure of its approbation, and as to the king, they were not his representatives. To give an idea of the effect of this publication, it is only necessary to remark, that, under the short administration of Calonne, the two brothers of the king had received from the public treasury, independently of their legitimate income, nearly two millions sterling, and that six hundred thousand pounds had been granted to one individual, merely because he was the husband of Madame de Polignac. Neckar's opposition to the publication of this register tended in no small degree to injure his popularity, and the rest of the ministry began to lose the confidence of the public. Indeed, fertile causes of alarm prevailed on all sides. The clergy were attempting to revive in the provinces the ancient animosities between the Catholics and the Protestants, to whom the late decrees of the assembly were ascribed. The German princes who possessed property in the north of France complained loudly of the violation of their rights by the abolition of the feudal system, although the National Assembly had voted them a compensation; and the most melancholy intelligence was received from the colonies in the West Indies. The assembly had not recognized the right of the free negroes to enjoy the same privileges with other citizens, but still they hesitated to go the length of denying these privileges. This uncertain conduct produced infinite mischief. The whites contended with those commonly called people of colour, who again occasionally stood in opposition to the free negroes or to the slaves; and hence it sometimes happened that at the same time, and in the same colony, not less than three hostile assemblies were held, and made war upon one another with the most inveterate fury; and each party found protectors in the National Assembly, because those who favoured or opposed the existence of distinctions at home, in general followed out the same principle in reference to the colonies.

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[1] It is probable that, in consequence of the suppression of the monasteries, the Breton Committee began about this time to assume the appellation of the Jacobin Club, from the hall belonging to the Jacobin friars at Paris, in which their meetings were now held.

Upon the 14th of May M. de Montmorency having made known to the National Assembly the preparations for war in which England and Spain were engaged, this communication gave rise to the constitutional question, Who ought to possess the power of declaring war and making peace? Clermont-Tonnerre, Sarent, Virieu, and Dupont, supported the royal prerogative; whilst, on the other side, the exclusive right of the legislative body to exercise this important prerogative was supported by D'Aiguillon, Garat, Fréteau, Jellot, Charles Lameth, Silléry, Petion, Robespierre, and others. Petion proposed that the French nation should for ever renounce all idea of conquest, and confine itself entirely to defensive war; and this was decreed with universal acclamation. But Mirabeau at length successfully proposed that the right of declaring war or making peace should be vested in the king and the legislative body conjunctly; and the decree which was passed on the subject formed a strange farrago of contradictions and absurdities. It enjoined the king to guard the state from all external attacks; but it did not say how this could be done, without repelling any attack which might be made upon it. In fact, the king could do nothing without previously informing the National Assembly; and if that body chanced not to be sitting at the time, he was bound to let the enemy advance without opposition, until he had convened the deputies, dispersed over twenty thousand square leagues, and listened to their metaphysical quibbles in Paris.

Strange farce.

On the 16th of June a very singular farce was enacted in the assembly. A Prussian refugee, called Anacharsis Clootz, on an evening sitting, which was generally ill attended by persons of high rank, introduced to the assembly a number of persons dressed in the habits of all the different countries that could be thought of; and in a formal harangue told them that he was come, as the orator of the human race, at the head of the representatives of all nations, to congratulate them upon the formation of their new constitution. He was answered by the president with much solemnity, upon which he retired with his motley group. This fantastical piece of folly, which in any other country would scarcely have excited a smile, was treated by the assembly in a serious light. Alexander Lameth proposed, that the figures of different nations exhibited in chains at the feet of Louis XIV. should be destroyed, as an insult to mankind. M. Lambel, a lawyer, then proposed the abolition of all hereditary titles; and in this he was supported by Lafayette, St Fargeau, and the Viscount de Noailles. The decree passed, along with another for suppressing all armorial bearings. No part of the proceedings of the French National Assembly was received with so much indignation as this. The feudal system had been abolished, and the property of the church wrested from it, with comparatively little notice; but when those nominal distinctions which antiquity had sanctioned and personal vanity rendered dear were attacked, the surrounding nations instantly took the alarm, and beheld with terror the levelling precedent which had thus been established. Nor is it a little remarkable, that of all the king's ministers, Neckar alone, a plebeian, a republican born, and bred in a democracy, advised his majesty to refuse his assent to the decree, as a violent but useless encroachment upon the prejudices of a powerful order in the state.

In the mean time, the capital was entirely engrossed with preparations for a grand festival. M. Bailly having proposed to commemorate the anniversary of the taking of the Bastille, his plan was adopted, because it flattered the vanity of the people, by presenting them with a splendid spectacle, in commemoration of their own exertions. As the army had been much disorganized, it was also resolved to attempt to unite all its branches, as well as the whole departments of the state, in one common attachment to the new order of things, by collecting into one place deputations for the purpose of swearing fidelity to the new constitution. In the middle of the Champ de Mars an altar was erected, at which the civic oath was to be taken; and around the altar an amphitheatre was erected capable of containing four hundred thousand spectators. All ranks of persons, the nobility, clergy, and even ladies, with that eagerness for novelty which is so peculiar to the French people, united their efforts; and crowds of foreigners, as well as natives, hurried to the capital to be present at this solemnity, which was denominated the Confederation. The long-expected 14th of July at length arrived. At six o'clock in the morning the procession was arranged on the boulevards, and consisted of the electors of the city of Paris, the representatives of the commons, the administrators of the municipality, a battalion of children with a standard on which was inscribed The Hopes of the Nation; deputies from the troops of France wherever quartered, and of every order, along with deputies from all the departments; to which were added immense detachments of the military and of the national guards, with an almost infinite multitude of drums, trumpets, and musical instruments. The procession was extremely splendid, as every district had its peculiar decorations. The National Assembly passed through a triumphal arch; and the king and queen, attended by the foreign ministers, were placed in a superb box. After a solemn invocation to God, the king approached the altar, and, amidst the deepest silence, took the prescribed oath to employ the power delegated to him according to the constitutional law of the state, to maintain the constitution, and to enforce the execution of the law. The president of the National Assembly then went up to the altar, and took the civic oath, swearing to be faithful to the nation, the law, and the king, and to maintain the constitution as decreed by the National Assembly, and accepted by the king; and every member of the assembly standing up, said, "That I swear." Lafayette then advanced and took the oath, which the other deputies of the national guards pronounced after him; and the words were solemnly pronounced by every individual of this immense assembly. *Te Deum* was then sung, and the solemnity concluded. The performance was altogether sublime. Never before perhaps was there such an orchestra, or such an audience; their numbers baffled the eye to reckon, and their shouts fell on the ear like the noise of many waters. It is impossible to enumerate all the means which were employed to add splendour to this day; it ended with a general illumination, and no accident disturbed the public tranquillity.

The assembly now proceeded with the formation of the constitution; but the public tranquillity was disturbed by an unhappy event at Nancy. Most of the officers of the army were unfriendly to the late revolution; and every means had been employed by them to excite disgust in the minds of the soldiers. At Nancy, in particular, necessaries had been denied them, and their pay was kept back, upon the pretence that such was the will of the National Assembly. Driven to despair, the regiments in garrison broke out in open mutiny; demanded loudly the regimental accounts; and having seized the military chest, sent a deputation to state their case to the National Assembly. But the officers had anticipated their men, and prepossessed the minister of war against them, and upon his representation a decree was passed, authorizing the commander-in-chief of the province, M. Bouillé, to reduce the mutineers by force. This was no sooner known than the national guard of Nancy assembled, and sent a deputation to give a fair statement of facts. But Bouillé, without waiting the result of an explanation, hastened to Nancy at the head of all the troops he could collect; and having fallen upon the regiments of Chateauvieux and Mestre de Camp, put a number to the sword, and took four hundred prisoners. The news of these events filled Paris with indignation, and the assembly afterwards reversed its own decrees against the mutineers at Nancy; but Bouillé could not be punished, because he had only acted in obedience to authority.

As Neckar was unwilling to go all lengths with the ruling party, his popularity had for some time been gradually declining. He therefore tendered his resignation on the 4th of September, and immediately thereafter left the kingdom. He was regretted by no party. Regarded, on the one hand, as having ruined the kingdom, by the concessions which he had advised the king to make in favour of the *tiers état*, he was despised, on the other, as a politician of lukewarm principles, narrow views, and limited understanding. He retired, however, with an unblemished reputation for integrity. This minister does not seem to have been capable of penetrating deeply into the characters of men, or forming any adequate conception of the effects of that energy which is called forth in a nation that attempts to make important changes in its ancient manners and government; and having formed no just estimate of the important era about to open on the country of which he was the minister, he was far from being qualified to direct or control its affairs amidst the violent convulsions through which it was destined to pass. Unable to brook the loss of his popularity, he retired to Switzerland, and there published a work, which, whatever it fails to establish, clearly shows the honest intentions of the French king, and the boundless ambition of the popular leaders, whom he himself had armed with power.

The assembly commenced the year 1791 with a decree announcing the termination of its session, which was to take place as soon as it should have finished the discussion of a list of constitutional articles. In the mean time, hostile appearances began to be exhibited on the side of Germany, Spain, Italy, and Savoy, and bodies of troops advanced towards the French frontiers. The Emperor Leopold was, however, too cautious to announce his intentions; and the king soon communicated a letter which he had received from that potentate, containing protestations of amicable dispositions, but adding, that the innovations occasioned by the decrees of the 4th of August ought to be done away. The king treated this merely as an official measure on the part of the emperor, in order that he might not appear to compensate the claims of certain German princes on Alsace and Lorraine. But the assembly expressed some alarm, and voted an augmentation of the national force. On the 20th of February public attention was roused by a circumstance, which in any other state of affairs would have been accounted unimportant. The king announced to the assembly, that his aunts, the daughters of Louis XV., had that morning left Paris; but as he did not apprehend that the existing laws laid them under any restraint in this respect, he had not opposed their departure. After some debate, the assembly agreed that the king had judged well; and these princesses were left to pursue their journey to Rome. The kingdom had thus been gradually deserted by every branch of the royal family, excepting the king and his eldest brother; the panic which had seized the nobility, and induced them to desert the country and the throne at the moment when they ought to have stuck firm to both, communicated itself to those most nearly connected with the latter, who also abandoned their posts. The assembly, however, continued its labours with unremitting perseverance and amidst tolerable tranquillity.

Death of Mirabeau.

Towards the end of the month of March, the National Assembly was deprived by death of its most gifted member, and, in one sense, greatest ornament, Mirabeau. The death of this extraordinary man had in it something sublime. Though sensible of his approaching dissolution, he was so far from being intimidated by the prospect, that he gloried in the name which he was to bequeath to posterity. Towards the close of his illness his sufferings were acute; and at one moment, when deprived of the power of speech, he wrote on a slip of paper the words of Hamlet, "To die, to sleep; no more." But a few hours before his death the commencement of mortification relieved his sufferings, without overclouding the brightness of his faculties. "Remove from the bed," said he, "all that sad apparatus. Instead of these useless precautions, surround me with the perfumes and flowers of spring; dress my hair with care; let me fall asleep amidst the sounds of harmonious music." Aware that recovery was hopeless, he earnestly implored his attendants to give him laudanum, to put a period to his sufferings. "When a sick man is given over," said he, "and he suffers frightful pains, can a friendly physician refuse to give him opium?" His extremities were already cold, and death was fast doing its work; but his countenance still retained its animation, his eye its wonted fire, his mind its energies unimpaired. Feigning to comply with his request, his attendants gave him a cup containing what they assured him was opium. He drank it off calmly, fell back on his pillow, and almost instantly expired. Endowed with a constitution naturally robust, his physical powers sunk under the combined waste of boundless ambition, continual excitement, and excessive indulgence. At his death he received from his countrymen marks of respect unparalleled in modern history. During his short illness his door was besieged by anxious citizens. A mourning of eight days was decreed by the assembly, and also a grand procession, which was attended by all the public functionaries. He was likewise the first interred in the new Pantheon, consecrated to receive the remains of illustrious men; but his ashes were afterwards removed, in consequence of pretty conclusive proofs that he had not been incorruptible.

His character.

Such was the end of the first commanding spirit which arose amidst the troubles of the Revolution. Mirabeau was upwards of forty years of age when he entered public life; but even at the opening of the States General his reputation was already great; and notwithstanding the disfavour produced by his vices, he was regarded as the tribune who alone could support the cause of the people against the designs of the court. Nor were these expectations disappointed, notwithstanding all the defects inherent in his character. He was endowed with splendid talents, but impelled by insatiable ambition; gifted with a penetrating intellect, but the prey of inordinate passions; sagacious in the perception of truth, but indifferent as to the means by which distinction was to be acquired; without great information derived from study, but unrivalled in the power of converting that which he possessed to the best possible account; of matchless tact and promptitude, dauntless intrepidity, and unconquerable energy, but of suspected integrity, and destitute of either moral or religious principles. His temperament was too ardent and impetuous to permit him to master any subject; he studied nothing profoundly, and owed almost all the writings to which his name was attached, and many of the most effective speeches he delivered, to Dumont, Duroverai, and Clavière, who each assisted him in his labours. His strength lay in a vivid imagination, a nervous elocution, and an unrivalled power of seizing hold on the spirit of the assembly which he addressed, and applying the whole force of his mind to the point whence the resistance proceeded. It was in moments of the greatest difficulty that his faculties shone forth in the greatest splendour; it was when apparently on the verge of annihilation that he shot forth those thunderbolts by which his ascendency was confirmed. But great as was his influence in the National Assembly, it fell far short of what it might have been but for the consequences of his irregular life; and the general impression of his total want of principle, combined with his habitual profusion and extravagance, made the league which he formed with the court towards the close of his career be ascribed to venal and corrupt motives. But in undertaking to heal the wounds of the Revolution, which he believed himself to hold as it were in the hollow of his hand, he miscalculated his own power, great as it undoubtedly was. The work of destruction had proceeded too far to be suddenly stopped; a spirit had been unchained which no magic of genius or talents could allay, until it had spent its force in levelling with the dust all old and time-honoured distinctions. In the character of a mediator, which he proposed to assume, he would have most probably sunk into insignificance; and, with the loss of his influence as a popular tribune, his power to re-establish the monarchy, even upon the basis of constitutional freedom, would also have vanished. Besides, the instruments with which he proposed to work were not adapted to his handling; and, after a short trial, he would have found himself obliged to throw them aside.[1]

During the whole of this spring great fear was entertained that attempts were to be made to bring about a counter revolution. The emigrant army under the prince of Condé had assembled on the borders of Alsace. The king also was surrounded by crowds of nonjuring priests, and other disaffected persons. The popular jealousy, which in every period of the Revolution strikingly marked the French character, was thus kept on the alarm, and soon vented itself in an aggression on the royal family. On the 18th of April, when the latter were preparing to remove to St Cloud, there to pass some days, a report was instantly spread that the king was about to fly from the country. The carriages were immediately surrounded by people. Lafayette called out the national guard, but they refused to act. "We know," said they, "that we are violating the laws, but the safety of our country is the first law." The king instantly went to the assembly, and with much spirit complained of the insult. He was answered respectfully by the president, and permitted to continue his journey. As the royal family had enjoyed for some time a considerable degree of freedom, the present opportunity was embraced to intimate to foreign courts his acceptance of the constitution; and all obnoxious persons were dismissed from about his person. But the breach of discipline on the part of the national guard was so much resented by Lafayette, that he resigned his command, and Paris was thrown into consternation; nor was it until after universal solicitation that he could be prevailed upon to resume his functions.

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About this time M. de Bouillé, to whom the protection of the frontiers had been intrusted, was reported to be employing every means in his power in order to render the country defenceless. The garrisons were left unprovided; disunion spread amongst the national troops, who were removed from the frontiers, and their place occupied by foreigners; the emigrants abroad, and their friends at home, were lying in wait for an opportunity to revolt: such were the rumours in circulation, when suddenly, on the 21st of June, it was announced from the Tuilleries, that the king, the queen, the dauphin, with monsieur and madame, had quitted the palace and the capital, without leaving any information of their intention or their route. The feeling excited by this intelligence among the multitude was a mixture of rage and consternation. The National Assembly, however, acted with much coolness and promptitude. They instantly took upon themselves the government, and decreed their sittings permanent; and they at the same time sent messengers in all directions, to attempt to lay hold of the fugitives. The latter, however, had taken different routes; and monsieur and madame arrived safely at Brussels on the 23d. The king, queen, and their children, when they reached a considerable distance from the capital, were furnished by M. de Bouillé with a guard of dragoons, under pretence of protecting treasure for the pay of the troops. But, at the distance of 156 miles from the capital, and when only a few leagues from the frontier, they were arrested at St Menehould by the postmaster, M. Drouet, formerly a dragoon in the regiment of Condé. At half past seven o'clock in the evening, the carriages having stopped at his house to change horses, Drouet thought that he recognized the queen, and imagined that the king's face resembled the impressions stamped upon the assignats. The escort of dragoons increased the suspicion. He suffered them to depart at eleven o'clock without notice; but taking a companion, he proceeded by a shorter road to Varennes, and with the assistance of the postmaster of that place, he gave the alarm; overturned a carriage on the bridge, which detained the royal travellers till the national guard of the place had assembled; and succeeded, without bloodshed, in effecting the arrest of the whole party, who were brought back to Paris by a deputation from the assembly. At his departure, the king had imprudently left behind him a memorial, in which he declared that he never had thought any sacrifice too great for the restoration of order; but that the destruction of the kingdom and the triumph of anarchy being the only reward of all his efforts, he had thought it necessary to leave it. He then took a review of the faults of the new constitution, with the grievances he had suffered, and protested against every thing which he had been compelled to do during his captivity.

Different parties were variously affected by this ill-conducted and unfortunate flight of the king. A republican party had already begun to appear; and during the king's absence attempts were made to induce the public at large to consider the royal authority as no necessary part of a free constitution. But the minds of men were not yet altogether prepared for the reception of this doctrine. The idea, however, having been thus publicly proposed, left impressions which in time contributed to give rise to important events. By far the greater number of the leading men were at this time convinced that it was impossible to govern a great empire like France without the assistance of an hereditary chief; and hence they determined to pass over the journey to Varennes as quietly as possible, and to hasten the period when the new constitution should be completed. But their intentions, as will be seen in the sequel, were rendered abortive; and there is reason to believe that this unfortunate journey was, in its consequences, instrumental in bringing about the tragedy which consummated the overthrow of the monarchy. The flight of the king seemed the signal for a general emigration. Many of the aristocratic party sent in resignations of their seats in the National Assembly; and troops were levied on the frontiers in the name of the king, though he took care to disavow any connection with such proceedings.

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[1] Dumont, 276, 277; Lacretelle, viii. 133; Thiers, i. 281, 282; Mad. de Stael, i. 408: Alison, i. 240, 241, 242. On his death-bed Mirabeau foresaw, in the clearest manner, the consequences which were certain to flow from the direction given to the Revolution, and the boundless scope thus afforded to popular ambition. "When I am no more," said he, "my worth will become known. The misfortunes which I have arrested will then pour in on all sides on France; the criminal faction which now trembles before me will be unbridled. I have before my eyes unbounded presentiments of disaster. We now see how much we erred in not preventing the commons from assuming the name of the National Assembly. Since they gained that victory they have never ceased to show themselves unworthy of it. They have chosen to govern the king, instead of governing by him; but soon neither he nor they will rule the country, but a vile faction which will overspread it with horrors." (Dumont, 267, 268.) The sagacity and foresight displayed in these remarkable words make us cease to wonder that the death of Mirabeau, at this crisis, should have been regarded as a public calamity.

The assembly, in sanctioning the detention of the king at Varennes, and sending commissioners to bring him back to Paris, yielded to popular clamour, in opposition probably to their better judgment; at all events they committed a great political error. The leaders of the democratic party had every reason to rejoice at the near prospect of a republic which his flight opened up; the constitutionalists must have desired to see him established at Montmedy, and emancipated from the state of thraldom in which he had been so long held by the rabble of Paris; many of the royalists were not probably displeased at the retreat of a king whose concessions had brought the monarchy to the brink of ruin; and all the better part of society must have been gratified at his escape from the iron despotism of the Parisian mob. But all these considerations went for nothing in opposition to the clamours of the multitude; and, either from cowardice or a base love of popularity, the assembly adopted a course which their own minds must have disapproved, and which men of all parties have united to condemn. "The National Assembly," says Napoleon, "never committed so great an error as in bringing back the king from Varennes. A fugitive and powerless, he was hastening to the frontier, and in a few hours would have been out of the French territory. What should they have done in these circumstances? Clearly facilitated his escape, and declared the throne vacant by his desertion: they would thus have avoided the infamy of a regicide government, and attained their great object of republican institutions. Instead of this, by bringing him back, they embarrassed themselves with a sovereign whom they had no just reason for destroying, and lost the inestimable advantage of getting rid of the royal family without an act of cruelty."[1] In the truth and justice of these observations history must acquiesce.

Treaty of Pilnitz.

A considerable calm followed the events just related, and France might almost be regarded as in a state of tranquillity. It contained, indeed, parties who entertained much animosity against each other, and many citizens had withdrawn to foreign countries; but the general peace was not disturbed, and moderate men hoped that prosperity would succeed to the late agitations. But this calm was delusive; and in the midst of it projects were formed which were destined afterwards to prove fatal to the peace of France and Europe. Towards the close of summer the famous meeting at Pilnitz in Saxony took place between the emperor and the king of Prussia, and led to the celebrated declaration, which was conceived in the following terms: "Their majesties, the emperor, and king of Prussia, having considered the representations of monsieur, brother of the king, and of his excellency the Count d'Artois, declare conjointly that they consider the situation of the king of France as a matter of common interest to all the European sovereigns. They hope that the reality of that interest will be duly appreciated by the other powers, whose assistance they will invoke, and that in consequence they will not decline to employ their forces conjointly with their majesties, in order to put the king of France in a situation to lay the foundation of a monarchical government, conformable alike to the rights of sovereigns and the wellbeing of the French nation. In that case the emperor and king are resolved to act promptly with the forces necessary to attain their common end. In the mean time they will give the requisite orders for the troops to hold themselves in immediate readiness for active service." Such was the celebrated declaration of Pilnitz; but, either from a cooling of zeal upon the part of the allied sovereigns, or a sense of the danger which the king of France would have run, after he had, in consequence of the flight to Varennes, become a prisoner in the hands of the assembly, it remained without effect. It was alleged by the French, however, that there was a treaty as well as a declaration of Pilnitz, or, in other words, that several secret articles, stipulating the partition of some of the fairest provinces of France, were at the same time agreed to by the allied sovereigns; but no sufficient evidence has ever been produced to substantiate the allegation, and it is now indeed generally agreed that there was no such thing as a treaty of Pilnitz.[2]

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[1] Napoleon's *Mémoires*, vol. i. p. 1.

[2] The following paper, which has been repeatedly published as the copy of a treaty concluded and signed at Pavia, is generally understood to have been identical with, and is therefore known by the name of, the treaty of Pilnitz. We have already stated that its authenticity is more than questionable. It may have been fabricated by the National Assembly, to unite all parties against the foreign powers which threatened France with invasion. But, in relating the events of this revolution, it is as necessary, for the purpose of rendering the actions of men comprehensible, to give an account of what was at the time believed to have occurred, as it is to ascertain what was actually true. The treaty in question bears, "That his majesty the emperor will take all that Louis XIV. conquered in the Austrian Netherlands, will give it to his serene highness the elector palatine; that he will preserve for ever the property and possession of Bavaria, to form in future an indivisible mass with the domains and hereditary possessions of the house of Austria; that the Archduchess Maria Christina shall be, conjointly with her nephew the Archduke Charles, put into hereditary possession of the duchy of Lorraine; that Alsace shall be restored to the empire; that if the Swiss Cantons consent to accede to the coalition, it may be proposed to them to annex to the Helvetic league the bishopric of Porentrui, the defiles of Franche Comté, and even those of Tyrol, with the neighbouring bailiwicks, as well as the territory of Versoy, which intersects the Pays de Vaud; that should his majesty the king of Sardinia subscribe to the coalition, La Bresse, Le Bugey, and the Pays de Gex, usurped by France from Savoy, shall be restored to him; that in case his Sardinian majesty can make a grand diversion, he shall be suffered to take Dauphiné, to belong to him for ever, as the nearest descendant of the ancient dauphins; that the king of Spain shall have Roussillon and Bearn, with the island of Corsica, and also the French part of the island of St Domingo; that the empress of all the Russias shall take upon herself the invasion of Poland, and at the same time retain Kaminiech, with that part of Podolia which borders on Moldavia; that the emperor shall oblige the porte to give up Choczim, as well as the small forts of Servia, and those on the river Lurna; that the king of Prussia, by means of the above-mentioned invasion of Poland, shall make an acquisition of Thorn and Dantzic, and unite the palatinate on the east to the confines of Silesia; that the king of Prussia shall besides acquire Lusace, and the elector of Saxony shall in exchange receive the rest of Poland, and occupy the throne as hereditary sovereign; that the king of Poland shall abdicate the throne

The new constitution.

In the mean time, the National Assembly was hastening towards the completion of the new constitution, which was finished on the 3d of September, and immediately presented to the king. It begins with a declaration of the rights of man; this is followed by the provisions regarding other matters. According to it, all men are born, and remain, free and equal in rights; and social distinctions can only be founded on common utility. The end of all political associations is the preservation of the natural and imprescriptible rights of man; and these rights are liberty, property, security, and resistance against oppression. The principle of sovereignty resides essentially in the nation; and no body of men, no individual, can exercise an authority which does not emanate expressly from that source. Liberty consists in the power of doing every thing except that which is hurtful to another; and hence the exercise of the natural rights of every man has no other bounds than those which are necessary to ensure to the other members of society the enjoyment of the same rights; bounds which can only be determined by law. The law has a right to forbid those actions alone which are hurtful to society. Whatever is not forbidden by the law cannot be hindered; and no person can be constrained to do that which the law does not ordain. The law is the expression of the general will; and all the citizens have a right to concur personally, or by their representatives, in the formation of the law; it ought therefore to be the same for all, whether it protect or whether it punish. All citizens being equal in the eye of the law, are equally admissible to dignities, places, and public offices, according to their capacity, and without any other distinction than that of their virtue and their talents. No man can be accused, arrested, or detained, except in cases determined by the law, and according to the forms which the law has prescribed. Those who solicit, dispatch, execute, or cause to be executed, arbitrary orders, ought to be punished; but every citizen who is summoned or seized in virtue of the law ought to obey instantly, otherwise he becomes culpable by resistance. The law ought to establish such punishments only as are strictly and evidently necessary; and no person can be punished except in virtue of a law established and promulgated prior to the offence, and legally applied. Every man being presumed innocent till such time as he has been declared guilty, if it shall be deemed absolutely necessary to arrest a man, every kind of rigour employed, not necessary to secure his person, ought to be severely repressed. No person shall be molested for his opinions, even such as are religious, provided the manifestation of those opinions does not disturb the public order established by the law. The free communication of thought and of opinion is one of the most precious rights of man. Every citizen, therefore, may freely speak, write, and publish his sentiments; subject, however, to answer for the abuse of this liberty in the cases determined by the law. The guarantee of the rights of men and citizens involves a necessity of public force; but this force is then instituted for all, and not for the particular utility of those to whom it is confided. For the maintenance of the public force, and for the expenses of the administration, a common contribution is indispensably necessary; but this contribution should be equally divided amongst all the citizens in proportion to their abilities. Every citizen has a right, by himself or by his representatives, to decide concerning the necessity of the public contribution; to consent to it freely; to look after the employment of it; and to determine the quantity, the distribution, the collection, and duration. Society has a right to demand from every public agent an account of his administration. Every society in which the guarantee of rights is not assured, nor the separation of powers determined, has no constitution. Property being a right inviolable and sacred, no person can be deprived of it, except when the public necessity, legally ascertained, shall evidently require it, and on condition of a just and previous indemnification.

The constitution guarantees, as natural and civil rights, first, that all citizens are admissible to places and employments, without any distinction but that of ability and virtue; secondly, that all contributions shall be divided equally among all the citizens, in proportion to their means; thirdly, that the same crimes shall be subject to the same punishments, without any distinction of persons. The constitution, in like manner, guarantees, as natural and civil rights, liberty to all men, of going, staying, or departing, without being arrested or detained, except according to the forms prescribed by the constitution; liberty to all men, of speaking, writing, printing, and publishing their thoughts, without having their writings subjected to any examination or inspection before publication, and of exercising the religious worship to which they are attached; liberty to all citizens, of assembling peaceably, and without arms, complying with the laws of police; liberty of addressing to all constitutional authorities petitions individually signed; and the inviolability of property, or a just and previous indemnity for that of which public necessity, legally proved, shall require the sacrifice. A system of public instruction shall be created and organized, common to all citizens, gratuitous with regard to those parts of tuition indispensable for all men, and of which the establishment shall be gradually distributed, in a proportion combined with the division of the kingdom.

The kingdom is one and indivisible; its territory for administration is distributed into eighty-three departments, each department into districts, each district into cantons. Those are French citizens who are born in France of a French father; who, having been born in France of a foreign father, have fixed their residence in the kingdom; who, having been born in a foreign country, of a French father, have returned to settle in France, and have taken the civic oath; and, lastly, who, having been born in a foreign country, being descended in whatever degree from a Frenchman or Frenchwoman, have left their country from religious motives, come to reside in France, and taken the civic oath. The right of French citizenship is lost, first, by naturalization in a foreign country; secondly, by being condemned to penalties which involve the civic degradation, provided the person condemned be not reinstated; thirdly, by a sentence of contumacy, provided the sentence be not annulled; fourthly, by initiation into any foreign order or body which supposes either proofs of nobility or distinctions of birth, or requires religious vows. The law considers marriage as only a civil contract.

The sovereignty is one, indivisible, unalienable, and imprescriptible, and it belongs to the nation; no section of the people, and no individual, can arrogate the exercise of it. The nation, from which alone flow all powers, cannot exercise them but by delegation. The French constitution is representative, and the representatives are the legislative body and the king. The National Assembly, forming the legislative body, is permanent, and consists of one chamber only. It shall be formed by new elections every two years. The legislative body cannot be dissolved by the king. The number of representatives to the

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on receiving a suitable annuity; and that the elector of Saxony shall give his daughter in marriage to the youngest son of the grand duke of all the Russias, who will be the father of the race of the hereditary kings of Poland and Lithuania." And this is signed by Leopold, Prince Nassau, Count Florida Blanca, and Bischoffswerder.

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legislative body shall be seven hundred and forty-five, on account of the eighty-three departments of which the kingdom is composed, and independently of those who may be granted to the colonies. The representatives shall be distributed among the departments, according to the three proportions of land, of population, and of the direct contributions or taxes. Of the seven hundred and forty-five representatives, two hundred and forty-seven are attached to the land. Of these, each department shall nominate three, excepting the department of Paris, which shall nominate only one. Two hundred and forty-nine representatives are attached to the population. The total mass of the active population of the kingdom is divided into two hundred and forty-nine parts, and each department nominates as many of the deputies as it contains parts of the population. Two hundred and forty-nine representatives are attached to the direct contributions. The sum total of the direct contributions of the kingdom is likewise divided into two hundred and forty-nine parts, and each department nominates as many deputies as it pays parts of the contribution.

In order to form a Legislative National Assembly, the active citizens shall convene, in primary assemblies, every two years in the cities and cantons. The primary assemblies shall meet of full right on the first Sunday of March, if not convoked sooner by the public officers appointed to do so by the law. To be an active citizen, it is necessary to be a Frenchman, or to have become a Frenchman; to have attained twenty-five years complete; to have resided in the city or the canton during the time determined by the law; to pay in any part of the kingdom a direct contribution or tax, at least equal to the value of three days' labour, and to produce the acquittance; not to be in a menial capacity, namely, that of a servant receiving wages; to be inscribed in the municipality of the place of his residence in the list of the national guards; to have taken the civic oath. The primary assemblies shall name electors in the proportion of the number of active citizens residing in the city or canton. There shall be named one elector to the assembly or not, according as there shall happen to be present a hundred active citizens. There shall be named two when there are present from a hundred and fifty-one to two hundred and fifty, and so on in this proportion. The electors named in each department shall convene in order to choose the number of representatives whose nomination shall belong to their department, and a number of substitutes equal to the third of the representatives. The assemblies shall be held of full right on the last Sunday of March, if they have not been before convoked by the public officers appointed to do so by law. All active citizens, whatever be their state, profession, or contribution, may be chosen representatives of the nation; excepting, nevertheless, the ministers and other agents of the executive power, and other persons named. The members of the legislative body may be re-elected to a subsequent legislature, but not till after an interval of one legislature. No active citizen can enter or vote in an assembly if he be armed. The representatives shall meet on the first Monday of May, in the place of the sittings of the last legislature.

The royalty is indivisible, and delegated hereditarily to the race on the throne from male to male, by order of primogeniture, to the perpetual exclusion of women and their descendants. Nothing is prejudged as to the effect of renunciations in the race on the throne. The person of the king is inviolable and sacred; his only title is King of the French. If the king put himself at the head of an army, and direct the forces of it against the nation, or if he do not oppose, by a formal act, any such enterprise undertaken in his name, he shall be held to have abdicated. If the king, having gone out of the kingdom, do not return to it, after an invitation by the legislative body, within the space which shall be fixed by the proclamation, and which cannot be less than two months, he shall be held to have abdicated the royalty. After abdication, express or legal, the king shall be in the class of citizens, and may be accused and tried like them for acts posterior to his abdication. The nation makes provision for the splendour of the throne by a civil list, of which the legislative body shall fix the amount at the commencement of each reign, for the whole duration of that reign. The king is a minor till the age of eighteen complete; and during his minority there shall be a regent of the kingdom. The regency belongs to the relation of the king next in degree according to the order of succession to the throne, who has attained the age of twenty-five, provided he be a Frenchman resident in the kingdom, and not presumptive heir to any other crown, and have previously taken the civic oath. The presumptive heir shall bear the name of Prince Royal. The members of the king's family called to the eventual succession of the throne shall add the denomination of French Prince to the name which shall be given them in the civil act proving their birth; and this name can neither be patronymic nor formed of any of the qualifications abolished by the present constitution. The denomination of prince cannot be given to any individual, and shall not carry with it any privilege or exception to the common right of all French citizens. To the king alone belong the choice and dismission of ministers.

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The members of the present National Assembly, and of the subsequent legislatures, the members of the tribunal of appeal, and those who shall be of the high jury, cannot be advanced to the ministry, nor receive any place, gift, pension, allowance, or commission of the executive power, or its agents, during the continuance of their functions, or during two years after ceasing to exercise them; and the same shall be observed respecting those who shall only be inscribed on the list of high jurors as long as their inscription shall continue. No order of the king can be executed if it be not signed by him, and countersigned by the minister or comptroller of the department. In no case can the written or verbal order of the king shelter a minister from responsibility.

The constitution delegates exclusively to the legislative body the powers and functions following: To propose and decree laws, as the king can only invite the legislative body to take a subject into consideration; to fix the public expenses; to establish the public contributions; to determine the nature of them, the amount of each sort, the duration, mode of collection, and so forth. War cannot be resolved on except by a decree of the National Assembly, passed on the formal and necessary proposition of the king, and sanctioned by him. During the whole course of war the legislative body may require the king to negotiate peace; and the king is bound to yield to this requisition. It belongs to the legislative body to ratify treaties of peace, alliance, and commerce; and no treaty shall have effect but by this ratification.

The deliberations of the legislative body shall be public, and the minutes of the sittings shall be printed. The legislative body may, however, upon any occasion form itself into a general committee. The project of a decree or law shall be read thrice, at three intervals, the shortest of which cannot be less than eight days. The decrees of the legislative body are presented to the king, who may refuse them his consent. In case of a refusal of the royal consent, that refusal is only suspensive. When the two following legislatures shall successively present the same decree in the same terms in which it was originally conceived, the king shall be deemed to have given his sanction. The king is bound to express his consent or refusal to each decree within two months after its presentation. No decree to which the king has refused his consent can be again presented to him by the same legislature.

The supreme executive power resides exclusively in the hands of the king. The king is the supreme head of the land and sea forces. He names ambassadors, and the other agents of political negotiations. He bestows the command of armies and fleets, and the ranks of marshal of France and admiral: he names two thirds of the rear-admirals, one half of the lieutenant-generals, major-generals, captains of ships, and colonels of the national gendarmerie: he names a third of the colonels and lieutenant-colonels, and a sixth of the lieutenants of ships: he appoints, in the civil administration of the marine, the directors, the comptrollers, the treasurers of the arsenals, the masters of the works, the under-masters of civil buildings, half of the masters of administration, and the under-masters of construction. He appoints the commissaries of the tribunals; as also the superintendents in chief of the management of indirect contributions, and the administration of national domains. He superintends the coinage of money, and appoints officers intrusted with this superintendence in the general commission and the mints. The effigy of the king is struck upon all the coinage of the kingdom. There is in each department a superior administration, and in each district a subordinate administration. The administrators are specially charged with distributing the direct contributions, and with superintending the money arising from the contributions, and the public revenues in their territory. The king has the right of annulling such acts of the administrators of department as are contrary to the law or the orders transmitted to them; and he may, in case of obstinate disobedience, or of their endangering, by their acts, the safety or peace of the public, suspend them from their functions. The king alone can interfere in foreign political connections. Every declaration of war shall be made in these terms: "By the king of the French, in the name of the nation." The judicial power can in no case be exercised either by the legislative body or the king. Justice shall be gratuitously administered by judges chosen from time to time by the people, and instituted by letters-patent of the king, who cannot refuse them. The public accuser shall be nominated by the people. The right of citizens to determine disputes definitively by arbitration, cannot receive any infringement from the acts of the legislative power. In criminal matters, no citizens can be judged except on an accusation received by jurors, or decreed by the legislative body in the case in which it belongs to it to prosecute the accusation. After the accusation shall be admitted, the facts shall be examined and declared by the jurors. The person accused shall have the privilege of challenging twenty jurors, without assigning any reason. The jurors who declare the fact shall not be fewer than twelve. The application of the law shall be made by the judges. The process shall be public; and the person accused cannot be denied the aid of counsel. No man acquitted by a legal jury can be apprehended or accused on account of the same fact.

For the whole kingdom there shall be one tribunal of appeal, established near the legislative body. A high national court, composed of members of the tribunal of appeal and high jurors, shall take cognizance of the crimes of ministers, and the principal agents of the executive power; and of crimes which attack the general safety of the state, when the legislative body shall pass a decree of accusation. It shall not assemble except on the proclamation of the legislative body, and at the distance of thirty thousand toises at least from the place of meeting of the legislative body.

The national guards do not form a military body, or an institution in the state; they are the citizens themselves called to assist the public force. Officers are chosen for a time, and cannot again be chosen till after a certain interval of service as privates. None shall command the national guard of more than one district. All the parts of the public force employed for the safety of the state from foreign enemies are under the command of the king.

Public contributions shall be debated and fixed every year by the legislative body, and cannot continue in force longer than the last day of the following session, if they are not expressly renewed. Detailed accounts of the expense of the ministerial departments, signed and certified by the ministers or comptrollers-general, shall be printed and published at the commencement of the sessions of each legislature; and the same shall be done with the statements of the receipt of the different taxes, and all the public revenues.

The French nation renounces the undertaking of any war with the view of making conquests, and will never employ its forces against the liberty of any people. And it is also declared, that the nation has the imprescriptible right of changing its constitution; but considering that it is more conformable to the national interest to employ only, by means provided in the constitution itself, the right of reforming those articles of it of which experience shall have shown the inconveniences, it is further decreed, that the proceeding by an assembly of revision shall be regulated in the form following: When three successive legislatures shall have expressed an uniform wish for the change of any constitutional article, the revision demanded shall take place. The next legislature, and the following, cannot propose the reform of any constitutional article. The fourth legislature, augmented by two hundred and forty-nine members, chosen in each department, by doubling the ordinary number which it furnishes in proportion to its population, shall form the assembly of revision.

The French colonies and possessions in Asia, Africa, and America, though they form part of the French empire, are not included in this constitution.

With respect to the laws made by the National Assembly which are not included in the act of constitution, and those anterior laws which it has not altered, they shall be observed as long as they are not revoked or modified by the legislative power.

Constitu tion accepted b the king

On the 13th of September the king announced, by a letter to the president of the assembly, his acceptance of this constitution, which, however defective in some points, is based upon solid principles of liberty; and the event was ordered to be notified to all the foreign courts, whilst the assembly decreed a general amnesty with respect to the events of the Revolution. On the following day the king repaired in person to the National Assembly; and being conducted to a chair of state prepared for him by the side of the president, he signed the constitutional act, and took an oath to maintain it. He then withdrew, and was attended back to the Tuilleries by the whole assembly, with the president at their head. On the 30th of September, the National, which has since been known by the name of the Constituent Assembly, dissolved itself, and gave place to the Legislative National Assembly, which had been elected according to the rules prescribed in the new constitution.

Characte and labou of the Co stituent Assembly

Of the character and labours of the Constituent Assembly, which contained many men of distinguished talents, and not a few of eminent virtue, it is by no means easy, even at this distance of time, to form an accurate and altogether dispassionate estimate. Called together at a period of unexampled difficulty and distress; intrusted with the performance of duties altogether new to its members; required at once to regenerate a superannuated monarchy and to lay the foundations of constitutional liberty; and placed in the midst of a famishing people, resolved to cast off their chains, but not yet prepared for the enjoyment of freedom; it was expected to reform every abuse which time and misgovernment had engendered, to renovate an empire gray with feudal corruption, and to direct into safe channels the recently-excited energy of the people. The convocation of the States General formed the last resource of the monarchy overburdened by its own vices, and the first hope of the nation groaning under the pressure of accumulated evils; and to this body, therefore, the court looked for help in overcoming the difficulties with which it was beset, at the expense of some concessions in favour of general liberty, and the people for an entire re-organization of the system of government on a footing adapted to their opinions and their wants. How it accomplished the task thus imposed on it, is now matter of experience. That much still remains in dispute cannot be denied; but time, the great expositor of truth, has nevertheless unfolded its errors and illustrated its virtues.

The principal evils which afflicted France were removed by this assembly. Liberty of religious worship, which had been but imperfectly provided for in 1787, was secured in its fullest extent; torture and the punishment of the wheel were abolished; trial by jury, publicity of criminal proceedings, the examination of witnesses in presence of the accused, and counsel for his defence, were fixed by law; the ancient parliaments, the fastnesses of prejudice and partiality, were suppressed, and one uniform system of criminal jurisprudence established; *lettres de cachet* were abolished for ever; the exemption from taxation of the nobility and the clergy was extinguished, and an equal system of contribution established throughout the kingdom; the most oppressive imposts, as those on salt and tobacco, together with the taille and the tithes, were abrogated; and the privileges of nobility, with the feudal burdens, were abolished. To the Constituent Assembly France has also been indebted for the institution of national guards; the opening of the army to the courage and ability of every class of society; and the division of landed property amongst the middle ranks, one of the greatest benefits which can be conferred upon a nation. The same body also had the merit of authoritatively recognising and proclaiming the natural, social, and civil rights of man; of establishing that equality in the eye of the law without which there can be no true liberty; and of rendering the whole genius, talent, and virtue of the nation available to the public service in all its departments. These were no doubt mighty changes, and their beneficial effects were demonstrated even amidst all the calamities and convulsions which ensued. They enabled the nation to bear up and prosper under a vast accumulation of evils, any one of which would have exhausted the national strength under the monarchy; under public bankruptcy, enormously-depreciated assignats, civil divisions, political anarchy, the reign of terror, the wars of Napoleon, foreign invasion, and subjugation by Europe. In a word, by means of these reforms, France has at length, in spite of every obstacle, become great, glorious, and free; the terror of the despots of continental Europe, and one of the greatest bulwarks of modern civilization.

The errors of the Constituent Assembly, though scarcely of less magnitude, have happily not produced consequences equally lasting. By destroying in a few months the constitution of a thousand years, they set afloat the ideas of men, and spread the fever of innovation throughout the empire; by confiscating the property of the church, they established a precedent for injustice, which was but too closely followed in subsequent years; by establishing the right of universal suffrage, and conferring on the nation the nomination to all offices of trust, they conceded the exercise of powers incompatible with the monarchical form of government they themselves had established, and which the people were as yet incapable of exercising with advantage. They diminished the influence of the crown to such a degree as to render it incapable of controlling the people; they limited the royal negative in such a manner as to render it nearly inoperative; and they thus left the kingdom a prey to the factions to which the recent changes had unavoidably given birth. Lastly, by excluding themselves from the Legislative Assembly (and this was their greatest error), they deprived France of the benefit of their experience, and permitted their successors to commence the same circle of experimental innovation, to the extreme hazards of which they had latterly been fully awakened. But all these were either reparable or terminable evils, which, though severely felt for a season, have, in the natural course of events, been either cured or ended; and, fortunately for France, the good seed sown by this body is still producing its fruits, whilst the tares scattered amongst it have at length withered and died.

The Legislative Assembly.

The new assembly was opened by the king in person on the 7th of October, in a speech recommending unanimity and confidence between the legislative and the executive powers, which speech was received with unbounded applause. The character of the men who composed the new National Assembly was inauspicious to the court. At the commencement of the Revolution, the great body of the people at a distance from the capital felt little interested in those projects of freedom which occupied the more enlightened but more turbulent inhabitants of Paris. But they had gradually been roused from their lethargy. The variety of powers conferred upon the people at large by the new constitution, and the multiplicity of offices of which it gave them the patronage, had kindled in the minds of men a sense of their own importance, and a desire to intermeddle in public affairs. This attached them to the new order of things. The love of power, which is perhaps the least disguised passion in the human heart, and equally strong in the breast of the meanest and most elevated of mankind, had thus, under the name of liberty, become a leading passion throughout the empire; and they who flattered it most, and were loudest in praise of the rights of the people, became speedily the favourites of the public. The new National Assembly was chiefly composed of country gentlemen of principles highly democratic, or of men of letters who had published popular books or conducted periodical publications; and as the members of the Constituent Assembly had by their own act excluded themselves from holding seats in the Legislative Assembly, the members of the latter entertained but little regard for a constitution which they themselves had not framed, and which was not protected by the sanction of antiquity.

When this assembly first met, it showed much attention to formalities, and an extreme jealousy of the ministers of the crown; and as the treaty of Pilnitz now began to be rumoured abroad, France was thrown into a state of great anxiety for the safety of its newly-acquired liberties. Although the Prussians and Germans still continued to temporize, Sweden and Russia had entered into strict engagements to restore the old despotism of France. Accordingly, on the 9th of November a decree was passed, by which it was provided that the emigrants who, after the first of January 1792, should be found assembled in a hostile manner beyond the frontiers, should be considered as guilty of a conspiracy, and suffer death; and that the French princes and public functionaries who should not return before that period, should be punishable in the same manner, and their property forfeited during their lives. On the 18th a number of severe decrees were also passed against such of the ejected clergy as still refused to take the civic oath. But to all these the king opposed his *veto* or negative. The moderate party, who were attached to the constitution, rejoiced at this, as a proof of the freedom of the sovereign; but, on the other hand, it raised a violent clamour, and became the means of exciting new suspicions against the court. About this time answers from the different foreign courts to the notification sent them of the king having accepted the new constitution were received. These were generally conceived in a style of great caution, and avoided employing language calculated to produce irritation. The emperor even prohibited all assemblages of emigrants within his states; and Louis intimated to the assembly that he had declared to the elector of Treves, that unless the emigrants ceased before the 15th of January to make hostile preparations within his territories, he would be considered as the enemy of France. All this, however, did not serve to allay suspicion; for although the different foreign courts had openly declared pacific intentions, yet the French emigrants boldly asserted that all Europe was actually arming in their favour, and accordingly ceased not to solicit such of their friends as still remained within the country to leave it and join them in what they called the royal cause. Placed between a republican party which was gradually gathering strength, and an aristocratical party which was rousing Europe to arms against a nation of which he was the constitutional chief, with a combination of princes suspected of wishing to seize upon part of his dominions, the unhappy king stood in a situation which would have perplexed the most skilful statesman; and it is no proof of incapacity that he fell a sacrifice to circumstances which might have overwhelmed any ordinary measure of human sagacity. Addresses were crowding into the assembly disapproving the conduct of the court. M. Montmorin resigned; M. Delessart succeeded him; and M. Cahier de Gerville became minister of the interior. M. Duportail resigned also, and was succeeded as minister of war by M. de Narbonne. In the month of November M. Bailly's mayoralty terminated; and the once popular Lafayette appeared as a candidate for the office. But he was successfully opposed by M. Petion, a declared republican, who was elected mayor by a great majority.

The Feuillants.

At this period the moderate men, friends of the constitution, attempted to counteract the influence of the Jacobin Club by the establishment of a similar one. This new club derived its name from the vacant convent of the Feuillants, in which it assembled; and the most active members of the Constituent Assembly belonged to it, such as MM. d'André, Barnave, the two Lameths, Duport, Rabaud, Sieyes, Chapelier, Thouret, Labord, Talleyrand, Montesquieu, Beaumetz, and others. But the Jacobins contrived to excite a riot at the place of their meeting, which was in the vicinity of the hall of the National Assembly; and this afforded a pretext for applying to the assembly for the removal of the new club. The assembly complied with the request, and thereby evinced its favourable disposition towards the Jacobins.

State of France.

At the close of the year 1791 the kingdom of France was by no means in a prosperous state. The public revenue had fallen far short of the expenditure; the emigrant nobility had carried out of the kingdom the greater part of the current coin; and a variety of manufacturers, who depended upon their ostentatious luxury, were reduced to much distress. The dispositions of foreign courts appeared at best doubtful. The year 1792, however, opened with a delusive prospect of tranquillity. The German princes seemed to be satisfied with the mode of compensation which the French had offered for the loss of their possessions in Alsace and Lorraine; the Prince of Lowenstein accepted of an indemnification; the Princes of Hohenlohe and Salm-Salm declared themselves ready to treat upon the same terms; whilst Prince Maximilian, and the Dukes of Wirtemberg and Deux-Ponts, also negotiated an arrangement. It is unnecessary to state in detail the subterfuges employed by Leopold for amusing the French with the appearances of peace. To these, and probably also to the undecided character of Louis, M. Delessart, minister of foreign affairs, fell a sacrifice. He was accused by Brissot of not having given timely notice to the National Assembly of the dispositions of foreign powers, and of not pressing proper measures for securing the honour and safety of the nation; a decree of accusation was passed against him in his absence; and having been apprehended, tried by the high court at Orleans, and convicted, he was executed in virtue of its sentence.

The unexpected death of Leopold on the first of March gave rise to a transient hope that peace might still be preserved. On the 16th of the same month the king of Sweden was wounded by a nobleman of the name of Ankerström, and died on the 29th. This enterprising prince, having overturned the constitution of his own country, had formed the project of conducting in person his troops to the frontiers of France, and of commanding or accompanying the combined armies of Europe in their attempt to avenge the cause of insulted royalty; and it was in a great measure to counteract this scheme that he was assassinated.

The sudden fall of these two enemies, however, rather accelerated than retarded the meditated hostilities. The young king of Hungary, who succeeded to the empire, made no secret either of his own intentions or of the existence of a concert of princes against France. Dumouriez was now at the head of the war office, Roland held the portfolio of the interior, and Clavière was minister of finance. The Jacobins were all-powerful, and the court gave way to the torrent. The property of the emigrants was confiscated, reserving only the rights of creditors. Meanwhile the imperial minister, Prince Kaunitz, demanded three things of France: first, the restitution of all their feudal rights to the German princes; secondly, the restoration of Avignon to the pope, the inhabitants of which had some time previously thrown off their allegiance, and prevailed with the Constituent Assembly to receive their country as part of France; and, lastly, a guarantee that the neighbouring powers should have no reason for apprehension from the present weakness of the internal government of France. On receiving these demands, the king proposed a declaration of war, which, on the 20th of April, was accordingly decreed by the National Assembly against the king of Hungary and Bohemia.

The Austrian Netherlands attacked.

The French immediately began the contest, by attacking in three different columns the Austrian Netherlands. Dillon advanced from Lisle to Tournay, where he found a strong body of Austrians ready to receive him. But the national force, unaccustomed to sustain the fire of regular troops, were instantly thrown into confusion, and fled even to the gates of Lisle. The cry of treason resounded on all sides; and their commander, an experienced and faithful officer, was murdered by his own soldiers and the mob. A second division of ten thousand men, under General Biron, took possession of Quiverain on the 29th, and marched towards Mons, at which place he was attacked by the Austrians, whom he repulsed; but hearing of the defeat of Dillon, he retreated. A third division advanced to Furnes, but afterwards withdrew; and Lafayette, who had simultaneously advanced towards Bouvines, half way to Namur, was also obliged to retire. All these expeditions were ill contrived, inasmuch as they divided the French undisciplined troops, and exposed them in small bodies to the attack of veteran forces. Some time elapsed before the Austrians attempted to retaliate. At length, however, on the 11th of June they attacked Gouvion, who commanded the advanced guard of Lafayette's army, near Maubeuge; but Lafayette having come to his assistance, the Austrians abandoned the field.

In the mean time, matters were hastening towards a

Indications of an approaching crisis.

violent crisis in Paris. Two parties, both equally hostile to the present constitution, had been gradually formed, one of which wished to give more effectual support to the royal authority, by establishing a senate, to prevent the king's vote from being the sole check upon popular enthusiasm; whilst the other desired to set aside royalty altogether, and to hazard the perilous experiment of converting France into a republic. These last were supported by the Jacobin Club, which had now contrived to concentrate within itself an immense mass of influence. In every town and village of the provinces innumerable popular societies were established; and with these a regular correspondence was kept up, both by letters and by emissaries. Every scheme was thus instantaneously propagated throughout the empire, and all the violent spirits which it contained were enabled to act in concert. But the more immediate engine of the republican party consisted of the immense population of the metropolis, whom they now endeavoured to keep in a state of continual alarm. For this purpose, it was alleged that an Austrian committee, or a conspiracy in favour of the enemies of the country, existed amongst the friends of the court; and both Gensonné and Brissot offered in the assembly to prove the existence of this pretended committee. A report was next circulated that the king intended to abscond from the capital on the 23d of May; and though his majesty publicly contradicted the rumour, which he treated as a calumny, it made no small impression upon the minds of the public. New decrees were now passed against the refractory clergy, but these his majesty refused to sanction. A proposal was also made and adopted in the assembly to form a camp of twenty thousand men under the walls of Paris, and for this purpose to levy from every canton in the kingdom one horse and four infantry soldiers. But the national guard of Paris disliked the proposal, and the king gave it his negative. At this time the king seems to have come to a resolution of making a stand against the Jacobin party, to which he had for some time yielded. With the exception of Dumouriez, therefore, the ministry were dismissed, and others appointed in their stead. Dumouriez lost the confidence of the Jacobin Club in consequence of the exception in his favour; but he saw his error, resigned his office, and immediately joined the army. In the mean time a decree had been passed, authorizing the manufactory of pikes for the purpose of arming cheaply the lower class of citizens. Attempts were also made, by means of inflammatory writings and harangues, to render the king odious; and in both ways Marat, who afterwards acquired such infamous notoriety, appears to have taken the lead.

On the 20th of June, Roederer, the procureur-general, informed the assembly that, contrary to law, formidable bodies of armed men were preparing to present petitions to the king and to the assembly; and part of them speedily made their appearance, with St Huruge, and Santerre, a brewer, at their head. They marched through the hall in a procession which lasted two hours, and to the number of about forty thousand. They then surrounded the Tuilleries, the gates of which were thrown open; and on an attempt to break open the door of the apartment where the king was, he ordered them to be admitted. During the four or five hours that he was surrounded by the multitude, and compelled to listen to every indignity, his sister the Princess Elizabeth never departed from his side. All this time Petion, the mayor of Paris, was most unaccountably absent; but at length he arrived at the palace, as did also a deputation from the assembly. The queen, with her children and the Princess de Lamballe, were in the mean while in the council-chamber, where, though protected from violence, they were nevertheless exposed to insult. At last, on the approach of evening, the multitude, yielding to the entreaties of Petion, gradually dispersed. The indignities suffered by the royal family on this occasion were in some respects not unfavourable to their cause. The respectable inhabitants of the capital, ashamed of such proceedings, complained of them in a petition which they presented to the assembly; and addresses to the same purpose were received from several departments. The directory of the department of Paris, at the head of which were M. Rochefoucault and M. Talleyrand, published a declaration, disapproving of the conduct of the mayor, and of Manuel the procureur of the commune, whom they afterwards suspended from their offices, to which however the delinquents were speedily restored by a decree of the assembly. About the same time Lafayette having suddenly quitted the army, appeared at the bar of the assembly, where he declared that he came to express the indignation with which the whole army regarded the events of the 20th, and called upon the assembly to punish the promoters of these excesses, and to dissolve the factious clubs. The sudden appearance of Lafayette threw the Jacobins into consternation, and from that period they never ceased to calumniate him.

On the 1st of July the assembly, on the motion of Jean de Brie, ordered a proclamation to be issued that the country was in danger; and on the 6th, Louis intimated that the king of Prussia was marching with fifty-two thousand men to operate against France. The French armies had about this time obtained some successes in the Austrian Netherlands; but the cabinet thought it necessary to order them to retreat, a measure which was afterwards publicly censured by Marshal Luckner. On the 7th an extraordinary scene took place in the National Assembly. At the moment when Brissot was about to commence an oration, M. Lammourette, bishop of Lyons, requested to be heard for a few minutes, and after expatiating on the necessity of union amongst the members of the assembly, and of sacrificing their passions and prejudices on the altar of their country, concluded an animated address by proposing that all who held in equal detestation a republic and two chambers, and who wished to maintain the constitution as it stood, should immediately rise up. The words were scarcely pronounced when the whole assembly started from their seats; men of all parties solemnly embraced each other, protesting their adherence to the constitution; and a deputation announced the happy event to the king, who came to the assembly, and congratulated them on what had occurred. But the only good effect produced by this temporary agreement was, that the festival of the 14th of July, which was celebrated with the usual magnificence, passed in tranquillity.

Duke of Brunswick's manifesto.

On the 25th of July, the Duke of Brunswick issued at Coblentz his celebrated manifesto. It declared that the purpose of the intended invasion of France was to restore the French king to full authority; held the national guard responsible for the preservation of tranquillity; and threatened with the punishment of death, as rebels to their king, all those who should appear in arms against the allied powers. The same language was employed towards all persons holding offices, civil as well as military; whilst the city of Paris and the National Assembly were declared responsible for every insult which might be offered to the royal family. It was added, that if the latter were not immediately placed in safety, the allies were resolved to inflict upon those who should deserve it the most exemplary and ever-memorable punishment, by giving up the city of Paris to military execution, and exposing it to total destruction; and the same vengeance was denounced against all those who should be guilty of what was called illegal resistance. This sanguinary and imprudent manifesto operated almost as a warrant for the destruction of the unfortunate Louis XVI. It left no middle party in the nation. All who wished to preserve freedom in any form, and all who loved the independence of their country, were instantly united. The reproaches cast upon the king by the Jacobins now gained universal credit. The sovereigns of Prussia and of Hungary announced to the French nation that their monarch was secretly hostile to the constitution; and the restoration of the king and his family to despotic power was made the sole pretence for a most unjustifiable aggression. The republican party saw at once the advantage which they had gained, and resolved on the deposition of the king. The chief engine which they meant to employ in this service consisted of about fifteen hundred men, who had come to Paris at the period of the confederation on the 14th of July, hence called *Fédérés*, and who were also sometimes denominated *Marseillois*, from the place which had sent the greater number; and next to these, dependence was placed upon the populace of the suburbs of the capital. The designs of the republicans were not unknown to the court, and both parties now formed their plans of operation. The royal party intended, it is said, that the king and his family should suddenly leave the capital, and proceed to as great a distance as the constitution permitted; whilst the republicans, on the other hand, are alleged to have meditated seizing the person of the king, and confining him in the castle of Vincennes until a national convention should decide upon his fate. Both assertions are probably true. Every motive which can influence the mind of man must have induced Louis to wish to be at a distance from the factious and sanguinary capital; and the subsequent conduct of the republicans warrants us in believing that they already contemplated the destruction of the king and the monarchy.

Lafayette accused and acquitted.

Various charges had at different times been brought forward in the assembly against Lafayette, and the 8th of August was appointed for their discussion. In the mean time, on the 3d of August, Petion the mayor, at the head of a deputation from the sections of Paris, appeared at the bar, and formally demanded the deposition of the king. The discussion of the accusation against Lafayette was considered as a trial of strength between the parties; but he was acquitted by a majority of nearly two hundred; and the republican party, despairing of carrying their point by a vote of the assembly, resolved to have recourse to the bolder experiment of insurrection.

On the evening of the 9th, about fifteen hundred gentlemen, officers of the army, and others, repaired to the palace, resolved to protect the royal family, or to die in their defence; and besides these, there were within its walls seven hundred Swiss guards, with a body of cavalry amounting to about a thousand. Mandat, the commander of the national guards, a man firmly attached to the constitution, had also procured two thousand four hundred of that body, with twelve pieces of cannon. There can be no doubt that, with such a force vigorously directed, the palace, which is a kind of castle, might have been successfully defended; and that which is now termed a revolution might have received the name of a rebellion. But, unhappily for the cause of monarchy in France, its supporters, military as well as civil, were paralysed by the uncertainty and vacillation which characterized the royal councils, and, through indecision, all was lost. Meanwhile the assembly declared its sittings permanent. Petion was at the palace late in the evening of the 9th; and as some apprehensions were entertained, or pretended to be entertained, for his safety, a deputation from the assembly brought him away. At midnight the tocsin was sounded, and the drums beat to arms throughout the city, when a number of the most active leaders of the republican party assembled, and elected a new common council. The persons thus irregularly chosen instantly took possession of the common-hall, and drove out the lawful members, who, infected with that weakness which shrinks from stations of responsibility in perilous times, readily gave place to the usurpers. The new council then sent repeated messages to Mandat, requiring his attendance upon important business. He was occupied in arranging the troops around the palace; but suspecting nothing, he went to the common-hall, and was there astonished to find a different assembly from that which he expected to meet there. He was abruptly accused of a plot to massacre the people, and ordered to prison; but as he descended the stairs he was shot through the head with a pistol, and Santerre appointed in his stead to command the national guard. In the palace all was anxiety and alarm.

Tenth August

About six o'clock in the morning of the 10th the king descended into the gardens to review the troops. He was received with shouts of *Vive le roi*, excepting from the artillery, who shouted *Vive la nation*. The king returned to the palace, and the multitude continued to assemble. The national guard seemed undecided what to do, as they assembled in divisions near the palace; and had a steady resistance been made from within, it is probable they would have joined the royal party. But towards eight o'clock M. Roederer procured admission into the palace, and told the king that armed multitudes were assembling in hostile array around the Tuilleries; that the national guard was not to be depended upon; and that, in the event of resistance, the whole royal family would certainly be massacred. He therefore advised the king to seek protection in the hall of the National Assembly; and with this advice the king, with his usual facility of temper, prepared to comply; but the queen vehemently opposed the humiliating proposal. Having, however, become gradually alarmed for the safety of her children, she at length gave her consent; and the king, queen, and Princess Elizabeth, together with the prince and princess royal, went on foot to the hall of the assembly. "I am come hither," said his majesty, "to prevent a great crime. Among you, gentlemen, I believe myself in safety." But by an article of the constitution the assembly could not deliberate in presence of the king. The royal family were, therefore, placed in a narrow box separated from the hall by a railing, where they remained during fourteen hours, without having any place to which they could retire for refreshment, excepting a small closet adjoining; and here they sat listening to debates in which the royal character and office were treated with every species of contumely and insult.

When the king left the palace of the Tuilleries, he unfortunately forgot to order it to be immediately surrendered. This he recollected as soon as he reached the assembly, and sent orders accordingly; but unhappily it was now too late. The insurgents, amounting to about twenty thousand in number, were drawn up in tolerable order by Westermann, a Prussian by birth, and had with them thirty pieces of cannon. The gentlemen within the palace, who had assembled to protect the king's person, now became dispirited, and knew not what to do. Afry, the commander of the Swiss, was absent, and the captains were left without orders, whilst, in consequence of the death of Mandat, the national guard had no leader. About nine o'clock the outer gates were forced, and the insurgents formed their line in front of the palace. A bloody combat now commenced, chiefly between the Marseillois and the Swiss. But after a brave resistance of about an hour, the latter were overpowered by numbers, and gave way. All those found in the palace were massacred, some even whilst imploring quarter on their knees; but others escaped into the city, and were protected by individuals. Of this brave regiment only two hundred survived; but every human being, including even the lowest domestics, found within the palace, was put to death. Those of the Swiss who had been made prisoners in various quarters were conducted to the door of the assembly, and, by a decree, taken under the protection of the state; but the sanguinary multitude insisted upon putting them to instant death; and the assembly would, in all probability, have been unable to protect them, had not the Marseillois generously interfered in their favour.

The royal authority suspended.

The suspension of the royal authority was now decreed, and the nation invited to elect a convention to determine the nature of its future government. On this occasion all Frenchmen of twenty-one years of age were declared capable of electing, and of being elected, deputies to the new National Convention. The same evening commissioners were dispatched to give to the armies a favourable account of the transactions which had just taken place. The royal family were sent to the old palace of the Temple, there to remain under a strict guard; and all persons of rank who had been attached to them were seized and committed to different prisons.

As an instance of the temper by which the people of Paris were at this time actuated. it is proper to mention, that at the very moment when the multitude were massacring the menial servants in the palace, and could scarcely be restrained from offering violence to the Swiss who had been made prisoners, they would not suffer an act of pillage to pass unpunished; and several attempts of the kind were instantly followed by the death of the offenders. The plate, jewels, and money found in the Tuilleries were brought to the National Assembly, and thrown down in the hall; and one man, whose dress and appearance bespoke extreme poverty, cast upon the table a hat full of gold. But the minds of those men were elevated by enthusiasm; and they conceived themselves at the moment the champions of freedom, and objects of terror to the kings of the earth.

In the mean time, the situation of France had become extremely critical, and it appeared doubtful if the new Convention would ever be suffered to assemble. Lafayette having accidentally got early notice of the events of the tenth of August, advised the magistrates of the town of Sedan to imprison the commissioners of the National Assembly as soon as they should arrive there; and this was accordingly done. He at the same time published an address to the army, calling upon them to support the king and the constitution; but finding that they were not to be depended upon, he left the camp in the night of the 19th August, accompanied only by his staff and a few servants. The party took the route of Rochefort in Liège, which was a neutral country; but having been met by a small body of the enemy, they were made prisoners, and Lafayette was detained for several years in close confinement. The severe treatment of this weak but well-meaning man was a great error in policy upon the part of the allies. His fidelity to the king and the constitution is now generally admitted; and though some have entertained strong suspicions of his conduct towards that unfortunate monarch, and in the British House of Commons he was even stigmatized as an abandoned ruffian, it is certain that he was actuated by the purest motives, and would have saved the king if it had been in his power to do so. His errors, in fact, were those of the head rather than of the heart; he still fancied that he could guide a revolution which he had had a share in originating, and seemed altogether unconscious that the direction of the movement had passed into other hands. But, however this may be, he should have been protected by the allies, if for no other reason, at least to encourage desertion amongst the officers of the republican army. The commissioners arrested at Sedan were soon afterwards set at liberty, and received with applause by the army of Lafayette. General Arthur Dillon at first entered into the sentiments of Lafayette; but Dumouriez diverted him from his purpose, and thus regained his credit with the Jacobins, by whose influence he was appointed commander-in-chief. The other generals, Biron, Montesquieu, Kellerman, and Custines, offered no opposition to the will of the National Assembly.

Entry of the allies into France.

Meanwhile the combined armies of Austria and of Prussia had entered France. The Duke of Brunswick's army was above fifty thousand strong; and General Clairfayt had joined him with fifteen thousand Austrians and a considerable body of Hessians, besides twenty thousand French emigrants, amounting in all to near ninety thousand men. To oppose these, Dumouriez had only seventeen thousand men collected near the point from which the enemy were approaching in Luxembourg. The French emigrants had given the Duke of Brunswick such an account of the distracted state of the country, and of the alleged disaffection of all orders of men towards the ruling faction in Paris, that no resistance of any importance was expected by him; and, in fact, when the combined forces, consisting either of steady Austrian or Hungarian battalions, or of well-trained Prussians, whom Frederick had inured to the best discipline, were reviewed in Germany before setting out on their march, the spectators, amongst whom the French cause was not unpopular, beheld them with anxiety and regret, pitying the unhappy country against which this irresistible force was to be directed. The officers and soldiers considered themselves as departing for a hunting match, or an excursion of pleasure; and many of the usual accommodations of an army were in consequence but ill attended to. The commencement of their invasion of France justified these expectations. Longwy surrendered after a siege of fifteen hours, although well fortified, possessed of a garrison of near four thousand men, and defended by seventy-one pieces of cannon.[1] Verdun was next summoned, and the governor, M. Beaurepaire, compelled by the municipality to surrender.[2] The news of this second capture, and of the approach of the Prussians, spread consternation throughout Paris; and it was proposed to raise a volunteer army, which should set out immediately to meet the enemy. The municipality, which was now led by Robespierre, Danton, Marat, and others of the most sanguinary character, ordered the alarm guns to be fired, and enjoined the populace to meet in the Champ de Mars to enroll themselves to march against the enemy. The people assembled, and, either in consequence of a premeditated plan, or, which is not very probable, of an instantaneous movement, a number of voices exclaimed, that the domestic foes of the nation should be destroyed before its foreign enemies were attacked.

Massacres of September.

Parties of armed men proceeded without delay to the prisons where the nonjuring clergy, the Swiss officers, and those confined since the tenth of August on account of alleged practices against the state, were detained in custody. They took out the prisoners one by one, gave them a kind of mock trial before a jury of their own number, acquitted some few, and murdered the remainder. Amongst these was the Princess de Lamballe, who was taken from bed, dragged before this bloody tribunal, and massacred; after which her head, stuck on a pike, was carried by the populace to the Temple, that it might be seen by her friend the queen. These massacres continued two days, and upwards of a thousand persons were put to death. In all history, indeed, there is scarcely any thing to parallel them; they were committed, it is believed, by less than three hundred men, in the midst of an immense city, which heard of them with horror, and in the vicinity of the National Assembly, which, by going in a body, could have put an end to them. But such was the confusion and dismay which prevailed during these two disgraceful days, that no man dared to stir from his house; every one believed that the whole city, excepting his own street, was involved in massacre and bloodshed. The national guards were all ready at their respective posts, but no man directed them to act; and there is good reason to suspect that Santerre and the chiefs of the commune connived at, if indeed they were not actually implicated in, this atrocious butchery.

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[1] The news of this event greatly irritated the assembly, who decreed, that when the town was retaken, the houses of the citizens should be razed to the ground; and, mistrustful of the officers of the army, they also ordained that the municipal officers of a town should hereafter have power to control the deliberations of the council of war.

[2] This officer, disappointed and enraged, shot himself dead with a pistol in presence of the council; and on the 2d of September the Prussian troops entered the town.

In the mean time, General Dumouriez was occupied in taking measures to protract the march of the enemy till the army of Kellerman, consisting of about twenty thousand men, could arrive from Lorraine, and that of Bournonville, amounting to thirteen thousand, from Flanders; together with whatever new levies Luckner might be able to send from Chalons. The forest of Argonne, extending from north to south upwards of forty miles, lay directly in the line of march of the Duke of Brunswick, who had either to force his way through it, or to make a circuit of forty miles by the pass of Grandpré on the north, or by Barleduc on the south. The pass which lay most directly in his line of march was that of Biesme. But after examining Dillon's position at this point, the duke left a force of twenty thousand men to observe it, and with the main body of his army took the circuitous route by Grandpré on the north. Here Dumouriez waited to receive him, and was attacked on the 12th and 13th without success; but on the 14th the attack of the Prussians was irresistible, and Dumouriez abandoned his position. On his retreat he was so closely pressed by the cavalry of the Prussian advanced guard, that his army was seized with a panic, and fled before fifteen hundred horse, who, if they had pushed their advantage, might have entirely dispersed it. On the 15th, however, Dumouriez having encamped at St Menehould, began to fortify his position, and Bournonville's army joined him on the 17th. The Duke of Brunswick now resolved to attack Kellerman before he could effect his junction with Dumouriez; and, accordingly, on the 19th, when that officer had arrived within a mile of the French camp, the projected attack took place. The Prussians manœuvred with their usual coolness and address; but in an attempt to surround Kellerman's army they were completely foiled, and, in the face of the enemy, Kellerman joined Dumouriez at the close of the action. At the same time that the army of Kellerman was attacked, an attempt was also made to force Dillon's camp at Biesme, by the twenty thousand men who had been left in its vicinity; but the attempt failed, and this large detachment was thus prevented from penetrating the forest of Argonne and joining the Duke of Brunswick. In these engagements the French owed the advantage they obtained chiefly to the superiority of their artillery; a circumstance which served to convince their enemies that they had to contend with regular military bodies, and not, as they expected, with undisciplined multitudes.

The Duke of Brunswick now encamped his army at La Lun, near the position of Dumouriez; and here the Prussians began to suffer extreme distress, both from sickness and from famine. No temptation could induce the inhabitants of the country to carry provisions to the hostile camp, whilst at the same time the French army was abundantly supplied; whilst Bournonville, with a body of four thousand men, had intercepted several herds of cattle and other convoys of provisions destined for the Prussians. The rain fell in torrents, and the roads were uncommonly deep. Exposed to cold and damp, and suffering from want of provisions, the Prussians ate freely of the grapes of Champagne; in consequence of which an epidemical distemper appeared, and spread through the army with such rapidity, that ten thousand men were at one time unfit for duty. The Duke of Brunswick, however, was still at the head of a force more numerous than that of Dumouriez; and he has therefore been much censured for not attacking his opponent, and forcing him to receive battle. It has been said that the numerous and veteran force which he commanded would have marched to certain victory against the raw troops who opposed them; and that, having defeated Dumouriez's army, there was nothing to oppose his march towards Paris. But the Duke of Brunswick having entered France upon the supposition that in its present distracted state no regular army could be brought into the field against him, and that the people at large were hostile to the ruling faction, felt disconcerted by discovering that he had been deceived, and that all his expectations were disappointed. Instead of a friendly he found himself in the midst of a hostile people; where he had expected to meet with nothing but confusion, disorder, and weakness, he observed all enthusiastically united in defence of their country; and, so far from encountering little or no resistance, he saw before him armies, imperfectly disciplined, it is true, but hourly increasing in numbers and improving in training, and at the same time conducted by skilful military chiefs. In such a situation a defeat would have brought certain ruin on his army; and even a victory might in its consequences have proved equally fatal. Accordingly, after proposing a truce for eight days, which was agreed to, he commenced his retreat towards Grandpré, and continued it without molestation. Verdun was retaken by the French on the 12th of October, and Longwy on the 18th; and the siege of Thionville, a small but strong fortress under the command of General Wimpfen, was at the same time raised.

Whilst the Prussians were advancing from the north-east, the Austrians under the Duke of Saxe-Teschen laid siege to Lisle. To the summons of the besiegers the council-general of the commune answered that they had just renewed their oath to be faithful to the nation, and to maintain liberty and equality, or to die at their post; and that they would not perjure themselves. The Austrian batteries opened on the 29th, and were chiefly directed against that quarter of the town which was inhabited by the lower class of citizens, in the hope, no doubt, of exciting disturbance within. But this proceeding was exceedingly ill judged. The lower classes of mankind are always accustomed to hardships, and hence they are prepared to go much further in support of any principle which they may have enthusiastically adopted, than those who have been accustomed to enjoy all the comforts and luxuries of life. Accordingly, though a great part of the city was reduced to a heap of ruins, the citizens of Lisle became daily more obstinate; every vault and cellar was occupied; and although upwards of thirty thousand red-hot balls and six thousand bombs were thrown into the city, not to mention the effect produced by an immense battering train, yet the loss sustained by the garrison and people did not exceed five hundred persons, most of whom were women and children. After a fortnight of fruitless labour, the Austrians were therefore obliged to raise the siege. Meanwhile war had been declared against the king of Sardinia, whose conduct towards France had for some time assumed a threatening character. On the 20th of September General Montesquieu entered the territories of Savoy, and was received at Chambery, and throughout the whole country, with marks of unbounded welcome; and on the 29th

General Anselm, with another body of troops, took possession of Nice and the surrounding country. On the 30th General Custines advanced to Spires, where, finding the Austrians drawn up in order of battle, he attacked and drove them out of the city, taking three thousand prisoners. The capture of Worms succeeded that of Spires; Mentz surrendered by capitulation; and Frankfort fell into the hands of the French on the 23d. Out of this last place, however, they were afterwards driven on the 2d of December.

The National Convention assembled.

On the 20th of September the French National Convention assembled. This body was found to contain men of all characters, orders, and ranks. Many distinguished members of the Constituent Assembly were returned as members, and several who had belonged to the Legislative Assembly were also elected; whilst even foreigners were invited to become French legislators. Thomas Paine and Dr Priestley were elected by certain departments; and Clootz, whom we formerly noticed as having appeared at the bar of the Constituent Assembly at the head of a grotesque deputation professing to represent all the nations of the earth, was also chosen. The general aspect of the new Convention showed that the republican party had acquired a decided superiority. On the first day of meeting Collot-d'Herbois, who had formerly been an actor, ascended the tribune, and proposed the eternal abolition of royalty in France. This proposition was carried by acclamation, after which the house adjourned. Messages were then sent to all parts of the country intimating the decree, and through the influence of the Jacobins these were everywhere received with applause. Next day it was decreed that all public acts should be dated by the year of the French Republic; and every citizen was declared eligible to vacant offices and places. Nor was this all. The rage of republicanism soon proceeded so far that the ordinary titles of Monsieur and Madame were abolished, and the appellation of Citizen substituted in their stead, as more suitable to the principles of liberty and equality.

Two factions in the Convention.

It was soon discovered that the leading republicans were divided into two opposite factions. The one of these was called Girondists, because Vergniaud, Gensonné, Guadet, and some others of its leaders, were members for the department of the Gironde. The celebrated Condorcet also belonged to this party, which was sometimes denominated Brissotine, from Brissot their principal leader. The Girondists supported the ministry now in office, at the head of which was Roland; and the majority of the Convention was obviously attached to them. In opposition to these was the smaller party of the Mountain, so called from its members usually sitting on the upper seats of the hall of the Convention. They were men possessed of less personal respectability, and inferior literary accomplishments, but of daring and sanguinary characters. At the head of this party were Danton and Robespierre, and subordinate to these were Couthon, Bazire, Thuriot, Merlin de Thionville, Saint-André, Camille Demoulins, Chabot, Collot-d'Herbois, Sergent, Legendre, Fabre d'Eglantine, Panis, Marat, and others. These two parties evinced the diversity of their characters in the manner in which they treated the massacres of the 2d and 3d of September. The Brissotines, with the majority of the Convention, wished to bring the murderers to trial; but the question was always eluded by the other party, with the assistance of the Jacobin Club and of the populace.

Decree of fraternisation.

On the 9th of October it was resolved that all emigrants, when taken in arms, should suffer death; and on the 15th of November, in consequence of an insurrection in the duchy of Deux Ponts, and an application for aid upon the part of the insurgents, a decree was passed, declaring that "the National Convention, acting in name of the French nation, would grant fraternity and assistance to all those people who wished to procure liberty;" and charging the executive power to send orders to the generals to give assistance to such people as had suffered, or were still suffering, in the cause of liberty. Of this decree foreign nations loudly complained, as calculated, if not intended, to provoke insurrection in other states; and in the rupture which subsequently took place between Great Britain and France, it was founded on by the government of the former country as of itself affording a sufficient justification of hostilities, and, in fact, as rendering war with France a necessary measure of self-defence.

Battle of Jemmappes.

But it is now time to return to the military affairs of the Republic. The final retreat of the allies had left Dumouriez at liberty to carry into execution a project he had long meditated, of invading the Low Countries, rescuing these fine provinces from the Austrian dominion, and thus advancing the frontier of the Republic to the Rhine. He received unlimited powers from the government, and the losses sustained by the allies during their invasion of France gave him a great superiority of force. His right wing consisted of sixteen thousand men, detached from the Argonne Forest, whilst between it and the centre was placed General d'Harville with fourteen thousand; Dumouriez himself commanded the main body, amounting to forty thousand men; and the left wing, under Labourdonnaye, was about thirty thousand strong; in all a hundred thousand men, filled with enthusiasm, and anticipating nothing but victory. To oppose this immense force, the Austrians had only about forty thousand men, who, according to the tactics of the time, were disseminated along an extended line of nearly thirty miles. Their main body, consisting of about eighteen thousand men, was entrenched in a strong position, which had been deliberately chosen by the imperialists, and extended through the villages of Ausmes and Jemmappes to the heights of Berthaimont on the one hand, and the village of Sifly on the other, sweeping over a succession of eminences which commanded the adjacent plain; whilst fourteen redoubts, strengthened by all the resources of art, and armed with a hundred pieces of cannon, seemed amply to compensate for inferiority in point of number. But formidable as this position undoubtedly was, Dumouriez resolved to assault it, and to make trial of the new system of accumulating masses upon one point, which, if thus forced, would necessitate the abandonment of the whole.

The battle commenced at day-break on the 6th of November, with an attack on the village of Cuesmes, led by Bournonville; but, after sustaining a severe fire of artillery, which for some hours arrested his efforts, he at length succeeded in turning the village of Jemmappes, and the redoubts on the left of the Austrian position were carried by the impetuous onset of the French columns. Dumouriez now caused his centre to advance against the front of Jemmappes, and the column moved forward rapidly to the attack; but upon approaching the village, they were taken in flank by some squadrons of horse, which broke through the column, and drove back the French cavalry which supported it. The moment was eminently critical; for whilst the flank of the column was thus maltreated, the leading battalions, checked by a destructive fire of grape, were beginning to waver at the foot of the redoubts. In this extremity, an attendant of the general-in-chief rallied the disordered troops, and arrested the victorious squadrons, whilst a young officer restored the front of the attack. Rallying the disordered regiments into one mass, which he called the column of Jemmappes, the latter placed himself at its head, renewed the attack on the redoubts, carried the village, and at length drove the Austrians from their intrenchments in the centre of the position.[1] But though thus victorious in the centre, Dumouriez had still great cause for anxiety respecting the attack on the right. Bournonville, though at first successful on that side, had hesitated when he observed the confusion in the column of the centre, vacillating between a reluctance to abandon the ground he had gained, and a desire to withdraw part of his forces to support the column in the plain. As soon as this hesitation was perceived by the enemy, they redoubled their fire, and kept in hand a large body of cavalry ready to charge on the least appearance of disorder. Dumouriez flew to the spot, rode along the front of two brigades of old soldiers from the camp at Maulde, and succeeded in rallying the squadrons of horse, who were beginning to fall into confusion. The imperial horse charged immediately after, but receiving a close and well-directed volley, they wheeled, and, being instantly attacked by the French cavalry, were completely routed, and driven from the field. The victorious brigades now advanced, chanting the *Marseilloise*, and entering the redoubts by the gorge, carried every thing before them. Dumouriez was still uneasy about his centre; but whilst he was in the act of setting off to that point with a reinforcement of six squadrons of cavalry, he received intelligence that the battle there was already won, and that the Austrians were retiring at all points towards Mons. Such was the battle of Jemmappes, the first pitched battle which had been gained by the republican armies, and on that account not only celebrated beyond its real merits, but most important in its consequences. The loss on both sides was great, that of the Austrians amounting to five thousand men, whilst the French lost above six thousand; but the results of the victory upon the spirits and the moral strength of the two parties were incalculably different, and in fact led to the immediate conquest of the whole Netherlands. Mons and Brussels surrendered to Dumouriez; Tournay, Malines, Ghent, and Antwerp, were taken possession of by General Labourdonnaye; Louvaine and Namur submitted to General Valence; and the whole Austrian Netherlands, Luxembourg only excepted, fell into the hands of the French. Liège was taken on the 28th of November, after a successful engagement, in which the Austrians lost five or six hundred men and an immense train of artillery.

Contests between the Girondists and the Mountain.

France was now in a situation not unusual in the history of nations, successful abroad, but distracted by contending factions at home. The two parties in the Convention were engaged in a struggle, which daily became more and more implacable. The party called the Mountain did not hesitate to employ any means, however criminal, to effect the ruin of their antagonists; and they are even suspected of having, through the medium of the minister of war, retarded the supplies for the armies, in order to render the ruling party odious from want of success. But they were for some time unfortunate in this respect, and the daily news of victories obtained supported the credit of the Girondists. A new subject was therefore started, namely, how the dethroned monarch was to be disposed of. The moderate party wished to save him, and this was a sufficient reason for their antagonists resolving on his ruin. A committee was accordingly appointed to report upon his conduct; and a variety of charges having in consequence been brought against him, the Convention resolved to constitute itself at once prosecutor and judge.

The king brought to trial.

On the 11th of December the ill-fated monarch was ordered to the bar of the Convention; and when the act of accusation had been read, he was summoned by the president Barrère to answer the charges separately. These consisted of an enumeration of the whole crimes of the Revolution, from its commencement in 1789, all of which were imputed to him. The following is the substance of this extraordinary act of accusation:—

"Louis, the French nation accuses you of having committed a multitude of crimes to establish your tyranny, by destroying her freedom. You, on the 20th of June 1789, attacked the sovereignty of the people, by suspending the assemblies of their representatives, and expelling them with violence from the places of their sittings. This is proved in the procès-verbal entered at the tennis court of Versailles by the members of the Constituent Assembly. On the 23d of June you wanted to dictate laws to the nation; you surrounded their representatives with troops; you presented to them two royal declarations, subversive of all liberty, and ordered them to separate. You ordered an army to march against the citizens of Paris. Your satellites have shed the blood of several of them, and you would not remove this army till the taking of the Bastille and a general insurrection announced to you that the people were victorious. The speeches you made on the 9th, 12th, and 14th of July, to the deputations of the Constituent Assembly, show what were your intentions; and the massacres of the Tuilleries rise in evidence against you. After these events, and in spite of the promises which you made on the 15th in the Constituent Assembly, and on the 17th in the Hôtel de Ville of Paris, you have persisted in your projects against national liberty. You long eluded the execution of the decrees of the 11th of August, respecting the abolition of personal servitude, the feudal government, and the tithes; you long refused acknowledging the rights of man; you doubled the number of the life-guards, and called the regiment of Flanders to Versailles; you permitted, in orgies held before your eyes, the national cockade to be trampled under foot, the white cockade to be hoisted, and the nation to be slandered. At last you rendered necessary a fresh insurrection, occasioned the death of several citizens, and did not change your language till after your guards had been defeated, when you renewed your perfidious promises. You took an oath at the confederation of the 14th of July, which you did not keep. You soon tried to corrupt the public opinion, with the assistance of Talon, who acted in Paris, and Mirabeau, who was to have excited counter revolutionary movements in the provinces. You lavished millions of money to effect this corruption, and you even used your popularity as a means of enslaving the people. These facts are the result of a memorial of Talon, on which you have made your marginal comments in your own handwriting; and of a letter which Laporte wrote to you on the 19th of April, in which, recapitulating a conversation he had had with Rivarol, he told you, that the millions which you had been prevailed upon to throw away had been productive of nothing.

"For a long time you had meditated on a plan of escape. A memorial was delivered to you on the 28th of February, which pointed out the means for you to effect it; you approved of it by marginal notes. On the 28th a great number of the nobles and military came into your apartments in the castle of the Tuilleries, to favour that escape. You wanted to quit Paris on the 10th of April, to go to St Cloud; but the resistance of the citizens made you sensible that their distrust was great. You endeavoured to discredit it, by communicating to the Constituent Assembly a letter, which you addressed to the agents of the nation near foreign powers, to announce to them that you had freely accepted the constitutional articles, which had been presented to you; and, notwithstanding, on the 21st you took flight with a false passport. You left behind a protest against these self-same constitutional articles; you ordered the ministers to sign none of the acts issued by the National Assembly; and you forbade the minister of justice to deliver up the seals of state. The public money was lavished to ensure the success of this treachery; and the public force was employed to protect it, under the orders of Bouillé, who shortly before had been charged with the massacre of Nancy, and to whom you wrote on this head, 'to take care of his popularity, because it would be of service to you.'

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[1] This young officer was the Duke de Chartres, then called General Egalité and now Louis Philippe, king of the French.

"After your detention at Varennes, the exercise of the executive power was for a moment suspended in your hands, and you again formed a conspiracy. On the 17th of July the blood of citizens was shed in the Champ de Mars. A letter, in your own handwriting, written in 1790 to Lafayette, proves that a criminal coalition subsisted between you and Lafayette, to which Mirabeau had acceded. The revision began under these cruel auspices; all kinds of corruptions were made use of. You have paid for libels, pamphlets, and newspapers, designed to corrupt public opinion, to discredit the assignats, and to support the cause of the emigrants. You seemed to accept the constitution on the 14th of September; your speeches announced an intention of supporting it; and you were busy in overturning it, even before it was completed. A convention was entered into at Pilnitz on the 24th of July, between Leopold of Austria and Frederic-William of Brandenburg, who pledged themselves to re-erect in France the throne of absolute monarchy; and you were silent upon this convention till the moment when it was known by all Europe. Arles had hoisted the standard of rebellion; you favoured it by sending three civil commissaries, who made it their business not to repress the counter revolutionists, but to justify their proceedings. Avignon, and the county of Venaissin, had been united with France; you caused the decree to be executed; but a month afterwards civil war desolated that part of the country. The commissaries you sent thither helped to ravage it. Nismes, Montauban, Mende, Jales, felt great shocks during the first days of freedom. You did nothing to stifle those germs of counter revolution, until the moment when Saillant's conspiracy became notorious. You sent twenty-two battalions against the Marseillais, who marched to reduce the counter revolutionists of Arles. You gave the southern command to Wittgenstein, who wrote to you on the 21st of April 1792, after he had been recalled: 'A few instants more, and I shall call around the throne of your majesty thousands of French, who are again become worthy of the wishes you form for their happiness.' You paid your late life-guards at Coblentz; the registers of Septeuil attest this; and general orders signed by you prove that you sent considerable remittances to Bouillé, Rochefort, Vauguyon, Choiseul, Beaupré, Hamilton, and the wife of Polignac. Your brothers, enemies to the state, caused the emigrants to rally under their banners; they raised regiments, contracted for loans, and concluded alliances in your name; you did not disclaim them. The soldiers of the line, who were to be put on the war establishment, consisted of only a hundred thousand men at the end of December; you therefore neglected to provide for the safety of the state from abroad. Narbonne required a levy of fifty thousand men; but he stopped the recruiting at twenty-six thousand, giving assurances that all was ready; yet there was no truth in these assurances. Servan proposed after him to form a camp of twenty thousand men near Paris; it was decreed by the Legislative Assembly, but you refused your sanction. A spirit of patriotism made the citizens repair to Paris from all quarters. You issued a proclamation, tending to stop their march; at the same time our camps were without soldiers. Dumouriez, the successor of Servan, declared that the nation had neither arms, nor ammunition, nor provisions, and that the posts were left defenceless. You waited to be urged by a request made to the minister Lajard, when the Legislative Assembly wished to point out the means of providing for the external safety of the state, by proposing the levy of forty-two battalions. You gave commission to the commanders of the troops to disband the army, to force whole regiments to desert, to make them pass the Rhine, and to put them at the disposal of your brothers, and of Leopold of Austria, with whom you had intelligence. You charged your diplomatic agents to favour this coalition of foreign powers and your brothers against France, and especially to cement the peace between Turkey and Austria, and to procure thereby a larger number of troops against France from the latter. The Prussians advanced against our frontiers: your minister was summoned on the 8th of July to give an account of the state of our political relations with Prussia; you answered, on the 10th, that fifty thousand Prussians were marching against us, and that you gave notice to the legislative body of the formal acts of the pending hostilities, in conformity to the constitution. You intrusted Dabancourt, the nephew of Calonne, with the department of war; and such has been the success of your conspiracy, that the posts of Longwy and Verdun were surrendered to the enemy at the moment of their appearance. You have destroyed our navy; a vast number of officers belonging to that corps had emigrated; there scarcely remained any to do duty in the harbours: meanwhile Bertrand was granting passports every day; and when the legislative body represented to you his criminal conduct on the 8th of March, you answered that you were satisfied with his services.

"You have favoured the maintenance of absolute government in the colonies; your agents fomented troubles and counter revolutions throughout them, which took place at the same epoch when it was to have been brought about in France, which indicates plainly that your hand laid this plot. The interior of the state was convulsed by fanatics; you avowed yourself their protector, in manifesting your evident intention of recovering by them your ancient power. The legislative body had passed a decree on the 29th of January, against the factious priests; you suspended its execution. The troubles had increased; the minister declared that he knew nothing in the laws extant upon which to arraign the guilty. The legislative body enacted a fresh decree, which you likewise suspended. The uncitizen-like conduct of the guards whom the constitution had granted you had rendered it necessary to disband them; the day after, you sent them a letter expressive of your satisfaction, and continued their pay. You kept near your person the Swiss guards; the constitution forbade you this, and the Legislative Assembly had expressly ordained their departure. You had private companies at Paris, charged to operate movements useful to your projects of a counter revolution. You wished to suborn, with considerable sums, several members of the Legislative and Constituent Assemblies. You suffered the French name to be reviled in Germany, Italy, and Spain, since you omitted to demand satisfaction for the bad treatment which the French suffered in those countries. You reviewed the Swiss on the tenth of August, at five o'clock in the morning; and the Swiss were the first who fired upon the citizens. You authorized Septeuil to carry on a considerable trade in corn, sugar, and coffee, at Hamburg." It was asked, "Why did you affix a veto on the decree which ordained the formation of a camp of twenty thousand men?" To which Louis answered, "The constitution left to me the free right of refusing my sanction of the decrees; and even from that period I had demanded the assemblage of a camp at Soissons."

Valazé, who sat near the bar, now presented and read a memoir of Laporte and Mirabeau, and some other papers, containing plans of a counter revolution, which the king, however, disowned. He then presented a number of other papers on which the act of accusation was founded, and having asked the king if he recognized them, the latter replied that he did not. By the admission even of his enemies, the answers of Louis were brief, firm, and for the most part judicious; he displayed remarkable presence of mind, and in most cases negatived the charges by the most satisfactory replies. The affair of Nancy, the journey to Varennes, the suppression of the revolt in the Champ de Mars, were justified by the decrees of the assembly; and the catastrophe of the tenth of March, by the power of self-defence conferred on him by the laws. To every question, in fact, he replied with clearness and precision; denying some, showing that the matters referred to in others were the work of his ministers, and justifying all that had been done by the powers conferred on him by the constitution. In a loud voice he repelled the charge of shedding the blood of the people on the tenth of August, exclaiming, "No, sir, it was not I who did it." But he was careful in his answers not to implicate any members of the Constituent and Legislative Assemblies; and many who now sat as his judges trembled lest he should compromise them with the dominant faction. The deep impression made on the Convention by the simple statements, and temperate but firm demeanour, of the sovereign, struck the Jacobins with such dismay that the most violent of the party proposed he should be hanged that very night. But the majority, composed of the Girondists and the neutrals, decided that he should be formally tried and defended by counsel. He then returned to the Temple, where the resolution of the municipality, that he was no longer to be permitted to see his family, was communicated to him; or, in other words, that a consolation, which is never withheld even from the most atrocious criminals, was denied him. Next day, however, the Convention, less inhuman than the commune, decreed that the unfortunate father might enjoy the society of his children; but the king thinking them more necessary to the queen's comfort than his own, declined to take them from her, and, after a struggle with feelings which even demons might have respected, he submitted to the separation with a resignation which nothing could shake.

Louis had desired to be furnished with copies of the accusation, and of the papers upon which it was founded; and also to have the choice of his own counsel. Both requests were conceded, and he accordingly chose as his counsel M. Tronchet and M. Target. The former accepted, and faithfully discharged his duty;[1] the latter basely declined, on the pretence of age and infirmity. The venerable Malesherbes, whose official career had been distinguished by many wise and useful reforms, now came forward and volunteered his services as counsel for his sovereign. "I have been twice honoured," said he, in a letter to the president of the Convention, "with a place in the counsels of my sovereign, when it was an object of ambition to all the world; I owe him the same service when it imposes a duty which many consider as dangerous."[2] Malesherbes and Tronchet afterwards called in the assistance of M. Desèze, a celebrated pleader, who had at first embraced the popular side, but had withdrawn from political life since the Revolution had assumed a sombre and threatening aspect; and, unlike Target, who shrunk from a task which would have immortalized his name, he entered upon his arduous duties with great earnestness, and even more than his wonted ability. "I have often wished," said the king to Malesherbes, "I had the means of recompensing the zeal of your colleagues. I have thought of leaving them a legacy; but would it be respected by the Convention? would it not endanger them?" "Sire," replied Malesherbes, "the legacy is already bequeathed; in choosing them for your defenders, your majesty has immortalized their names."

On the 26th of December the king was again conducted to the assembly. He evinced as great serenity and self-possession as on the former occasion; discoursed of Seneca, Livy, and the public hospitals; and even addressed himself in a vein of pleasantry to one of the municipality who sat covered in the carriage. Whilst in the ante-chamber, Malesherbes, in conversing with the king, happened to make use of the words, "Sire, your majesty." "What," exclaimed Treilhard, a furious Jacobin, interrupting him, "what has rendered you so bold as to pronounce these words, which the Convention has proscribed?" "Contempt of life," replied the intrepid old man. When admitted into the assembly, Louis seated himself between his counsel, surveyed the crowded benches of his adversaries with perfect composure, and was even observed sometimes to smile as he conversed with Malesherbes. M. Desèze then read a defence which had been prepared by the king's counsel, and which was equally admired for the solidity of the argument and the beauty of the composition. In this address, the inviolability of the sovereign was ably argued; and it was proved that, if it were destroyed, the weaker party in the Convention would have no security against the stronger; a prophetic deduction, which the Girondists soon found fatally verified in their own persons, when conducted to the scaffold by their implacable enemies. The advocate then examined the whole life of the king, and showed that in every instance he had been actuated by a sincere love of his people. With reference to the tenth of August he observed, "Was the monarch under the necessity of submitting to an armed multitude? Was he constrained by law to yield to force? Was not the power which he held in the constitution a deposit, for the preservation of which he was answerable to the nation? If you yourselves were surrounded by a furious and misguided rabble, which threatened, without respect for your sacred character, to tear you from this sanctuary, what could you do other than what he has done? The magistrates themselves authorized all that he did, by having signed the order to repel force by force. But notwithstanding their sanction, the king was unwilling to make use of his authority, and retired into the bosom of the Convention, to avoid the shedding of blood. The combat which followed was neither undertaken by him, nor continued by his orders; he interfered only to put a stop to it, as is proved by the fact that it was in consequence of an order signed by him that the Swiss abandoned the defence of the Chateau, and surrendered their lives. There is a crying injustice therefore in reproaching him with the blood shed on the tenth of August; in truth, his conduct in that particular is above reproach." M. Desèze concluded with these words: "Louis mounted the throne at the age of twenty, and even then he set an example of an irreproachable life; he was governed by no weak or corrupt passion; he was economical, just, and severe. He proved himself from the beginning the friend of his country. The people desired the removal of a destructive tax; he removed it. They wished the abolition of servitude; he abolished it in his domains. They prayed for a reform in the criminal laws; he reformed it. They demanded that thousands of Frenchmen, whom the rigour of our usages had excluded from political rights, should enjoy them; he conceded them. They longed for liberty; he gave it. He even anticipated their wishes; and yet it is the same people who now demand his punishment."

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[1] Napoleon knew how to admire heroism, even when exerted in another cause, and regarded it as the noblest title to preferment. One of his first acts, on attaining to sovereign power, was to place Tronchet at the head of the supreme court of Cassation.

[2] This generous offer drew tears from the eyes of many in the Convention, and even the Jacobins were silent; for a moment their humanity was in the ascendant. As to the poor king, he was deeply affected by this proof of devotion on the part of his venerable friend. When the latter entered the Temple, Louis clasped him in his arms, exclaiming, with tears in his eyes, "Ah! it is you, my friend. You see to what a state I am reduced by the excess of my affection for my people, and the self-denial which led me to remove the troops intended to protect the throne from the enterprises of the factions. You fear not to endanger your own life to save mine; but it is in vain; I am well aware they will bring me to the scaffold; but that is of no moment; let us enter upon the defence as if I were sure to be successful. I will gain it in reality through your exertions, since my memory will descend unspotted to posterity." (Lacretelle, x. 186, 193; Hue, p. 42; Mignet, i. 236; Thiers, iii. 336; Alison, i. 513.)

When the defence was concluded, the king rose, and holding a paper in his hand, pronounced, in a calm manner, and with a firm voice, what follows: "Citizens, you have heard my defence, I will not recapitulate it; but when now addressing you, perhaps for the last time, I declare that my conscience has nothing to reproach itself with, and that my defenders have said nothing but the truth. I have no fears for the public examination of my conduct; but my heart bleeds at the accusation brought against me of having caused the misfortunes of my people, and, most of all, of having shed their blood on the tenth of August. The multiplied proofs I have given in every period of my reign, of my love for my people, and the manner in which I have conducted myself towards them, might, I had hoped, have saved me from so cruel an imputation." Having said these words, he withdrew along with his counsel, and in a transport of gratitude he embraced M. Desèze, exclaiming, "I am now at ease; I will have an honoured memory; the French will regret my death."

A stormy discussion immediately ensued in the assembly, and Lanjuinais had the boldness to demand a revocation of the decree by which the king had been brought to the bar of the Convention. "If you insist on being judges," said he, in concluding a powerful speech, "cease to be accusers. My blood boils at the thought of seeing in the judgment-seat men who openly conspired against the throne on the tenth of August, and who have in such ferocious terms anticipated the judgment without hearing the defence." The delivery of these words was instantly followed by the most violent agitation; and cries of "To the Abbaye with the perjured deputy; let the friends of the tyrant perish along with him," resounded through the hall. But the storm was at length appeased by a proposal to discuss the question, whether an appeal should be made to the people; a proposal which was adopted, and the discussion that thereupon ensued lasted twenty days. The most powerful declaimer against the sovereign was the infamous Saint-Just; the most vehement and direct, the sanguinary Robespierre. Vergniaud replied in a strain of impassioned eloquence worthy of his reputation as the first orator of France. But his forcible, nay sublime, appeal was unavailing. At the conclusion of the debate the assembly unanimously pronounced the ill-fated Louis guilty of the offences charged against him, and the appeal to the people was rejected by a majority of 423 to 281.[1] This unanimous vote upon the question of guilt is one of the most remarkable facts in the history of the Revolution. That among seven hundred men great difference of opinion must have existed on this subject, is beyond all doubt; and if any evidence were wanting to establish the fact, it would be supplied by the division which immediately followed on the proposal to appeal to the people, and by the narrow majority which decreed the punishment of death. But such was the temper of the time, and the ascendency of democratic influence in the Convention, that even the friends of the king were compelled to commence their efforts for his salvation by voting him guilty of the crimes which had been charged against him.

The only question which now remained to be decided was, what punishment should be inflicted. The debate on this subject lasted forty hours, during which Paris was in the most violent agitation. The Jacobin Club resounded with cries for death; the avenues leading to the Convention were filled with a ferocious rabble, menacing alike the supporters of the king and the neutrals; and as the termination of the voting drew near, the tumult increased. The most breathless anxiety pervaded the Convention, when the president, Vergniaud, at length rose to announce the result, which he did in these words: "Citizens, I announce the result of the vote; when justice has spoken, humanity should resume its place; there are seven hundred and twenty-one votes; a majority of twenty-six have voted for death. In the name of the Convention, I declare that the punishment of Louis Capet is *death*." Without the defection of the Girondists on this occasion, the king's life would have been saved. Forty-six of their party, including Vergniaud, voted conditionally or unconditionally for his death. This was a fatal error, which almost all of them subsequently expiated on the scaffold. They were really anxious to save the king; but, destitute of political courage, and hurried on by the democratic fury of the times, they trusted to accomplish their object by an appeal to the people. In this, however, they were baffled; their weak and timid policy ruined all. The triumph of the Jacobins was complete. They had committed the Revolution by an act which cut off all retreat; and they had compelled their most able and dangerous enemies to participate in the guilt of the bloody deed.[2]

When the counsel of the unfortunate monarch were called in to hear the sentence, they were greatly affected. Malesherbes attempted to speak, but emotion choked his utterance. Desèze then read a protest, in which the king solemnly declared his innocence; and Tronchet urged the revocation of a decree which had been passed by so slender a majority. "You have either forgotten or destroyed," said this celebrated advocate, "the humane principle of the criminal law, which requires a majority of two thirds to constitute a definitive sentence." "The laws," it was answered, "are passed by a simple majority." "True," rejoined Desèze, "but the laws may be repealed; and who can recall human life?" The Girondists, as a last resource, then proposed a limited delay; but in this they also failed, and the fatal sentence was pronounced. This decisive step produced an intense sensation in Paris. The members of the Coté Droit, and the royalists, secret or avowed, were in equal consternation. But the Jacobins, who could hardly believe that so great a victory had been gained, redoubled their activity, and put every engine in motion to keep up an incessant agitation; they besought their adherents to be vigilant for the next two days, and thus secure the fruits of so mighty a triumph. Nor were their efforts and entreaties in vain. The greater number were overawed and put to silence by the audacity of their movements; whilst, by the resolute few, whose minds burned with indignation at their conduct, nothing could be attempted.

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[1] Eight members were absent from bad health; thirty-seven declared Louis guilty, but voted only for precautionary measures; six hundred and eighty-three declared him guilty. (Thiers, iii. 377.)

[2] Of those who voted for death, there were many, such as the Duke of Orleans, influenced by base or selfish motives; and even at that moment their characters were appreciated. When Egalité, with a faultering step, and a countenance pale as a corpse, advanced to the place where he was to put the seal to his infamy, and read in these terms his vote, "Exclusively governed by my duty, and convinced that all those who have resisted the sovereignty of the people deserve death, my vote is for DEATH," exclamations of "Oh, the monster!" and, "How infamous!" broke forth from all sides, and he returned to his seat amidst the imprecations even of the assassins of September, and all the wretches of every description who were there assembled. But there were other persons of a very different character; many men, both great and good, who inclined with sorrow to the side of severity, from an honest opinion of its absolute necessity to annihilate a dangerous enemy, and establish the republic on a settled basis. Amongst this number was Carnot, who, when called on for his vote, gave it in these words: "Death, and never did word weigh so heavily on my heart." (Alison, i. 523; Carnot, *Mémoires*, p. 97; *Histoire Pittoresque de la Convention Nationale*, tom. ii. p. 143.)

Louis was fully prepared for his fate. When Malesherbes, dissolved in tears, came to announce the sentence of death, he found the unhappy king alone, with his elbows resting on a table, his forehead leaning on his hands, and absorbed in profound meditation. Without inquiring concerning his fate, Louis raised himself as his friend approached, and observed to him, "For two hours I have been revolving in my memory whether during my whole reign I have voluntarily given any cause of complaint to my subjects; and with perfect sincerity I can declare, when about to appear in the presence of God, that I deserve no reproach at their hands, and that I have never formed a wish but for their happiness." Malesherbes encouraged him to hope that the sentence might yet be superseded. Louis shook his head, and only entreated his friend not to leave him in his last moments. Malesherbes promised to return, and repeatedly applied at the gate for admission, which however was refused by order of the municipality. Louis often asked for his aged friend, and was deeply afflicted at not seeing him again. He received without emotion the official announcement of his sentence made by the minister of justice on the 20th of January, and demanded a respite of three days to prepare himself for death, and also to be allowed an interview with his family, and to have the assistance of a confessor whom he named. The two last requests were alone conceded by the Convention, and the execution was fixed for the following morning at ten o'clock. The interview with his family presented a heart-rending scene, which lasted nearly two hours, and may be more easily imagined than described. When the terrible moment of separation arrived, Louis promised to see them again on the morrow; and having embraced them all in the tenderest manner, bade them a mournful adieu; but on entering his chamber he felt that a second trial would be too much for all parties, and resolved to spare them the agony of a final separation. This was his last struggle; he now only thought of preparing for death. The remainder of the evening was therefore spent with his confessor, the Abbé Edgeworth, who, with heroic devotion, discharged the perilous duty of administering the last consolations of religion to his dying sovereign. On the night which preceded his death, Louis slept tranquilly until five in the morning, when he was awaked by Cléry, whom he had ordered to call him at that hour. He then gave his last instructions to his faithful attendant, and put into his hands the little property which he had at his disposal, a ring, a seal, and a lock of hair. Already the drums were beating, and the heavy roll of cannon dragged along the streets, interrupted at intervals by a confused sound of voices, was also heard.

About nine o'clock, Santerre arrived at the Temple. "You come to seek me," said the king; "allow me a minute." He went into his closet, and immediately returned with his testament in his hand, which he intrusted to a municipal officer; after which he asked for his hat, and said with a firm voice, "Let us set off." He calmly seated himself in the carriage beside his confessor, and during the passage from the Temple to the Place de la Révolution, which occupied two hours, he never ceased reciting the psalms which were pointed out by his spiritual guide. The route was lined with double files of soldiers; more than forty thousand men were under arms; and the aspect of Paris was mournful. Amongst the citizens who were present at the execution there reigned the most profound silence, uninterrupted by any external manifestation either of approbation or regret. When the procession arrived at the place of execution, he descended from the carriage, ascended the scaffold with a firm step, and received on his knees the sublime benediction of his confessor, "Son of St Louis, ascend to heaven." He suffered his hands to be bound, though not without repugnance, nor until after M. Edgeworth had exclaimed, "Submit to that outrage, as the last resemblance to the Saviour who is about to recompense your sufferings;" and advancing quickly to the left of the scaffold, "I die innocent," said he; "I forgive my enemies, and you, unfortunate people...." At these words his voice was drowned by the sound of drums placed at the front of the scaffold to prevent his being heard; three executioners seized and hurried him to the block; and in a few seconds he had ceased to live. One of the assistants grasped his head, and waved it in the air, whilst the blood fell on the confessor, who was still on his knees beside the mutilated body of his sovereign.

Thus perished, in the thirty-ninth year of his age, and seventeenth of his reign, one of the best but at the same time weakest of sovereigns. He inherited a revolution from his ancestors, but he was better fitted than any of his predecessors to prevent or to terminate it; for he was capable of being a reforming king before it broke out, and of becoming a constitutional sovereign under its influence. He was perhaps the only prince who had no passion, not even that of power, and who united the two qualities most essential to a good king, the fear of God and the love of his people. He perished the victim of passions which he did not participate; of those of his supporters to which he was a stranger, and those of the multitude, which he had not excited. Few kings have left so spotless a memory, and history will say of him, that, with a little more force of mind and decision of character, he would have bequeathed to posterity a name unique among princes. Such, in the opinion of the ablest of the republican writers of France,[1] was Louis XVI.; a man better qualified to adorn a private station than to govern a great people at a period of unexampled excitement; one whose virtues ought to have ensured him a different fate, and whose misfortunes were the result of that long-continued misrule which he had endeavoured to correct.

Rupture with Great Britain.

In a political point of view, this tragical event proved injurious to the republican cause throughout Europe. No man out of France ventured to justify it; and in all countries it excited the most violent indignation against the rulers of the French republic. Accordingly new enemies now hastened to join the general league against France. It is unnecessary here to enter into any detail of the political struggles which occurred in other countries, particularly our own. It is sufficient to remark generally, that at this time the British government thought itself endangered by the propagation of those speculative opinions which had overturned the French monarchy, and that almost all the men of property in the kingdom concurred with the ministry in thinking a war with France necessary for the purpose of securing the constitution, and checking the progress of levelling doctrines. After the tenth of August the British minister had been recalled; but the Republic had still suffered the ambassador of France, M. Chauvelin, to remain in England.

The ostensible grounds of quarrel on the part of Great Britain were two; the decree of the 15th of November 1792, by which it was considered that encouragement to rebellion had been held out to the subjects of every state, and war thereby waged against every established government; and the question relative to the opening of the Scheldt. Of the decree the French executive council gave explanations, denying the fairness of the interpretation put upon it, and alleging that the intention of the Convention was only to give aid to such countries as had already acquired their freedom, and by a declaration of the general will requested aid for its perservation. But this explanation was not admitted, inasmuch as the decree expressly says that the French nation will "grant assistance to all who wish to procure liberty;" and, considering the notions of liberty then entertained in France, it was not doubted that their real intention was to excite rebellion in foreign nations. With regard to the opening of the Scheldt, as this river runs from Brabant through the Dutch territory to the sea, the Dutch had shut up its mouth, and thus prevented any maritime commerce being carried on by the people of Brabant by means of the river. To render themselves popular in Brabant, however, the French declared that they would open the navigation of the Scheldt. But Great Britain having some time previously become bound by treaty with the Dutch to assist them in obstructing this navigation, now intimated to the French government that the project of opening the Scheldt must be abandoned. The French, however, alleged that by the law of nations navigable rivers ought to be open to all who reside upon their banks; that nevertheless the point was of no importance either to France or to England, and but of little importance even to Holland; and that if the people of Brabant themselves chose to give it up, they would make no objection. In the mean time the Dutch gave themselves no concern about the matter. They did not even solicit the assistance of England; and the merchants, when applied to individually, declared that if the Scheldt was opened, they could conduct their commerce as well at Antwerp as at Amsterdam. But in all this there is nothing remarkable. Amongst the Dutch there were many republicans, who wished for the downfall of the stadtholder, and rejoiced at every thing which distressed him, or had a tendency to render his office useless in the eyes of the people; whilst others who thought differently were afraid to speak their sentiments, as Dumouriez was in their neighbourhood at the head of a victorious army. The result of the whole was, that the British government ordered M. Chauvelin to quit this country. The French executive council accredited another minister, M. Maret, who was also invested with powers to negotiate, and requested that a passport might be given him; but he was not even suffered to land. The republicans having thus far humbled themselves before the British government, were fired with indignation at the manner in which their envoy was treated; and on the 1st of February 1793 the National Convention, on the motion of Brissot, decreed that George king of England had never ceased, since the revolution of the tenth of August 1792, to give the French nation proofs of his attachment to the concert of crowned heads; that he had drawn into the same combination the stadtholder of the United Provinces; that, contrary to the treaty of 1783, the English ministry had granted protection to the emigrants and others who had openly appeared in arms against the French; that they had committed an outrage against the French republic, by ordering the ambassador of France to quit Great Britain; that the English had stopped different boats and vessels laden with corn for France, whilst, at the same time, contrary to the treaty of 1786, they continued the exportation of grain to other foreign countries; and that, to thwart more efficaciously the commercial transactions of the republic with England, they had by an act of parliament prohibited the circulation of assignats. The Convention therefore declared, that in consequence of these acts of hostility and aggression, the French republic was at war with the king of England and with the stadtholder of the United Provinces. The absurdity of pretending that any treaty with France made in 1783 could be violated by protecting the emigrants who fled from the vengeance of the Convention, must be sufficiently obvious. The Convention itself was a usurpation of the government with which that treaty had been concluded. On the other hand, the prohibition of the assignats was certainly contrary to no law, and was sanctioned by every motive of expediency, unless the Convention could prove that all nations were bound by the law of nature to risk their own credit upon that of the French republic. About a fortnight after this declaration appeared, war was likewise declared against Spain; and in the course of the summer France was in hostility with all Europe, excepting only Switzerland, Sweden, Denmark, and Turkey.

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[1] Mignet, *Histoire de la Révolution Française*, i. 334.

Progress of Dumouriez.

In the mean time General Dumouriez, proceeding agreeably to his orders, made an attack upon Holland; but in doing so he disseminated his troops in such a manner as to expose himself to attack upon the side of Germany. He commanded General Miranda to invest Maestricht, whilst he advanced to blockade Breda and Bergen-op-Zoom. Breda, however, surrendered on the 24th of February, Klundert was taken on the 26th, and Gertruydenberg yielded on the 4th of March. But here the triumphs of Dumouriez ended. The sieges of Williamstadt and Bergen-op-Zoom, though vigorously pressed, proved unsuccessful. On the 1st of March General Clairfayt, having passed the Roer, attacked the French posts, and compelled them to retreat with the loss of about two thousand men. The following day the archduke attacked them anew with considerable success; and on the 3d the French were driven from Aix-la-Chapelle, with the loss of four thousand men killed and sixteen hundred taken prisoners. The siege of Maestricht was now raised, and the French retreated to Tongres, where they were also attacked, and forced to retreat to St Tron. Here Dumouriez joined them, but did not bring his army along with him from Holland. After some skirmishes, a general engagement took place at Neerwinden, and was contested on the part of the French with great obstinacy; but they were at length overpowered by numbers, and forced to retreat. This defeat had well nigh proved fatal to the republican arms. The French lost three thousand men in the battle, and six thousand immediately afterwards deserted and returned to their homes. Dumouriez continued to retreat, and on the 22d he was again attacked near Louvain; but, through the medium of Colonel Mack, who afterwards became so unenviably famous, he entered into an arrangement with the imperialists that his retreat should not be seriously interrupted. It was also fully agreed that whilst the imperialists took possession of Condé and Valenciennes, he should march to Paris, dissolve the Convention, and place the son of the late king upon the throne.

The rapid retreat and successive defeats of General Dumouriez having rendered his conduct suspicious, commissioners were sent by the executive government, for the purpose of discovering and defeating his designs. The latter dissembled, and pretended to communicate to him a scheme of a counter revolution. Dumouriez fell into the snare which they had laid for him, and confessed his intention of dissolving by force the Convention and the Jacobin Club, and restoring monarchy. On the report of these commissioners the Convention sent Bournonville, the minister of war, along with Camus, Blancal, Lamarque, and Quinette, as commissioners, to supersede and arrest Dumouriez. The attempt on the part of these functionaries to arrest a general in the midst of his army was certainly hazardous; and in fact Dumouriez, on the first of April, sent them prisoners to General Clairfayt's head-quarters at Tournay, as hostages for the safety of the royal family. He next attempted to seduce his army from their fidelity to the Convention; but he speedily found that he had mistaken the character of his troops. When the report reached them that their general was to be carried as a criminal to Paris, they were seized with vehement indignation; but as soon as they learned that an attempt was being made to prevail on them to turn their arms against their country, their sentiments underwent a sudden alteration, and resentment succeeded to the generous feeling of indignation which at first prompted them to interpose in his behalf. On the 5th of April two proclamations were issued, one by General Dumouriez, and the other by the Prince of Saxe-Cobourg, declaring that their only purpose was to restore the constitution of 1789, 1790, and 1791. The latter announced that the allied powers wished merely to co-operate with General Dumouriez in giving to France a constitutional king and the constitution which she had framed for herself; and he declared, upon his word of honour, that he came not into the French territory for the purpose of making conquests. On the same day Dumouriez went to the advanced guard of his own camp at Maulde; but he there learned that the corps of artillery had risen upon their general, and were marching to Valenciennes; and he also found that the whole army were resolved to stand by their country. Seven hundred cavalry and eight hundred infantry were all who deserted with Dumouriez to the Austrians, and many of these afterwards returned.

State of France.

By the defection of Dumouriez, however, the army of the north was dissolved, and in part disbanded, in presence of a numerous, well-disciplined, and victorious enemy. The Prussians were at the same time advancing in immense force, and were about to commence the siege of Mayence. In the interior of the Republic, evils even more serious were threatened. In the departments of La Vendée and La Loire, or the provinces of Bretagne and Poitou, immense multitudes of emigrants and other royalists had gradually assembled in the course of the winter, professing to act in the name of Monsieur, as regent of France; and about the middle of March they advanced against Nantes to the number of about forty thousand. In the beginning of April they defeated the republicans in two pitched battles, possessed themselves of fifty leagues of country, and even threatened, by their own efforts, to shake the republic to its very foundations. On the 8th of April there assembled at Antwerp a congress of the combined powers, which was attended by the Prince of Orange and his two sons, with his excellency Vander Spiegel, on the part of Holland; by the Duke of York and Lord Auckland on the part of Great Britain; and by the Prince of Saxe-Cobourg, Counts Metternich, Staremberg, and Dargenteau, and the Prussian, Spanish, and Neapolitan envoys. In this congress it was definitively determined to commence active operations against France; the Prince of Cobourg's proclamation was recalled, and a scheme of conquest announced.

The republican army again assembled.

Commissioners from the Convention now set up anew the standard of the republic, and the scattered battalions flocked around it. General Dampierre was appointed commander-in-chief, and on the 13th he was able to resist a general attack upon his advanced posts. On the 14th his advanced guard yielded to superior numbers, but on the 15th he was victorious in a long and well-fought battle. On the 23d the Austrians were again repulsed, and on the 1st of May General Dampierre was himself defeated in an attack upon the enemy. On the 8th another engagement took place, in which the French general was killed by a cannon ball. On the 23d a determined attack was made by the allies upon the fortified camp of Famars, which covered the town of Valenciennes. The French made a very gallant resistance, but were at length overcome, and in the night abandoned their camp. By this victory the allies were enabled to commence the siege of Valenciennes; Condé having been blockaded since the first of April. About the same time General Custines on the Rhine made a vigorous but unsuccessful attack upon the Prussians, and in consequence they were soon enabled to lay siege to Mayence. At this period also the Corsican general Paoli revolted; and the Republic, assaulted from without by the whole strength of Europe, was undermined by treachery and faction within.

Revolutionary Tribun

Whilst the country was in a state verging upon utter ruin, the parties in the Convention were gradually waxing fiercer and fiercer in their animosity; and, regardless of what was passing at a distance, they seemed only anxious for the extermination of each other. In the month of March the Revolutionary Tribunal was established, for the purpose of trying crimes committed against the state; and the Girondists, the mildness of whose administration had contributed not a little to increase the evils of their country, began to see the necessity of adopting measures of severity. But the public calamities, which now followed in rapid succession, were ascribed by their countrymen to the imbecility or perfidy of that party. This gave to the party of the Mountain a fatal advantage. On the 15th of April the communes of the forty-eight sections of Paris presented a petition, requiring that the chiefs of the Girondists therein named should be impeached and expelled from the Convention; and this was followed on the 1st of May by another petition of the same description from the faubourg St Antoine. In the mean time the Girondist party impeached Marat, but the miscreant was acquitted by the jury. With the assistance of the Jacobin Club, the Mountain had now acquired a complete ascendency over the city of Paris. The Girondists therefore proposed to remove the Convention from the capital; and to prevent this, the Mountain resolved to make the same use of the people of the capital against the Girondist party which they had formerly done against the monarch on the tenth of August. It is unnecessary to relate in detail all the tumults which occurred either in Paris or in the Convention during the remaining part of the month of May. On the 31st, at four o'clock in the morning, the tocsin was sounded, the générale beat, and the alarm guns fired. All was commotion and terror. The citizens flew to arms, and assembled round the Convention, where some deputations demanded a decree of accusation against thirty-five of its members. The day, however, passed without coming to a decision. On the afternoon of the 1st of June an armed force made the same demand, which was repeated on the 2d of June, when the tocsin again sounded, and an hundred pieces of cannon surrounded the hall of the Convention. At length Barrère, who was considered as a moderate man, and respected by both parties, mounted the tribune; but he now artfully deserted the Girondists, and invited the denounced members voluntarily to resign their character of representatives. Some of them complied, and the president attempted to dissolve the sitting; but the members now found themselves prisoners in their own hall. There Henriot, commander of the armed force, compelled them to remain; and the obnoxious deputies, amounting to upwards of ninety in number, were put under arrest, and a decree of accusation passed against them. It is very obvious that on this occasion the liberties of France were trodden under foot. The minority of the national representatives, with the assistance of an armed force raised in the capital, had compelled the majority to submit to their measures, and taken the leading members prisoners. The city of Paris thus assumed to itself the whole powers of the French Republic; and the nation was no longer governed by representatives freely chosen, but by a minority of the Convention of whose sentiments the city of Paris and the Jacobin Club had thought proper to approve. The history of nations, and, above all, of factions, is a mass of contradictions. The Mountain party came into power by preaching boundless liberty, and by practically violating its fundamental principles. How far the plea of political necessity may serve to excuse their conduct, we shall not venture to decide. Certain it is that they soon commenced, both at home and abroad, a career of the most terrible energy which is to be found in the records of nations.

The first result of their victory in the capital was calamitous to the Republic at large. Brissot and some other deputies escaped, and endeavoured to kindle the flames of civil war. In general, however, the influence of the Jacobin Club, and of its various branches, was such, that the north of France adhered to the Convention; but the southern departments were speedily in a state of rebellion. The department of Lyons declared the Mountain party outlawed. Marseilles and Toulon followed the example of Lyons, and entered into a confederacy, which has since been known by the appellation of Federalism. The departments of La Gironde and Calvados broke out into open insurrection. In a word, the whole of France was in a state of violent convulsion. Still, however, the enthusiastic garrisons of Mayence and Valenciennes protected it against the immediate entrance of a foreign force, and afforded leisure for one of its internal factions to gain an ascendency, and thereafter to protect its independence. In fact, the political enthusiasm of all orders of persons was such, that even the female sex did not escape its contagion. In the beginning of July a young woman of the name of Charlotte Corday came from the department of Calvados to devote her life for what she deemed the cause of freedom and her country. Having requested an interview with Marat, the most obnoxious of the Mountain party, she at length contrived to obtain it, and after conversing with him for some time, suddenly plunged a dagger in his breast, and walked carelessly out of the house. But she was immediately seized, condemned, and executed; behaving throughout with infinite constancy, and with her last breath shouting *Vive la République*. The party to which Marat was attached derived advantage from the manner of his death, as it seemed to fasten the odious charge of assassination upon their antagonists, and to give them the appearance of suffering in the cause of liberty; though the real truth is, that assassination was sanctioned by both parties, under pretence of defending the liberties of the Republic.

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One of the first acts of the Mountain party after their triumph was to complete the republican constitution. Previously to their fall, the Girondists had brought forward the plan of a constitution, which was chiefly the work of Condorcet; but it was never sanctioned by the Convention, and much too intricate to be practically useful. The constitution now framed, which was afterwards sanctioned by the nation, but never put in practice, abolished the former mode of electing the representatives of the people through the medium of electoral assemblies, and appointed them to be chosen immediately by the primary assemblies, which were to consist of from two to six hundred citizens, whilst each man was to give his suffrage by ballot or otherwise at his option. One deputy was allowed for every forty thousand individuals, and population formed the sole basis of representation. The elections were to take place every year on the first of May. Electoral assemblies were, however, retained. Every two hundred citizens in the primary assemblies named one elector, and an assembly of all the electors of the department was afterwards held, which chose candidates for the executive council, or ministry of the Republic; and out of this list of candidates the legislative body selected the members of the executive council. One half of this council was to be renewed by each legislature in the last month of the session. Every law, after being passed by the legislative body, was to be sent to the department; and if in more than half of the departments the tenth of the primary assemblies of each did not object to it, it became effectual. Trial by jury was also established. National conventions might be called for altering the constitution, and were to be summoned, if required, by the tenth of the primary assemblies of each department in a majority of the departments. The publication of this constitution secured no small degree of applause to the Convention and the Mountain party. The rapidity with which it had been framed[1] seemed to cast a reflection upon the slowness of the moderate party, and was regarded as a proof that its framers were decidedly serious in the cause of republicanism. No regard, however, was paid to it by the Convention, which declared itself permanent; nor indeed did it seem possible to carry it into execution.

We have mentioned that Condé was invested ever since the beginning of April; but it did not yield till the 10th of July, when the garrison was so much reduced by famine and disease, that out of four thousand men, of which it originally consisted, only fifteen hundred were fit for service. The eyes of all Europe were in the mean time fixed upon the siege of Valenciennes. Colonel Moncrieff had contended that batteries ought to be placed immediately under the walls, without approaching it by regular parallels; but the imperial engineer Ferraris asserted that the work of the great Vauban must be treated with more respect, and his opinion was adopted by the council of war. The trenches were opened on the 14th of June. Few sallies were attempted by the garrison, on account of the smallness of their number. The inhabitants at first wished to surrender; but the violence of the bombardment prevented their assembling, or giving much trouble to General Ferrand, the governor. The principal labour of the siege consisted of mines and countermines, some of which having been successfully sprung by the assailants, the town was surrendered by capitulation on the 27th of July, and the Duke of York took possession of it in behalf of the emperor of Germany. The siege of Mayence at the same time proceeded, and the place suffered much from famine; but at last, after an unsuccessful attempt to raise the siege by the French army of the Rhine, it surrendered on the 22d of July.

The allies divided as to their future proceedings.

After the termination of the siege of Valenciennes the allied powers became much divided as to their future proceedings. The Austrian commanders are understood to have presented two plans; the one to penetrate to Paris by means of the rivers which fall into the Seine; the other to take advantage of the consternation occasioned by the surrender of Valenciennes, and with fifty thousand light troops to penetrate suddenly to Paris, whilst a descent should be made on the coast of Bretagne to assist the royalists. The proposal of the British ministry, however, to divide the grand army, and to attack West Flanders, beginning with the siege of Dunkirk, was ultimately adopted; but this determination proved ruinous to the allies, as the French found means to vanquish in detail that army which they were unable to encounter when united.

It has been asserted that the Duke of York was in secret correspondence with Omeron, the governor of Dunkirk; but the latter was removed before any advantage could be taken of his treachery. On the 24th of August the Duke of York attacked and drove into the town the French outposts, after an action in which the Austrian general Dalton was killed. A naval armament was expected from Great Britain to co-operate in the siege, but it did not arrive in time to be of any avail. Meanwhile a strong republican force menaced the covering army of the allies, commanded by General Freytag; and, in point of fact, he was soon afterwards attacked and totally routed, in consequence of which the siege was raised. The British lost their heavy cannon and baggage, with several thousand men; but the Convention, believing that their general, Houchard, might have cut off the Duke of York's retreat, tried and executed him for this alleged neglect of duty. In the mean time the Prince of Saxe-Cobourg and General Clairfayt unsuccessfully attempted to besiege Cambray and Bouchain. Quesnoy was, however, taken by General Clairfayt on the 11th of September; and here terminated the success of the allies in the Netherlands during the present campaign.

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[1] This constitution was only the work of a fortnight; a short space, no doubt, for so important an undertaking.

A considerable part of the French army of the north having taken a strong position near Maubeuge, were there blockaded by Prince Cobourg; but upon the 15th and 16th of October the latter was repeatedly attacked by the French troops under General Jourdan, who had succeeded Houchard in the command. The French having now recovered their vigour, brought into the field a formidable train of artillery; and commissioners from the Convention harangued the soldiers, threatening the timid and applauding the brave. The attacks were repeated and furious, and the Austrians had the disadvantage, in consequence of which the Prince of Saxe-Cobourg retired during the night. The French now menaced maritime Flanders, took Furnes, and besieged Nieuport. But a detachment of British troops ready to sail to the West Indies were hastily sent to Ostend, and for the present prevented the further progress of the French.

Lyons.

The multiplicity of the events which now occurred in France was so great, that it is difficult to give an outline of these with tolerable perspicuity. It has been already mentioned that violent dissensions occurred throughout the Republic, in consequence of the triumph of the Mountain party on the 31st of May. The department of Calvados was first in arms against the Convention, under the command of General Wimpfen; but before the end of July the insurrection had been subdued. The federalism of the cities of Marseilles, Lyons, and Toulon, however, still remained. On the 8th of August Lyons was attacked by the Conventional troops; and several actions followed, which were attended with great loss both on the part of the assailants and of the besieged. The city in fact was reduced almost to ruins; but it held out during the whole month of September. The besieging general, Kellerman, was removed from his command on account of his supposed inactivity; and the city surrendered on the 8th of October to General Doppet, a man who had lately been a physician. The walls and public buildings of Lyons were ordered to be destroyed, and its name changed to that of *Ville Affranchie;* many hundreds of its citizens were dragged to the scaffold on account of their alleged treasonable resistance to the Convention; and the victorious party, weary of the slow operation of the guillotine, at last destroyed their prisoners in multitudes, by discharges of grape-shot. With the party of the Mountain terror was now the order of the day.

Marseilles.

In the end of July General Carteaux was sent against Marseilles. In the beginning of August he gained some successes over the advanced guard of the federalist troops; and on the 24th he took the town of Aix, upon which the Marsellois submitted.

Toulon.

But the leading persons of the important town of Toulon, one of the first naval stations in France, entered into a negotiation, which terminated in their submitting to the British admiral Lord Hood, upon the conditions that he would preserve as a deposit the town and shipping for Louis XVII. and assist in restoring the constitution of 1789. The siege of Toulon was commenced by General Carteaux in the beginning of September; and it continued without much vigour during that and the succeeding month, Neapolitan, Spanish, and English troops having been brought by sea to assist in its defence. But in the beginning of November, General Carteaux was removed to the command of the army in Italy, and General Dugommier succeeded him in the direction of the siege. General O'Hara also arrived with reinforcements from Gibraltar, and assumed the command of the town, under a commission from his Britannic majesty. Upon the 30th of November the garrison made a vigorous sally, in order to destroy some batteries which were erecting upon heights that commanded the city. The French were surprised, and the assailants effected their object; but, elated with this success, the troops rushed onward in pursuit of the enemy, and were unexpectedly met by a strong French force brought up by the commandant of artillery to check their advance. General O'Hara now arrived from the city to endeavour to bring off his troops; but he received a wound in the arm, and was taken prisoner. The total loss of the assailants in this affair was estimated at a thousand men. The French now mustered in great force around Toulon, and prepared to prosecute the attack with vigour. It commenced on the 19th of December, and was chiefly directed against Fort Mulgrave, occupied by the British. This fort was protected by an intrenched camp, and thirteen pieces of cannon consisting of twenty-four and thirty-six pounders, with five mortars and three thousand troops; but such was the fury of assault, that it was carried in an hour, and the whole garrison either killed or taken. The British and their allies now found it impossible to defend the place; and in the course of the day embarked their troops, after having set on fire the arsenal and the ships. A scene of confusion now ensued, such as has rarely been exhibited in modern warfare. Crowds of people of every rank, age, and sex, hurried on board the ships, to escape the vengeance of their enraged countrymen. Some of the inhabitants began to fire upon their late allies; others in despair were seen plunging into the sea, and making a vain effort to reach the ships; and not a few put an end at once to their own existence on the shore. No language, indeed, can do justice to the horrors of the scene. Mothers clasping their helpless babes, and old men weighed down with the load of years, might be seen stretching their hands towards the harbour, shuddering at every sound behind them, and even rushing into the waves to escape the less merciful death which awaited them from their countrymen. Sir Sidney Smith, with honourable humanity, suspended the retreat until not a single individual who claimed his assistance remained on shore, though the total number borne away amounted to nearly fifteen thousand. Of thirty-one ships of the line found by the British at Toulon, thirteen were left behind, ten were burned, and four had been previously sent to Brest and Rochefort, with five thousand republicans who could not be trusted; so that Great Britain finally obtained by this expedition only three ships of the line and five frigates. The recovery of this important place by the French was in a great measure, if not altogether, owing to the superior genius and conduct of the commandant of artillery, Napoleon Bonaparte, who here made his first conspicuous essay in arms.

The storm which now burst on the devoted heads of the Toulonese was indeed terrible. The infuriated soldiers rushed into the town, and, in their frantic rage, massacred two hundred Jacobins who had gone out to welcome their approach. During twenty-four hours the inhabitants were left at the mercy of the soldiers, and the galley slaves, who had been let loose on the city; and a

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stop was only put to these horrors by the citizens redeeming themselves for four millions of francs. Dugommier, a brave, honourable, and humane soldier, did his utmost to check the violence of the troops, and to mitigate the severity of the Convention; but though he succeeded in restraining the former, nothing could soften the inexorable hearts of the latter. Several thousand citizens of every age and both sexes perished in a few weeks, either by the sword or the guillotine; for a considerable time two hundred were beheaded daily; and twelve thousand labourers were hired from the surrounding departments to demolish the buildings of the city. On the motion of Barrère, it was decreed that the name of Toulon should be changed to that of Port de la Montagne, that the houses should be razed to the foundations, and nothing should be left but the naval and military establishments; and Barras, Fréron, and Robespierre the younger were chosen to execute the vengeance of the Convention upon the fallen city. Military commissions were immediately formed, and a revolutionary tribunal was established; the prisons were crowded with the unhappy persons destined for the guillotine; and the mitraillades of Lyons were imitated with fearful effect. One of the victims, an aged merchant, named Hugues, was eighty-four years old, deaf, and nearly blind. His only crime consisted in the possession of a fortune of L.800,000, all of which, excepting L.20,000, he offered, to save his life. The judge, however, deeming the offer inadequate, sent him to the guillotine, and confiscated the whole. "When I beheld this old man executed," said Napoleon, "I felt as if the end of the world was at hand." It seemed, indeed, as if a legion of evil spirits had been let loose upon earth, to revel for a season in crimes hitherto unheard of among the children of men.[1]

War in La Vendée.

On the side of Spain the war produced nothing of importance; and in the mountainous country of Piedmont little advantage had been gained on either side. But more terrible scenes were acting in other quarters. In La Vendée a most fierce and sanguinary contest was maintained by the royalists. In that part of the country the language of the rest of France was but little understood. The people were superstitious, and had acquired almost no knowledge of the new opinions which had recently been propagated throughout the rest of the country. They were chiefly headed by priests, and taught to regard their cause as that of religion. Their usual mode of warfare was to proceed in their ordinary occupations as peaceable citizens, but suddenly to assemble in immense bands at the prescribed rendezvous, when the alarm was given. At one time, indeed, they were said to amount to one hundred and fifty thousand men. They besieged Nantes and Orleans; and even Paris itself was not considered altogether safe from their enterprises. The war was inconceivably bloody; neither party gave quarter; and La Vendée proved a dreadful drain on the population of France. On the 28th of June the Conventional general Biron drove the royalists from Lucon; and Nantes was relieved by General Beysser. But after obtaining some success, General Westermann was surprised, and compelled to retreat to Parthenay. In the beginning of August the royalists were defeated by General Rossignol; but on the 10th of that month they again, under Charette their commander-in-chief, attacked Nantes, though without success. Our limits do not admit of our entering into the details of this fierce contest, rich as it is in daring actions and heroic adventures. The royalists were often defeated and apparently dispersed, but they as often appeared again in crowds around the astonished republicans. At last, about the middle of October, they were completely defeated, driven from La Vendée, and forced to divide into separate bodies; one of which threw itself into the island of Noirmoutier, where they were destroyed, whilst another took the road of Maine and Bretagne, where they struggled for some time against their enemies, and were at last either cut to pieces or dispersed. The royalists had long expected assistance from England; and an armament under the Earl of Moira was actually fitted out for that service, but it did not arrive till too late, and returned home without even attempting a landing. The Mountain party invariably disgraced their successes by the most ferocious cruelties. Humanity is shocked, and history would almost cease to obtain credit, were we to state in detail the unrelenting barbarities which were exercised against the unfortunate royalists, especially by Carrier, a deputy of the Convention, who had been sent into this quarter with unlimited powers. Multitudes of prisoners were crowded on board vessels in the Loire, which were afterwards scuttled and sunk. No age or sex was spared; and these executions were performed with every circumstance of wanton barbarity and insult. The infernal republican marriages, as they were denominated by the demon who invented them, usually preceded these *noyades*.

Progress of the allies on the Rhine.

On the side of the Rhine a great variety of events occurred during the months of August and September. Several engagements took place, in which the French were upon the whole successful. In September, however, Landau was invested by the combined powers; and it was resolved to make every possible effort to drive the French from their position on the Lauter. They occupied the ancient and celebrated lines of Weissenberg, constructed in former times for the protection of the Rhenish frontier, and stretching from the town of Lauterburg on the Rhine, through the village of Weissenberg to the Vosges Mountains; and during four months all the resources of art had been employed in strengthening them. Having approached the extreme left of this position, the allies formed the design of attacking it from left to right, and thus forcing the French to abandon the whole line of the intrenchments. Accordingly the Prussians, under the Duke of Brunswick, assaulted the left of the lines by the defiles of the Vosges Mountains, whilst the Austrians under Prince Waldeck crossed the Rhine to turn the right, and Wurmser, with the main body, endeavoured to force the centre. The attack on the right by Lauterburg obtained only a momentary success; but Wurmser having carried several redoubts in the centre, soon got possession of Weissenberg; and the left having been turned and forced back, the French army retired in confusion, and some of the fugitives even fled as far as Strasburg. Such was the tardiness of the allies, however, that the French, though completely routed, lost only a thousand men; whereas, if the victory had been improved, the ruin of the whole army would have been inevitable. The French retreated to Hagenau, from which they were driven on the 18th; and they suffered two other defeats on the 25th and 27th. Some of the principal citizens of Strasburg now sent a private deputation to General Wurmser, offering to surrender the town, upon condition that it should be restored to Louis XVII. But General Wurmser declined to accede to these terms, and insisted upon an unconditional surrender. The delay occasioned by this disagreement led to the discovery of the negotiation, and those citizens of Strasburg who had been engaged in it were seized by Saint-Just and Lebas, the commissioners of the Convention, and brought to the scaffold.

Prodigious efforts were now made by the French in order to recover the ground which they had lost. On the 9th of

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[1] Alison, vol. ii. p. 201, 202; Lacretelle, xi. 189, 190.

November General Irembert was shot at the head of the army, upon a charge, probably ill founded, of treachery in the storming of the lines of Weissenberg. But on the 14th Fort Louis was taken by the allies, not without suspicion of treachery on the part of the governor. With this the success of General Wurmser may be said to have terminated. On the 21st, the republican army drove back the Austrians, and penetrated almost to Hagenau; whilst the army of the Moselle advanced to co-operate with the army of the Rhine. On the 17th the Prussians were defeated near Sarbruck, and next day their camp at Bliescastel was stormed; the French then advanced to Deux-Ponts. On the 29th and 30th, however, the French were repulsed with great loss in two violent attacks which they made on the Duke of Brunswick near Lautern. It was obvious, indeed, that they had come into the field with a determination to conquer, whatever it might cost. Every day was a day of battle, and torrents of blood flowed on both sides. The allies had the advantage of the ground, which is very strong, on account of its inequalities and morasses; but the French army was far more numerous than theirs; and although inferior in point of discipline, yet it derived great moral force from the enthusiasm with which the troops were animated. On the 8th of December the French under Pichegru carried the redoubts which covered Hagenau at the point of the bayonet. In a word, the finest troops in Europe were unable to withstand the fury of the republicans, whose determination seemed only to increase in proportion to the slaughter of their companions in arms, and who were never more likely to conquer than immediately after a defeat. On the 22d the allies were driven with great loss from Hagenau, notwithstanding the works which they had thrown up for their defence. The intrenchments on the heights of Reishoffen were considered as stronger than those of Jemmappes; yet they were stormed by the army of the Moselle and the Rhine, under Hoche and Pichegru. On the 23d and 24th the allies were pursued to the heights of Wrotte; and on the 26th the intrenchments which they had thrown up there were, after a desperate conflict, forced at the point of the bayonet. On the 27th the republican army arrived in triumph at Weissenberg. Wurmser retreated across the Rhine, and the Duke of Brunswick hastily fell back to cover Mayence. The blockade of Landau, which had lasted four months, was raised; Fort Louis was evacuated by the allies, and Kayserslautern, Germersheim, and Spires, submitted to the French. During the last month of the year 1793 the loss of men on both sides was immense, and is said to have amounted to between seventy and eighty thousand.

Efforts of the Mountain party.

In the mean time violent efforts were made at Paris by the new administration, established under the auspices of the Jacobin Club and of the party called the Mountain. The new republican constitution had been presented to the people in the primary assemblies, and accepted; so that the business for which the Convention had been called together, namely, that of forming a constitution for France, was at an end. It was therefore proposed that they should now dissolve themselves, and order a new legislative body to assemble, according to the rules prescribed by the constitution; but the dominant party considered it as hazardous to convene a new assembly, possessing only limited powers, in the present distracted state of the country; and in fact it was obvious that France at this time required a dictatorship, or a government possessed of more absolute authority than can ever be enjoyed by one which acts, or pretends to act, upon constitutional principles. It was therefore determined that the Convention should remain undissolved until the end of the war; and that a Revolutionary Government should be established, and invested with uncontrolled powers. Committees of its own body were therefore elected for the purpose of conducting every department of business. The principal of these was called the Committee of Public Safety, whose duty it was to superintend all the others, and to give to the administration all the secrecy and dispatch which have been accounted peculiar to a military government, together with a combination of skill and energy hitherto unknown among mankind. A correspondence was maintained with all the Jacobin Clubs throughout the kingdom; and commissioners appointed by the Convention were sent into all parts of the country, with unlimited authority over every description of persons. In this way a government was established, possessed of infinite vigilance, and more absolute and uncontrolled power than was ever enjoyed by any single despot; and the whole transactions and resources of the country were known to its rulers. On the 23d of August, Barrère, in name of the Committee of Public Safety, proposed the celebrated decree for placing the whole French nation in a state of requisition for the public service. "From this moment," says the decree, "till that when every enemy shall have been driven from the territory of the Republic, all Frenchmen shall be in permanent readiness for the service of the army. The young men shall march to the combat; the married men shall forge arms, and transport the provisions; the women shall make tents and clothes, and attend in the hospitals; the children shall make lint of old linen; the old men shall cause themselves to be carried to the public squares, to excite the courage of the warriors, and to preach hatred against the enemies of the Republic; the cellars shall be washed to procure saltpetre; the saddle-horses shall be given up to complete the cavalry; the unmarried citizens, from the age of eighteen to twenty-five, shall march first, and none shall send a substitute; and every battalion shall have a banner with this inscription, *The French nation risen against tyrants*. The Republic is only a great city besieged, and France must therefore be converted into a vast camp." The measures proposed by Barrère were immediately decreed. All Frenchmen from the age of eighteen to twenty-five took the field; the armies, recruited with requisitions of men, were supported with requisitions of provisions; and the Republic had soon fourteen armies, and twelve hundred thousand soldiers. France was thus transformed at once into a camp and arsenal for the supply of the armies, and terror enforced all the provisions of this celebrated decree. The bayonets of the allies appeared less formidable than the guillotine of the Convention; and safety, despaired of everywhere else, was found only in the armies on the frontier.

In the centre the dictatorial government struck down all the parties, however elevated, with whom it had been at war. The condemnation of the queen, Marie-Antoinette, was directed against Europe generally; that of the Twenty-one against the Girondists; that of the virtuous Bailly against the old constitutionalists; and that of the Duke of Orleans against certain members of the Mountain, who were supposed to have plotted his elevation to the throne. The widow of the unfortunate Louis XVI. was sent to the guillotine on the 16th of October, after a mock trial, in which justice and humanity were equally disregarded. Her conduct, both during her trial and at the place of execution, was distinguished for calmness and dignity, and she died, amidst the savage shouts of the infuriated multitude, with a firmness that did honour to her race. The deputies of the Gironde party, who had been proscribed on the 2d of June, soon followed her to the scaffold, where they ended their career on the 31st of the same month. They were in number twenty-one; Brissot, Vergniaud, Gensonné, Fonfrède, Ducos, Valazé, Lasource, Sillery, Gardien, Carra, Duprat, Beauvais, Duchâtel, Mainvielle, Lacaze, Boileau, Lehardy, Antiboul, Vigée, Dufriche, and Duperret. Sixty-three of their colleagues, who had protested against their arrest, were also imprisoned, but the terrorists did not venture to send these also to the guillotine. During their sham trial before the Revolutionary Tribunal, which lasted nine days, they displayed the most sustained and serene courage. For an instant Vergniaud made his eloquent voice be heard, but in vain. The vehemence of Brissot was equally unavailing. Their destruction had become necessary to the ruling party, and they were condemned without being heard in their own defence. When the sentence was pronounced, Valazé stabbed himself with a poniard, and expired in presence of the court; whilst Lasource, addressing his judges, exclaimed, "I die at a moment when the people have lost their reason; you, you also will perish on the day when they recover it." Vergniaud had been provided by his friends with a certain and speedy poison; but he refused to make use of it, that he might accompany his friends to the scaffold. The condemned deputies marched to punishment with all the stoicism of the time, singing as they went the *Marseillaise* hymn, which, by a slight change, they applied to their own situation:

Allons, enfants de la patrie,
Le jour de glorie est arrivé;
Contre nous de la tyrannie
Le couteau sanglant est levé.

When they arrived at the place of execution they mutually embraced, exclaiming, *Vive la République*, and died, like Romans, protesting with their last breath their attachment to freedom and the Republic.[1]

Of the other chiefs of this party, almost all met with an untimely end. Salles, Guadet, Barbaroux, were discovered in the caves of Saint-Emilion, near Bordeaux, and perished on the popular scaffold. Pétion and Buzat, after having wandered about for some time, committed suicide, and were found dead in a field, with their bodies half devoured by the wolves. Rabaud Saint-Etienne was betrayed by a wretch in whom he confided. Madame Roland was also condemned, and died with the courage of a Roman matron; her husband, on learning her death, quitted his asylum, and stabbed himself on the high road between Paris and Rouen, that he might not betray the generous friends who had sheltered him in his misfortunes. Condorcet, who had been put beyond the protection of the law since the 2d of June, was discovered when in the act of concealing himself from his pursuers, and escaped punishment by taking poison. Louvet, Kervelegan, Lanjuinais, Henri-la-Rivière, Le Sage, and La Reveillère-Lepeaux, were the only Girondists who, in secure asylums, waited for the cessation of this furious tempest. And thus perished this celebrated party, blameable for its rashness, but estimable for its intentions, illustrious for its talents, and glorious in its fall; a party which, embracing all men who were philanthropists from feeling, or republicans from principle, the brave, the humane, and the benevolent, fell the victim of a base and despicable faction, composed of men sprung from the dregs of the populace, and impelled by coarse and vulgar ambition; a party, in short, which, though adorned by the most splendid talents, supported by the most powerful eloquence, and actuated by the most generous intentions, was destroyed, because its members refused to countenance the sanguinary violence which alone commands success in revolutions.

Execution of Egalité.

The Duke of Orleans was soon afterwards condemned, on a charge of having, from the commencement of the Revolution, aspired to the sovereignty. The execution of Egalité gave satisfaction to all parties. His vote for the death of the king had done him little honour, even in the opinion of the Mountainists, and had rendered him odious to the rest of mankind. It was, in fact, an unparalleled outrage on humanity.

The Committee of Public Safety was now remodelled, conformably to the views of the dictators. Until the 31st of May, when the decree for the arrest of the Girondists had passed, it consisted of neutral members of the Convention; now it was composed of the most furious partisans of the Mountain. Barrère remained, but Robespierre was elected a member, and, by means of Saint-Just, Couthon, Collot-d'Herbois, and Billaud-Varennes, his party had a complete ascendency. He struck off some Dantonists, such as Hérault de Séchelles and Robert Lindet, who still remained; gained Barrère; and took under his own management the departments of the police and public opinion. His associates also cast their parts. Saint-Just undertook the surveillance and denunciation of persons suspected; Couthon, that of violent propositions, which required to be softened in the form of expression: Billaud-Varennes and Collot-d'Herbois directed the proconsulates in the departments; Carnot the war; Cambon that of the finances department; Prieur de la Côte d'Or, Prieur de la Marne, and others, the administration of the interior; and Barrère was the daily orator and ever-ready panegyrist of the dictatorial committee. Below this was placed as an auxiliary in the details of revolutionary administration and inferior measures the Committee of General Safety, constituted in the same spirit as the great committee, and, like it, consisting of twelve members, re-eligible every three months, and always continued in their functions. In such hands was the whole revolutionary force now placed. "Vous n'avez plus rien à ménager contre les ennemis du nouvel ordre des choses," said Saint-Just; "et la liberté doit vaincre à tel prix que ce soit. Dans les circonstances où se trouve la République, la constitution ne peut être établie; elle deviendrait la garantie des attentats contre la liberté, parce qu'elle manquerait de la violence nécessaire pour les reprimer. Le gouvernement présent est aussi trop embarrassé. Vous êtes trop loin de tous les attentats; il faut que le glaive des lois se promène partout avec rapidité, et que votre bras soit présent partout." And thus was created that terrible power which first devoured the enemies of the Mountain, then devoured both the Mountain and the Commune, and at length ended by devouring itself. The committee disposed of every thing in name of the Convention, which was merely its tool. It was this body which appointed and dismissed generals, ministers, representative commissioners, judges, and juries; which struck down opposing factions; which possessed the initiative of all measures. By means of its commissioners the armies and the generals were kept under its control; it exercised sovereign power in the departments; by the law in regard to suspected persons, it disposed of the liberty, and by the Revolutionary Tribunal, of the life, of every one; by *requisitions* and the *maximum*, it had the unlimited disposal of all fortunes; and by the terrified Convention, it could command decrees of accusation against any member of that body. Every thing, in short, was at its feet, and, supported by the multitude, its despotism was for the time as complete as it was terrible.

Weights and Measures.

When the human mind is once roused, its activity extends to every object. At this time a new system of weights and measures, in which the decimal arithmetic alone is employed, was established by the Convention. The court of Spain, notwithstanding the war, had the liberality to permit Mechain to proceed with his operations for measuring a degree of the meridian in that country; and he accordingly carried on his system of triangulation from Barcelona to Perpignan, whence the mensuration was continued to Paris. Delambre and his pupil La François also measured a degree of latitude in the vicinity of the metropolis. In all, twelve degrees of the meridian were measured, the mean of which is 57,027 toises; and by this the universal standard of measure was calculated. MM. Borda and Cassini also determined the length of a pendulum which vibrates seconds *in vacuo*, and in a mean temperature at Paris, to be three feet eight hundred and six lines; and MM. Lavoisier and Haüy found that a cubic foot of distilled water at the freezing point weighs *in vacuo* seventy pounds and sixty gros French weight. From these data the new table of weights and measures was constructed. The astronomical circles with which MM. Borda and Cassini had made their observations were also divided according to the centesimal plan; so that the quadrant contains a hundred degrees, and each degree a hundred minutes. Hence the minute of a great circle of the sphere is equal to a *milliare* or new French mile; and if, for the reduction of this measure, we estimate the Paris toise, according to the comparison made with the standard kept in the Royal Society of London, at 6·3925 English feet, the *milliare* or minute will be equal to 1093·633 yards, and the *mètre* to 3·280899 feet.

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[1] Lacretelle, ii. 100; Thiers, v. 392; Mignet, ii. 294; Toulangeon, iv. 115. A young man, named Girey Dufocé, was brought to the bar of the Revolutionary Tribunal. "You have been a friend of Brissot," said the president. "I had that happiness." "What is your opinion of him?" That he lived like Aristides, and died like Sidney," was the answer. Dufocé was sent to the scaffold, where, by his heroic firmness, he vindicated the friendship of Brissot.

New kalendar.

Separated by the war and by their own laws from all states and forms of government, the innovators sought to isolate themselves still more. For an unparalleled revolution they established an entirely new era; they changed the divisions of the year, and the names of the months and days; they replaced the Christian kalendar by the republican, the week by the decade, and fixed the day of rest, not on the Sabbath, but on the tenth day. The new era dated from the 22d September, or autumnal equinox, the epoch of the foundation of the Republic. The year was divided into twelve equal months of thirty days each, which commenced on the 22d September, and were arranged in the order following, viz. *Vendémiaire, Brumaire, Frimaire*, for autumn; *Nivose, Pluviose, Ventose*, for winter; *Germinal, Floréal, Prairial*, for spring; and *Messidor, Thermidor, Fructidor*, for summer. Each month had three decades, each decade ten days, and each day received its name from its place in the decade; thus, *primidi, duodi, tridi, quartidi, quintidi, sextidi, septidi, octidi, nonidi, decadi.* Five complementary days were thrown to the end of the year, or added after the 30th Fructidor, in order to complete it; these received the name of *Sans-culotides*, and were consecrated, the first to the festival of *Genius*, the second to that of *Labour*, the third to that of *Actions*, the fourth to that of *Recompenses*, and the fifth to that of *Opinion.* The constitution of 1793 naturally led to the republican kalendar, and the republican kalendar to the abolition of the Christian worship. Accordingly, the Commune and the Committee of Public Safety proposed each a new kind of religion; the Commune the worship of Reason, and the Committee that of the Supreme Being.

Decay of religion.

The religion of France had for some time been gradually losing ground; and on the 7th of November, Gobet, bishop of Paris, along with a great multitude of other ecclesiastics, came into the hall of the Convention, and at once resigned their functions and renounced the Christian religion. All the clergymen, whether Protestant or Catholic, who were members of the Convention, followed this example, excepting only Grégoire, whom we formerly mentioned as having been one of the first of his order to join the *tiers état* after the meeting of the States General, and who had now the courage to profess himself a Christian, although the emoluments of his bishopric were, he said, at the service of the Republic. Amidst the acclamations of the Convention, it was decreed that hereafter the only French deities should be Liberty, Equality, and Reason; and they would seem to have consecrated these abstractions as the only objects of worship. What political purpose the leaders of the Convention intended to serve by this proceeding does not clearly appear; unless, perhaps, their object was to change so completely the French manners and habits of thinking, that it should never be in their power to return to the state from which they had just emerged, or to unite in intercourse with the other nations of Europe. The populace, however, could not at once relinquish the religion of their fathers. The municipality of Paris ordered the churches to be shut up, but the Convention found it necessary to annul this order; and Robespierre gained no small degree of popularity by supporting the liberty of religious worship on this occasion. Hebert and Fabre d'Eglantine, who led the opposite party, hastened their own fall by an ill-judged contempt of popular opinion on the subject of religion.

To the abjuration of Christianity by Gobet, followed as it was by the apostacy of many of the constitutional bishops and clergy in the Convention, who joined in the declaration, that no other national religion was now required but that of liberty, equality, and morality, the wildest excesses of profanity and irreligion succeeded. Drunken artisans and shameless harlots crowded to the bar of the Convention, and there trampled under their feet the sacred vases consecrated for ages to the holiest purposes of religion; the churches were despoiled of their plate and ornaments; busts of Marat and Lepelletier replaced the images of Christ and the Virgin, which were trodden in the mire; and parodies on the Hallelujah were sung as an accompaniment to the Carmagnole dance. Hebert, Chaumette, and their associates, appeared at the bar of the Convention, and there declared that there was no God, and that the worship of Reason ought to be substituted instead of his; whilst an opera singer, known in more than one character to most of the Convention, was introduced as the personification of the new divinity. The services of the Christian religion were universally abandoned, and the pulpits deserted throughout the revolutionized districts; the church bells were everywhere silent; Sabbath was entirely obliterated; baptisms ceased; the burial service was no longer heard; the sick received no consolation, the dying no communion; and the rites of heathenism, blended with the profanities of the most fanatical infidelity, desecrated the unhappy land. On every tenth day atheism was publicly preached to the bewildered people by some revolutionary leader; and on all the public seminaries was placed the inscription, "Death is an Eternal Sleep." Marat was deified; God was insulted and defied. Such is the wild reaction which follows the overthrow of systems which exclude all reformation, and cherish the abuses engendered by time as their most valuable prerogatives and distinctions. For seven years did the reign of impiety continue in France; and when at length the worship of Christianity was restored by Napoleon, its ruinous effects were generally felt; it had demoralized the old, and left the young without any impressions of religion.

Dissensions between the Mountainists and Jacobins.

But now when the Republic saw itself successful in all quarters, when the Mountain party and the Jacobins had no rivals at home, and accounted themselves in little immediate danger from abroad, they began to split into factions, and to entertain the fiercest jealousies. The Jacobin Club was the usual place in which their contests were carried on; but at this time Robespierre acted the part of a mediator between all parties, and attempted to turn their attention from private animosities to public affairs. Having spread a report that Great Britain intended speedily to invade France, he proposed that the Jacobin Club should endeavour to discover the vulnerable parts of the British constitution and government. They caught at the bait which had thus been thrown out to them; made speeches and wrote essays without number; and were in this way occupied and amused for a considerable time.

Vigour of
he Revo-
utionary
Govern-
nent.

The winter passed in tolerable tranquillity, and no military enterprise was undertaken either by the allies or by the French. On the first of February Barrère asserted in the Convention that the confederate powers were willing provisionally to acknowledge the French Republic, to consent to a cessation of hostilities for two years, and at the end of that time to conclude a lasting peace with the French people. But this assertion met with no credit, and the Convention declared itself determined to reject any proposition founded on it, as affording to the other nations of Europe the means of undermining the new government. In the mean time the Revolutionary Government was gradually becoming more vigorous. Thirty committees of the Convention managed the whole business of the state, without sharing much of the direct executive government, which remained in the hands of the Committee of Public Safety; and these different committees were engaged in a great variety of matters. The ruling party had no competitors for power. The most extensive plans were therefore carried into effect, without confusion or opposition. The Convention was little more than a court in which every project was formally registered. At a single sitting thirty decrees were passed, relating to subjects the most widely different, and some of them of the greatest importance. The finances were under a committee, at the head of which was Cambon, and which found resources for the most lavish expenditure. The assignats were received as money throughout the state; so that a paper mill had become more valuable than a mine of gold. The credit of this paper was supported by an arbitrary law regulating the *maximum* or highest price of all provisions, and by the immense mass of wealth which had come into the hands of the Convention by the seizure of the church-lands, and by the confiscation of the property of royalists, emigrants, and other persons condemned by the Revolutionary Tribunal. So unequally, indeed, had property been divided under the ancient government, that, by means of these confiscations, about seven tenths of the national territory was supposed to have been transferred to the state. To this was added the plunder of the churches, consisting of gold and silver images, and vessels employed in divine worship, along with other articles of less value, amongst which may be mentioned the church bells, which were considered as sufficient for the manufacture of fifteen thousand pieces of cannon. These resources formed altogether a mass of property such as was never perhaps possessed by any other government.

Other committees were engaged in very different occupations. Highways were constructed, and canals planned. Immense manufactories of arms were everywhere established. At Paris alone eleven hundred muskets were fabricated daily, and a hundred pieces of cannon cast every month. Public schools were instituted, and the French language taught in its purity from the Pyrenees to the Rhine. The Convention possessed immense resources, and they did not hesitate to lavish them upon their schemes. Every science and every art was called upon for aid; and the most accomplished men in every profession were employed in giving splendour to their country. The chemists, in particular, gave essential aid by the facility with which they supplied materials for the manufacture of gunpowder; and in return for their services, Lavoisier, the greatest of them all, suffered death by a most iniquitous sentence. Not fewer than two hundred new dramatic performances, the object of which was to attach the people to the existing order of things, were produced in less than two years. The vigour with which the committees of subsistence exerted themselves is particularly remarkable. All Europe was at war with France; and as England, Holland, and Spain, the three maritime powers, were engaged in the contest, it had been thought practicable to reduce France to great distress by famine, especially as it was imagined that the country had not resources to supply its immense population. But the rulers of that country acted with the policy of a besieged garrison. They seized upon the whole provisions of the country, and carried them to public granaries; they registered the cattle, and made their owners responsible for them; they provided the armies abundantly; and, as the people were accurately numbered, they dealt out in every district, on stated occasions, what was absolutely necessary for subsistence, and no more. To all this the people submitted; and, indeed, throughout the whole of the mixed scenes of the Revolution, the calm judgment of the historian is not a little perplexed. It is impossible not to admire the patience with which they endured every hardship which was represented as necessary to the common cause; and equally so not to honour the enthusiastic energy with which they lavished their blood in defence of the independence of their country. On the other hand, no one can regard without indignation and horror the sanguinary proceedings of the factions in the Convention and the capital, or reconcile with our ordinary knowledge of humanity the spirit of mutual extermination by which all of them were in turn actuated.

Increased dissensions of the Jacobins.

During the winter the dissensions of the Jacobins increased. They were divided into two clubs, one of which (that recently instituted) assembled in a hall which once belonged to the Cordeliers. The leaders of this club were Hebert, Ronsin, Vincent, and others; but that of the Jacobins still retained its ascendency, and Robespierre had now become decidedly its leader. This extraordinary man had gradually combined in his own person the confidence of the people and the direction of the government. But as the committees were above the Convention, which had become little more than a court of record, so that of Public Safety was above the other committees; and Robespierre was the leader of this dominant committee, Barrère, Saint-Just, Couthon, and others of its members, only acting a secondary part. These persons laboured in the business of the state, but the supreme power was in Robespierre. He surrounded the members of the Convention with spies, and being equally jealous and implacable, set no bounds to the shedding of blood. On the 25th of March he brought to trial the following active Jacobins, who were condemned and executed the day after, viz. Hebert, Ronsin, Momoro, Vincent, Du Croquet, Koch, Laumur, Bourgeois, Mazuel, Laboureau, Ancard, Leclerc, Proly, Dessieux, Anacharsis Clootz, Pereira, Florent, Armand, Descombles, and Dubuisson. And not satisfied with this, on the 2d of April he brought to trial nine of those who had once been his most vigorous associates; Danton, Fabre d'Eglantine, Bazire, Chabot, Philipeaux, Camille Desmoulins, Lacroix, Delamay d'Angers, and Hérault de Sechelles, all of whom were executed, along with Westermann, on the evening of the 5th.

The Hebertists.

The fall of the Hebertists was regarded with satisfaction by every one beyond the pale of the municipality of Paris. This faction, which had laboured in the *Père Duchêne* to popularise obscenity of language, with grovelling and cruel sentiments, and whose characteristic it was to blend derision with ferocity, had for some time made redoubtable progress; and Robespierre, finding it untractable for his purposes, resolved on its destruction, upon the pretence that, whilst it corrupted the people, it served the purposes of foreigners by promoting anarchy. This he effected by a compromise. His object was to sacrifice both the commune and the anarchists; whilst the committees desired to sacrifice the Mountain and the moderate party. The parties came to a mutual understanding, in consequence of which Robespierre gave up Danton, Camille Desmoulins, and their friends to the members of the committee, and the members of the committee in return gave up Hebert, Clootz, Chaumette, Ronsin, and their accomplices. In at first favouring the moderate party in the Convention, he prepared the destruction of the anarchists, and thus attained two objects advantageous to his power; he ruined a redoubtable faction, and he disencumbered himself of a revolutionary reputation which rivalled his own.

But the latter object was, after all, that which he had probably most at heart, because the party of Danton stood most in his way. Their principles were, that terror was to be used only for the establishment of freedom, not made an instrument of destruction in the hands of those who had obtained it; they wished above all things that the Republic should be consolidated by victory, but that success should be used with moderation. Hence, whilst they vehemently reprobated the proceedings of the dictators after the 31st of May had ensured the triumph of the populace, they desired to humble the anarchists of the municipality, to put down the Revolutionary Tribunal, to discharge from confinement those imprisoned as suspected persons, and to dissolve the despotic committees of government. But these objects were manifestly opposed to that supreme and undisputed domination which Robespierre was now labouring to secure for himself by means of the revolutionary machinery; and, accordingly, after the understanding already mentioned had been come to, it was not long ere he commenced hostilities, by attacking the Jacobin Club, the *Vieux Cordelier* of Camille Desmoulins,[1] and indirectly denouncing Danton himself.

Danton, who had not yet discontinued his relations with Robespierre, demanded an interview, which took place at the residence of the latter. Both parties were cold and bitter. Danton complained violently; Robespierre was haughty and reserved. “I know,” said Danton, “all the hatred which the committee bear me, but I do not fear it.” “You are wrong,” replied Robespierre; “there are no bad intentions towards you, but it is well to be explicit.” “To be explicit,” rejoined Danton, “good faith is necessary.” But observing Robespierre assume a lowering look, “It is doubtless necessary,” he added, “to coerce the royalists; but we ought to strike blows which are useful to the Republic, and should not confound the innocent with the guilty.” “Eh! who has told you,” replied Robespierre sharply, “that one innocent person has suffered?” Danton turned to the friend who had accompanied him, and with a bitter smile, “What say you? Not one innocent man has perished!” At these words they parted; all hope of reconciliation was at end.

The fall of the anarchists ensued. They were brought before the Revolutionary Tribunal, upon a charge of being agents of foreigners, and of having conspired to give a tyrant to the state. From the time of their arrest, their audacity abandoned them; and as they had neither talents nor enthusiasm, they defended themselves without ability, and died without courage.

Fall of Danton.

It was now time for Danton to look to his own safety; the proscription had reached the commune, and was fast approaching him also. His friends urged him to act; but having failed to shake the dictatorial power by exciting public opinion and rousing the Convention, where could he look for support? The Convention was well disposed towards him and his cause; but it was in complete subjection to the revolutionary power of the committees. Having neither the government, nor the assembly, nor the commune, nor the clubs, Danton therefore awaited the proscription without taking any step to ensure his safety. Still his friends pressed him to act. “I would rather,” said he, “be guillotined than become guillotiner; besides, my life is not worth the trouble of preserving; I am weary of existence.” “The members of the committee seek your death.” “What!” exclaimed he, in anger; “if ever—if Billaud—if Robespierre... They will be execrated as tyrants; the house of Robespierre will be razed; salt will be scattered on its foundations, and a stake of infamy planted to avenge the crimes...But my friends will say of me that I have been a good father, a good friend, a good citizen; they will not forget me.” “But you may escape.” “I would rather be guillotined than become guillotiner.” “Still it is necessary to fly.” “To fly!” exclaimed he with a mixture of anger and disdain; “do you suppose that a man carries his country in the soles of his shoes?” Danton had only one resource; to lift up his well-known and powerful voice, denounce Robespierre and the committees, and rouse the Convention against their tyranny. He was warmly pressed to adopt this course; but, not to mention the difficulty of overturning an established domination, however atrocious, he knew too well the subjugation and terror of that assembly to trust to the efficacy of such an attempt. He therefore awaited his fate, in the belief however that his enemies would shrink from the proscription of one who had dared so much. He was mistaken. On the 10th Germinal he received notice that the question of his arrest was under the consideration of the Committee of Public Safety, and he was once more urged to fly; but, after a moment's consideration, he answered, “They dare not.” In the night his house was surrounded, and he was conducted to the

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[1] In this production Desmoulins discoursed of liberty with the profound sense of Machiavel, and of men with the wit of Voltaire. His picture of the horrors of this gloomy period is drawn with a powerful hand. “At the present epoch,” said he, “words became state-crimes; and from this the transition is easy to simple looks, which, with sadness, compassion, sighs, nay even absolute silence itself, are made the ground-work of suspicion. Is a citizen popular? He is a rival of the dictator, and might excite commotions. Does he, on the other hand, avoid society, and live retired in the bosom of his family? This secluded life makes him remarked, and excites the suspicion that he is meditating sinister designs. Are you rich? There is imminent peril that the people may be corrupted by your largesses. Are you poor? You must be the more closely watched, because there is none so enterprising as those who have nothing to lose. Are you of a thoughtful and melancholy character, with a neglected exterior? You are afflicted because in your opinion public affairs are not well conducted. Does a citizen indulge in dissipation and bring on indigestion? He is concealing ambition under the mask of pleasure. Is he virtuous and austere in his morals? He has constituted himself the censor of the government. Is he a philosopher, an orator, a poet? He will soon acquire more consideration than the rulers of the state. Has he acquired reputation in war? His talents only make him the more dangerous, and render it indispensable to remove him from the army, perhaps to send him to the scaffold. The natural death of a distinguished person, particularly if in place, has become so rare, that historians transmit it as an event worthy of record to future ages. Even the death of so many innocent and estimable citizens seems a less calamity than the insolence and scandalous fortunes of those who have denounced and murdered them. Every day the accuser makes his triumphal entry into the palace of death, to reap the harvest of some rich succession; and the tribunals which were once the protectors of life and property have become mere slaughter-houses, where that which bears the name of punishment and confiscation is nothing but robbery and murder.” In Camille Desmoulins the anarchists had an able, active, and redoubted antagonist. This atrocious faction he attacked with unsparing severity, and in an especial manner fastened on its head the infamous Hebert, whom he described as “a miserable intriguer, a caterer for the guillotine, a traitor paid by Pitt; a wretch who had at different times received two hundred thousand francs from the factions of the Republic to calumniate their adversaries; a thief and robber, who had been expelled from his situation as lacquey in the theatre for common stealing, and now pretended to drench France in blood by his prostituted journal.” Such is Desmoulins' description of the man on whose testimony Marie-Antoinette was condemned, and whose evidence was also held sufficient to send the Revolutionists themselves to the scaffold.

Luxembourg, with Camille Desmoulins, Philipeaux, Lacroix, Hérault de Sechelles, and Westermann. On entering the prison he cordially greeted the captives who pressed around him. “Gentlemen,” said he, “I had hoped to have been the means of releasing all of you from this place; but here I am among you, and I know where all this will end.” An hour afterwards he was shut up in a solitary cell, which Hebert had recently before occupied, and which was soon to be tenanted by Robespierre himself. The past now rose up to the review of his mind, and, giving way to reflection and regret, he observed, “It is just a year since I caused the Revolutionary Tribunal to be instituted. I ask pardon of God and man for doing so; but I never imagined that it would become the scourge of humanity.”

The arrest of Danton and his friends produced a violent agitation in Paris; the Convention also was stricken with dismay. Legendre made a powerful appeal in behalf of his friend, and demanded that, before the report of the committee was received, Danton should be examined in their presence. The proposition was favourably received, and for a moment the assembly seemed disposed to cast off its fetters. But the spell of the dictatorship of terror was still strong on that body. Robespierre ascended the tribune, and having by menace reduced the Convention to silence, proceeded to mark out for vengeance the intrepid Legendre. “You affect to be afraid,” said he, in conclusion; “but I say, whoever trembles at this moment is guilty; for never did innocence fear the vigilance of the public authorities.” None dared to incur the fatal imputation; terror had frozen every heart. The assembly crouched beneath their tyrants, and unanimously sent the accused to the Revolutionary Tribunal. When brought before this Rhadamanthine judgment-seat, they assumed an attitude of haughty defiance, evincing at once an audacity of purpose, and a contempt for their judges, altogether extraordinary. Danton, in answer to the usual interrogatories as to his name, age, and residence, put by the president Dumas, replied, “I am Danton, well known in the Revolution; I am thirty-five years of age; my abode will soon be in nothingness; and my name will live in the Pantheon of history.” The disdainful and vehement responses of Danton, the cool and measured discussion of Lacroix, the austerity of Philipeaux, and the nervous vigour of Desmoulins, began to make an impression on the people. The accused were therefore put *hors de débats*, on the pretence that they had been wanting in respect to the court, and they were immediately condemned without any further hearing. “We are immolated,” cried Danton, “to the ambition of a few cowardly brigands; but they will not long enjoy the fruit of their criminal victory. I pull down Robespierre; Robespierre follows me.” They were conducted to the Conciergerie, and thence to the scaffold. On their way to the place of execution, they displayed the stoical courage common at that period. A body of troops had been assembled, and their escort was numerous; but the people, who, on such occasions, are usually clamorous and approving, maintained a profound silence. Camille Desmoulins, even when on the fatal cart, was still astonished at his condemnation, and could not comprehend it. “This, then,” said he, “is the recompense destined to the first apostle of liberty.” Danton held his head erect, and cast a calm and intrepid look around him. At the foot of the scaffold, however, his feelings for a moment overmastered him: “Oh, my well-beloved,” cried he; “oh, my wife, shall I then never see thee more!” But immediately checking himself, “Danton, no weakness,” said he. He ascended the scaffold with a firm step, and received the blow of the fatal axe with unshaken courage. And thus perished the tardy but last defenders of humanity and moderation; men who had desired to establish peace amongst the conquerors in the revolutionary struggle, and to extend mercy to the vanquished. After their fall no voice was for some time raised against the dictatorship of terror, which, from one end of France to the other, now struck down its victims in silence.

Campaign of 1794; plan of the allies.

Still, however, the preparations for the ensuing campaign were pursued with unabated vigour. The committee for military affairs, at the head of which stood Carnot and others, were busily occupied in arranging along the frontiers the immense force which the requisition had called forth. Plans of operations were drawn out by this committee, and, when approved by the Committee of Public Safety, were sent to the generals to be executed. On the other hand, the allies were making powerful preparations for another attempt to subjugate France; and the emperor himself took the field at the head of the armies in the Netherlands. The plan of the campaign is said to have been framed by Colonel Mack, who afterwards acquired so much negative celebrity. West Flanders was to be protected by a strong body of men; whilst the main army was to penetrate to Landrecies, get within the line of French frontier towns, and cut off the armies from the interior by covering the country from Maubeuge to the sea. This plan was bold; but it belongs to military men to judge whether boldness was not its only merit. In fact, the allies seem to have had no correct information of the immense force which the French were collecting against them. Even the town of Lisle alone, which was capable of containing a numerous army within its walls, and which was to be left in their rear, should have seemed an insurmountable obstacle to the execution of this plan.

State of the allied armies.

On the 16th of April, the Austrian, British, and Dutch armies assembled on the heights above Cateau, where they were reviewed by the emperor; and on the following day they advanced in eight columns against the French, drove in their posts, and penetrated beyond Landrecies. The allied army now amounted in all to a hundred and eighty-seven thousand men, who were disposed in the following manner: Fifteen thousand Dutch and fifteen thousand Austrians, under the Prince of Orange and General Latour, formed the siege of Landrecies; fifteen thousand British and fifteen thousand Austrians, commanded by the Duke of York and General Otto, encamped towards Cambray; the emperor and the Prince of Saxe-Cobourg, at the head of sixty thousand Austrians, advanced as far as Guise; twelve thousand Hessians and Austrians, under General Worms, were stationed near Douai and Bouchain; Count Kaunitz, with fifteen thousand Austrians, defended the Sambre and the country near Maubeuge; and General Clairfayt, with forty thousand Austrians and Hanoverians, protected Flanders from Tournay to the sea; whilst sixty thousand Prussians, for whom a subsidy had been paid by Great Britain, were expected to take the field, but in fact never arrived.

Fall of Landrecies; successes of Pichegru.

The French now commenced active operations. On the morning of the 26th of April they attacked, in great force, the Duke of York near Cateau; but after a severe conflict they were repulsed, and General Chapuy was taken prisoner. At the same time they attacked the troops under his imperial majesty, but were again repulsed with the loss of fifty-seven pieces of cannon. On the same day, however, Pichegru advanced from Lisle, attacked and defeated Clairfayt, took thirty-two pieces of cannon, and, in the course of a few days, made himself master of Vervic, Menin, and Courtray. On the 29th of April the garrison of Landrecies surrendered to the allies. When this event was known in the Convention, it excited a considerable degree of alarm. But it was the last decided success obtained by the allies during this disastrous campaign. Clairfayt was again completely defeated by Pichegru in a general engagement, and it was found necessary to send the Duke of York to his assistance. This movement no doubt seems to have been unavoidable; but its effect was to divide the allied army into a number of detachments, capable indeed of carrying on a desultory warfare, but unfit for the prosecution of vigorous measures. On the 10th of May the Duke of York was attacked near Tournay by a body of the enemy, whom he repulsed; but he was unable to effect a junction with Clairfayt, upon the destruction of whom the French were chiefly bent; for whilst the Duke of York was occupied with the attack made on himself, Pichegru fell upon Clairfayt with such irresistible impetuosity, that the latter was compelled to retreat in confusion, and part of his army fled to the neighbourhood of Bruges. Whilst Pichegru was thus advancing successfully in West Flanders, Jourdan in East Flanders advanced from Maubeuge, crossed the Sambre, and forced Kaunitz to retreat. On the 18th, however, Kaunitz succeeded in repulsing the enemy in his turn, and in forcing them to re-cross the Sambre with considerable loss.

The allies now found that no progress could be made in France whilst General Pichegru was advancing successfully and occupying West Flanders in their rear. The emperor, therefore, withdrew the greater part of his army to the neighbourhood of Tournay, and resolved to make a grand effort to intersect the communications between Courtray and Lisle, and thus to cut off the retreat of Pichegru. With this view, the army, on the night of the 16th, moved forward in five columns; and Clairfayt was at the same time directed to cross the Lys, and if possible to effect a junction, and complete the plan. The attempt seemed at first to promise success; but, in the course of the 17th, the division under the Duke of York was overpowered by numbers and defeated. The advance of the other columns was thus checked, and Clairfayt sustained another repulse. The plan of the allies had been completely frustrated, and their army in consequence withdrew to the neighbourhood of Tournay.

Pichegru speedily attempted to retaliate. On the 22d of May, at day-break, he directed his whole force against the enemy. The attack commenced with a heavy fire of artillery, and all the advanced posts were driven in, upon which the action became general; the attacks were repeatedly renewed on both sides, and the day was spent in a succession of obstinate battles. All that military skill could effect was performed on both sides; the French and the allied soldiers fought with equal courage and obstinacy; but at nine o'clock in the evening the assailants reluctantly withdrew from the attack. The day, however, on which a vanquished enemy quits the field is not always that upon which the victory is won. In this engagement the French were unsuccessful in their immediate object; but the weight of their fire, their steady discipline, and the determined obstinacy of their attacks, raised their military character in the estimation of the officers and soldiers of the allied army. And it was soon perceived that, in addition to these, they possessed other advantages. Their numbers were immense; they implicitly obeyed their generals; and the generals as implicitly submitted to the directions of the Committee of Public Safety. A combination of efforts was thus produced, and the effect was not impaired by divided counsels. On the other hand, the numbers of the allies were daily declining, and their leaders were independent princes or powerful men, whose sentiments and interests were often at variance, and whose exertions were consequently disunited.

On the 24th the French again crossed the Sambre, but were driven back with considerable loss. On the 27th an attempt was made to besiege Charleroi, but on the 3d of June the Prince of Orange compelled the enemy to raise the siege. On the 12th the attempt was renewed, but with no better success. In West Flanders, however, Pichegru was sufficiently strong to commence the siege of Ypres, which was garrisoned by seven thousand men. General Clairfayt made an attempt to raise it, but without success. Reinforcements were sent to Clairfayt from the grand army, to enable him to renew his efforts for the relief of the place, and a series of sanguinary contests ensued, in which that unfortunate general was almost uniformly unsuccessful. Ypres held out till the 17th of June, when it capitulated. In consequence of this and of other events, the Duke of York found it necessary to retreat to Oudenarde; for Jourdan, after storming the Austrian camp of Wattignies, now advanced in such strength upon Charleroi, that its immediate fall was anticipated. But as this would have enabled the two French armies to encircle the whole of Flanders, the Prince of Cobourg advanced to its relief; nevertheless Charleroi surrendered at discretion on the 25th. This circumstance was not known to the Prince of Cobourg when he advanced on the 26th to attack the covering army in their intrenchments near Fleurus; but the latter having by this time been reinforced by the accession of the besieging force, repulsed the assailants without difficulty. Jourdan then drew his men out of their intrenchments, attacked the Austrians in his turn, and, though three times repulsed, was at last successful.

Furthe successe of the French.

The allies were now obliged to retreat at all points. Nieuport, Ostend, and Bruges, were taken; and Tournay, Mons, Oudenarde, and Brussels, at which place the French armies of East and West Flanders formed a junction, opened their gates. The allied troops having evacuated Namur, formed a line from Antwerp to Liège, in order to protect the country behind. But the French having advanced in force, attacked General Clairfayt, cut to pieces half the troops which now remained under his orders, and broke the line, upon which the allies retreated before them. The Duke of York was joined by some reinforcements under the Earl of Moira, which had with much difficulty made their way from Ostend; and with these and the Dutch troops he retired to the neighbourhood of Bergen-op-Zoom and Breda for the protection of Holland. The Prince of Cobourg evacuated Liège, crossed the Maese, and threw a garrison into Maestricht; but he soon found it necessary to send back part of his troops to the neighbourhood of Tongres. Here the French armies, to the astonishment of all Europe, made a voluntary pause in their career of victory, and ceased to pursue their retiring foes. The war on the Rhine was equally successful on the part of the French. On the 12th, 13th, and 14th of July, repeated battles were fought, in which the French obtained their usual success. As their armies were numerous, their practice was to fight in great bodies day after day till their object was accomplished. The Palatinate was next overrun, and Treves taken, by General Michaud. Flanders and the Palatinate have always been accounted the granaries of Germany, and both of them, at the commencement of the harvest, now fell into the hands of the French.

Executions increased terroris at its height.

During the four months which succeeded the fall of Danton, the power of the committees was exercised without opposition and without reserve. Death became the only instrument of government, and the Republic was abandoned to daily and systematic executions. Then were invented the conspiracies of the prisons, which had been crowded by the operation of the law in regard to suspected persons, and which were emptied by that of the 22d Prairial, which might be called the law of the condemned: it was then that the emissaries of the Committee of Public Safety suddenly replaced those of the Mountain; that Carrier, the creature of Billaud, appeared in the west; Maignet, the creature of Couthon, in the south; and Joseph Lebon, the creature of Robespierre, in the north. The extermination *en masse* of the enemies of the democratic dictatorship, which had been practised at

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Lyons and Toulon by means of the mitraillades, became still more horrible when effected by means of the noyades of Nantes and the scaffolds of Paris, Arras, and Orange. The terrorists were now so completely united, that they seemed to have but one body and one soul, in which all feelings, sentiments, and desires, had merged in a craving and insatiable appetite for blood. Posterity will find it difficult to credit the extent to which this appetite had grown by what it fed on. "The more the social body perspires, the sounder it becomes," said Collot-d'Herbois. "It is the dead only who never return," said Barrère. "The vessel of the Revolution can only arrive in port on a sea reddened with torrents of blood," said Saint-Just. "A nation is only regenerated on heaps of dead bodies," rejoined Robespierre. Nor were their actions at variance with the creed they professed. For months together these principles were daily carried into practice in every town in France. Alone and unopposed, the Committee of Public Safety struck numberless blows from one end of the kingdom to the other. The mandates of death issued from the capital, and the guillotine was immediately set to work in almost every town and village of France. Amidst the roaring of cannon, the roll of drums, and the sound of the tocsin, the suspected were everywhere arrested, whilst the young and active were marched off to the frontiers; fifteen hundred bastilles, spread throughout the departments, were found insufficient to contain the multitude of captives; and the monasteries, the palaces, the chateaux, were in consequence converted into prisons. Rapidly as the guillotine did its work, however, it reaped not the harvest of death which everywhere presented itself. But disease came to its assistance, and contagious fevers, produced by the crowded state of the prisons, swept off thousands who had been destined to perish by the revolutionary axe. Over the portals of these dread abodes might have been written the inscription which Dante has placed over the entrance of the infernal regions; hope never crossed their thresholds, and despair of life produced its usual diversified effects on the minds of the unhappy captives. Some sunk into sullen indifference; others indulged in immoderate gaiety; many became frantic with horror; not a few sought to amuse life even at the foot of the scaffold. Rising in one wild and heart-rending chorus might be heard raving, blasphemy, lamentation, commingled with the loud shouts of obstreperous laughter; in short, all the varied sounds which intimate the absence of hope, and a desperate recklessness of the future. Terror was now in its zenith, and death at every door.

On the 10th of May, Madame Elizabeth, sister of the late king, was sacrificed by the Revolutionary Tribunal; and multitudes of every rank and both sexes daily shared the same fate. The rich were naturally the great objects of persecution, because the confiscation of their property added to the strength of the ruling powers; but neither were the poor safe in their poverty from the vengeance of this ferocious and sanguinary government. No security was to be found in any station of life, however humble or mean; a word, a look, a gesture, might excite suspicion, and suspicion was death. By the instrumentality of the guillotine Robespierre had contrived to destroy every avowed rival. The constituted authorities consisted of persons nominated by him, or with his approbation; the committees which conducted the business of the state were at his disposal, and his will was irresistible throughout the Republic. In the Convention he met with no opposition; for that body had ceased to be the turbulent popular assembly which it once appeared, and had become little more than a name employed to give a sort of sanction to such schemes as were proposed to it. But notwithstanding all this, the dictator was fast approaching the crisis of his fate, and at the very culminating point of his power destruction awaited both his system and himself. All hope would indeed have been lost if the issue had depended on the efforts of the virtuous classes; these were completely subdued by terror; but as it is the natural effect of suffering to induce a remedy, so it was in the shock of the wicked among themselves that the only hope of salvation remained. From the beginning of 1794, indeed, men gifted with foresight had entertained the conviction that, in pity to an afflicted land, heaven would throw the apple of discord among the tyrants themselves, and strike them with that judicial blindness which is the instrument it makes use of to punish men and nations. Nor was this expectation disappointed. The Girondist party, it is true, was indeed subdued and silent; its illustrious leaders were no more; but many members of the Convention still remained attached to its principles, and deeply repented having ever deserted them. The party of the Mountain, too, by means of which Robespierre had risen to power, now found itself not only disregarded, but ready at every instant to fall a sacrifice to that system of terror which they had contributed to erect. And even the Jacobins themselves, though neither timid nor scrupulous in the shedding of blood, began to murmur when they saw that fearful privilege confined to a few, or rather monopolized by one man.

For a time things remained in this state, during which it was seen how possible it is for an individual to govern a great nation, even when that nation is hostile to his authority. It is far easier, indeed, to uphold the worst form of government, than to establish the best which human genius or patriotism ever devised. But still the power of Robespierre rested upon no solid foundation, and his fall was therefore inevitable. He had no organized force; his partisans, though numerous, were not organized; he was sustained only by terror and a great force of opinion; and hence, not being able to overpower his enemies by an act of violence, he sought to strike them with dismay. And for a time he succeeded. But such a system soon attains the utmost limit to which it can be urged, and when the tension becomes extreme, the recoil is near at hand. On the day after the festival of the Supreme Being, when the power of the tyrant had reached its apex, his sanguinary intentions were fully disclosed. By the decree of the 22d Prairial, passed on the motion of Couthon, every form, delay, or usage, calculated to protect the accused, was at one fell swoop annihilated. "Every delay," said Couthon, "is a crime; every formality indulgent to the accused is a crime; the delay in punishing the enemies of the country should not be greater than the time requisite for identifying them." Accustomed as the Convention had been to blind obedience, a project calculated to place every member of that body at the mercy of the dictator startled its apathy. "If this law passes," said Ruamps, "nothing remains but to blow out our brains." But the hour of deliverance had not yet arrived. Robespierre mounted the tribune, and demanded, that instead of pausing on the proposal of adjournment, the assembly should sit until the project of the law was discussed. The assembly felt its weakness, and in thirty minutes the decree was unanimously adopted. From this moment, however, may be dated the commencement of the re-action. Proscriptions increased with fearful rapidity, and the cruelties committed in the provinces equalled, if not exceeded, those perpetrated in the capital. Lebon at Arras, and Carrier at Nantes, revelled in horrors such as the world had never before witnessed. Since the law of the 22d Prairial, heads fell at the rate of fifty or sixty a day; yet the Committee of Public Safety, not satisfied with this dreadful amount of carnage, incessantly urged the public accuser, Fouquier Tinville, to accelerate the executions. But whilst the apprehensions of the terrorists themselves inflamed and maddened their ferocity, discord arose in their conclave; the active members of the committees were divided; on one side were Robespierre, Saint-Just, and Couthon; on the other Billaud-Varennes, Collot-d'Herbois, Barrère, and the members of the Committee of General Safety. After several fruitless attempts to regain his ascendency, Robespierre absented himself from the committees, and threw himself on the Jacobins and the commune, where his influence was still paramount. Meanwhile his more furious partisans urged the immediate adoption of the most vigorous measures. Henriot and the mayor of Paris were ready to commence a new massacre, and three thousand young assassins were provided for the purpose. "Strike soon and strongly," said Saint-Just. "*Dare;* that is the sole secret of revolutions." Tallien, Bourdon de l'Oise, Thuriot, Rovère, Lecombre, Panis, Monestier, Legendre, Fréron, Barras, Cambon, were marked out as the first victims. But as the conspirators had no armed force at their command, as the Jacobin Club was only powerful from its influence on public opinion, and as the committees of government were all arrayed upon the other side, Robespierre was compelled to commence the attack in the Convention, which he hoped to sway by the terror of his voice, or at all events to overwhelm by a popular insurrection similar to that which had proved so successful on the 31st of May. Nor were the leaders of the Convention and the committees idle on their side. The immediate pressure of danger united all parties against the tyrant, who, in the popular society, had made no secret of his resolution to decimate the assembly.

At length, on the 8th Thermidor (26th July), the contest commenced in the National Convention. The discourse of Robespierre was dark and enigmatical, but its real object was not doubtful. The dictator was listened to with breathless attention; not a sound interrupted the delivery of his speech; not a whisper of applause followed its close. On the proposal that it should be printed, the first symptoms of resistance showed themselves. Bourdon de l'Oise opposed its publication; but Barrère supported it, and the assembly, fearful of prematurely committing itself, agreed to the proposal. Seeing the majority wavering, the Committee of General Safety now deemed it necessary to take decisive steps. The time for dissembling had passed. "One man paralyses the assembly, and that man is Robespierre," said Cambon. "I would rather that my carcass served for a throne to the tyrant," said Billaud-Varennes, "than render myself by my silence the accomplice of his crimes." Fréron proposed to throw off the hated yoke of the committees, and to reverse the decree which permitted the arrest of the representatives of the people; but as Robespierre was still too powerful to be overthrown by the Convention unaided by the committees, this proposal was rejected, and the assembly contented itself with reversing the decree for the publication of his address, which was sent to the committees for examination. In the evening the tyrant, attended by Henriot, Dumas, Coffinhal, and his other satellites, repaired to the popular society, where he was received with enthusiasm; and during the night he made arrangements for disposing his partisans on the following day. The two committees, on their side, were not idle. They sat in deliberation during the whole night; and it was felt by every one that a combination of all parties was requisite to shake the power of the tyrant. To this object, accordingly, all their efforts were directed; and, by unremitting exertions, the Jacobins of the Mountain succeeded in forming a coalition with the leaders of the centre and the right. "Do not flatter yourselves," said Tallien to the Girondists, "that he will ever spare you; you have committed an unpardonable offence in being freemen. Let us bury our ruinous divisions in oblivion. You weep for Vergniaud; we weep for Danton. Let us unite their shades by striking Robespierre." Before daybreak all the assembly had united for the overthrow of the tyrant.

At an early hour on the morning of the 9th Thermidor (27th July), the benches of the Convention were crowded with members, and the leaders walked about in the passages confirming one another in their generous resolution. At noon Saint-Just ascended the tribune, and Robespierre took his seat on a bench directly opposite, to intimidate his adversaries by that look which had so often stricken them with terror. But its spell was powerless; fear had now changed sides. As he proceeded to take his seat his knees trembled, and the colour fled from his lips; the hostile appearance of the assembly already gave him an anticipation of his fate. Saint-Just began by declaring that he belonged to no party, and would combat them all. "The course of events has possibly determined," said he, "that this tribune shall become the Tarpeian rock for him who now tells you that the members of the committees have strayed from the path of wisdom." Here he was vehemently interrupted by Tallien, the intrepid leader of the revolt. "Shall the speaker," said he, "for ever arrogate to himself, with the tyrant of whom he is the satellite, the privilege of denouncing, accusing, and proscribing the members of the assembly? Shall he for ever go on amusing us with imaginary perils, when real and pressing dangers are before our eyes? After the enigmatical expressions which fell from the tyrant yesterday, can we doubt what Saint-Just is about to propose? You are about," added he, "to raise the veil; I will rend it asunder. Yes, I will exhibit the danger in its full extent; the tyrant in his true colours. It is the whole Convention which he now proposes to destroy; he knows well, since his overthrow yesterday, that however much he may mutilate that great body, he will no longer find it the instrument of his tyrannical designs." Loud applauses followed this intrepid declaration. "Two thousand assassins," he proceeded, "are sworn to execute his designs; I myself last night heard their oaths, and fifty of my colleagues heard them with me. The massacre was to have commenced in the night, with the Committees of Public Safety and General Security, all of whom were to have been sacrificed, excepting a few creatures of the tyrant. Let us instantly take measures commensurate with the magnitude of the danger; let us declare our sittings permanent, until the conspiracy is broken and its chiefs arrested." Billaud-Varennes gave fuller details of the conspiracy which had been matured in the society of the Jacobins, and denounced Robespierre as its chief; at the same time declaring that the assembly would perish if it showed the least symptom of weakness. "We will never perish," exclaimed the members, rising in a transport of enthusiasm. Tallien then resumed, and in impassioned language called upon the assembly to pass the decree of accusation. During this agitating scene Robespierre sat motionless from terror. The Convention, amidst violent uproar, decreed the arrest of Dumas, president of the Revolutionary Tribunal, Henriot, commander of the national guard, and their associate conspirators; it also declared its sittings permanent, and numerous measures of precaution were suggested. But as the main object of destroying Robespierre was in danger of being lost sight of amidst these multifarious proposals, Tallien again ascended the tribune, and, in the most emphatic terms, demanded that the dictator should be declared *hors la loi.* "Let there be no formalities with the accused," said he; "you cannot too much abridge his punishment, he has told you so himself a hundred times." Robespierre now attempted to obtain a hearing, but in vain. His voice was drowned by the incessant ringing of the president's bell, and by shouts of "Down with the tyrant," which resounded throughout the halls. A moment of silence ensued, during which he made a last effort to be heard. "For the last time, president of assassins," exclaimed he, turning to the chair, "will you allow me to speak?" But Thuriot recommenced ringing his bell; and, amidst renewed cries of "Down with the tyrant," he sunk on his seat exhausted with fatigue and rage. The foam now issued from his mouth, and his speech failed. "Wretch," exclaimed a voice from the Mountain, "the blood of Danton chokes thee!" The act of accusation was then passed amidst the most violent agitation; the two Robespierres, Lebas, Couthon, Saint-Just, Dumas, and some others, were unanimously put under arrest, and sent to prison; and, after a scene perhaps unexampled in history, the assembly broke up at five o'clock.

The Jacobins, who had fully expected that Robespierre would be victorious in the Convention, no sooner heard of his arrest than they instantly gave orders to sound the tocsin, to close the barriers, to convoke the council-general, and assemble the sections; they also declared their sittings permanent, and established the most rapid means of communication between the two centres of insurrection. Meanwhile Henriot endeavoured to excite the people to revolt, by parading the streets, at the head of his staff, with a sabre in his hand, exclaiming, "To arms to save the country." But having been met by two deputies who prevailed upon some horsemen to obey the orders of the Convention, he was seized, handcuffed, and sent to the Committee of General Safety. Peyan, the national agent, was about the same time arrested; and the Convention seemed triumphant. But between six and seven o'clock the insurgents regained the advantage, chiefly in consequence of the energetic measures of the municipality. Robespierre having been sent to the Conciergerie, and the rest of the conspirators to the other prisons of Paris, the commune sent detachments to deliver them; and Robespierre was speedily brought in triumph to the Hôtel de Ville, where he was joined by his brother and Saint-Just; whilst Coffinhal, at the head of two hundred cannoniers, forced the guard of the Convention, penetrated to the rooms of the Committee of General Safety, and delivered Henriot. The assembly met again at seven o'clock, when it received intelligence of the success of the insurgents, the liberation of the terrorists, the assemblage at the Hôtel de Ville, and the convocation of revolutionary committees, and of the sections. In a short time the delivery of Henriot, and the presence of an armed force around the Convention, were also communicated; and when the agitation was at its height, Amar entered and announced that the cannoniers had pointed their guns against the hall of the assembly. The moment was truly terrible. But in this extremity Tallien and his friends acted with that dauntless intrepidity which so often proves successful in revolutions. Henriot was declared *hors la loi*, and Barras appointed to the command of the military, whilst Fréron, Bourdon de l'Oise, and other determined men, were associated with him in this perilous duty; the Committee of Public Safety was fixed on as the centre of operations; and emissaries were instantly dispatched to all the sections to summon them to the defence of the Convention. Fortunately for this body, Henriot in vain attempted to induce the cannoniers to fire. They had obeyed his orders in marching from the Hôtel de Ville, and to this they limited their obedience. The refusal of the cannoniers decided the fortune of this day. Dispirited and alarmed, Henriot withdrew to the Hôtel de Ville; the armed forced followed his example; and the Convention, which had just been besieged in its hall, became the assailing party.

The battalions of the sections, who had been convoked by the emissaries of the Convention, now began to arrive at the Tuileries; and in a short time a considerable force assembled. The night was dark, the moon being in the first quarter; but the public anxiety had supplied this defect by a general illumination. The defenders of the National Convention took the line of the quay, carrying with them several pieces of cannon; they marched in silence, sustaining their courage without the aid of those vociferations and exclamations which are the resource of men who march to pillage and disorder. The space in front of the Hôtel de Ville was filled with detachments of the national guard, who had obeyed the summons of the municipality, companies of cannoniers, squadrons of gendarmerie, and a multitude of individuals, some armed, and others not, but all apparently inflamed with the most violent spirit of Jacobinism, though perhaps in secret actuated by fear alone. At midnight a rumour began to circulate through the ranks of the insurgents that the municipality had been declared *hors la loi;* that the sections had joined the Convention; and that their forces were advancing to attack the Hôtel de Ville. In the Place de Grève there were stationed about two thousand insurgents, with a powerful train of artillery; but their firmness was much shaken when the light of the torches showed the heads of the columns of the national guards appearing in all the avenues which lead into the square, and thus made obvious the defection of their fellow-citizens. Still it was a fearful moment. Ten pieces of artillery had been placed in battery by the troops of the Convention; and the cannoniers of the municipality, with burning matches in their hands, stood beside their guns on the opposite side. But happily the authority of the legislature prevailed; its decree which declared the commune *hors la loi* was read by torch-light, and in an instant the Place de Grève was deserted. A few moments afterwards, Henriot descended the stair of the Hôtel de Ville, with a sabre in his hand, and finding no one, "How!" exclaimed he, "is it possible? These scoundrels of cannoniers who saved my life five hours ago, thus abandon me now!"

With terror in his looks and imprecations in his mouth, Henriot re-ascended the stair, and announced the total defection of the troops. Instantly despair took possession of that band of assassins; every one turned his fury on his neighbour; nothing but mutual execrations could be heard. In a transport of rage Coffinhal seized Henriot in his arms, and exclaiming, "Vile wretch, your cowardice has undone us all," hurled him headlong down the stair. Saint-Just implored Lebas to put an end to his life. "Coward, follow my example," exclaimed the latter, and blew out his brains. Robespierre tried to imitate him; but his hand trembled, and he only broke his under jaw, which disfigured him in a frightful manner. Couthon was found under a table, feebly attempting to strike with a knife, which he wanted courage to plunge into his heart; Coffinhal and the younger Robespierre threw themselves from the windows, and were seized in the inner court of the building; Henriot, bruised and mutilated, had contrived to crawl into the entrance of a sewer, out of which he was dragged by the troops of the Convention. Robespierre and Couthon, being thought dead, were dragged by the heels to the Quai Pelletier, where it was proposed to throw them into the river; but when daylight appeared, and it was found that they still breathed, they were stretched on a board and carried to the Committee of General Safety. There, extended on a table, with his visage disfigured and bloody, the fallen tyrant lay for some hours exposed to invectives and execrations, saw men of every party rejoicing in his overthrow, and heard himself charged with all the crimes which had been committed. "Il montra," says Mignet, "beaucoup d'insensibilité pendant son agonie." He was then conveyed to the Conciergerie, where for a brief space he occupied the same cell in which Danton, Hebert, and Chaumette had been confined. When brought with his associates before the Revolutionary Tribunal, the process was short; as soon as the identity of their persons had been established, they were ordered for execution. About five in the morning of the 29th July, he was placed on the death-cart, between Henriot and Couthon, who were as mutilated as himself. A linen bandage soaked in blood supported his broken jaw; his countenance was livid, and his eye almost extinct. An immense multitude crowded around the cart, testifying their feelings in loud and reiterated shouts of exultation; some shed tears of joy, others embraced, and others again poured forth execrations against the tyrant, whom, from time to time, the gendarmes pointed out to the people with their sabres. Saint-Just was the only one who evinced any firmness or self-possession; the others, to the number of twenty-two, were excessively dejected. Robespierre was executed the last; when the fatal axe descended, an exulting shout arose, which was prolonged for several minutes after the tyrant was no more.

With the fall of Robespierre ended the system of terror, of which however he was not the most zealous partisan of his party. Aspiring to supreme power, moderation would have become necessary to him had he succeeded, and terror, which ceased by his fall, would have equally ceased by his triumph. But his destruction was inevitable. He had no organized force; his partisans, though numerous, were not embodied and disciplined; he had only the force of opinion and terror; and being thus unable to surprise his enemies by a sudden act of violence, he sought to strike them with dismay. When fear did not succeed he attempted insurrection; but as the Convention, when supported by the committees, had become courageous, so the sections, reckoning on the courage of the Convention, declared against the insurgents. In attacking the government, he roused the assembly; in rousing the assembly, he let loose the people; and this coalition proved his ruin. The Convention, on the 9th Thermidor, was no longer what it had been on the 31st May; divided and undecided, in the presence of a compact, numerous, and daring faction. All parties were united by defeat, misfortune, and an ever-menacing proscription, and under the pressure of common danger they were prepared to combat together. The overthrow of Robespierre was therefore inevitable. He could not avoid separating himself from the committees. "Au point où il était arrivé, on veut être seul, on est dévoré par ses passions, trompé par ses espérances et par sa fortune jusque-là heureuse; et, la guerre une fois déclarée, la paix, le repos, le partage du pouvoir ne sont pas plus possibles que la justice et la clémence lorsque les échaufauds ont été une fois dressés."[1] A man so circumstanced must ultimately fall by the means which have contributed to his elevation; and as conquerors are at length destroyed by war, so the leaders of factions naturally terminate their career on the scaffolds, by which they had sought to establish their power. We may add, that the 9th Thermidor was the first day of the Revolution in which those who attacked had failed. The ascending revolutionary movement had reached its term, and the contrary movement now commenced.[2]

Terror gives pla to that o moderatism.

After the fall of Robespierre the Convention exhibited a remarkable change of appearance. Instead of the silence which had formerly prevailed, all was now bustle and activity. The success of the general rising of all the parties against one man destroyed the compression under which they had laboured; but the momentary union which had ensured the victory was soon at an end, and the conquerors speedily arranged themselves into two parties, namely, that of the committees, and that consisting of partisans of the Mountain, which received the name of *parti Thermidorien.* But the committees were vanquished with Robespierre, and their government lost the *prestige* of terror which constituted its whole force. Besides the loss of their chief, they had no longer the commune, whose insurgent members, to the number of seventy-two, were sent to the scaffold, and which, after its double defeat under Hebert and under Robespierre, was not re-organized, and lost in consequence all its influence. The democratic power of the committees accordingly declined, and the Thermidorian party, including a great majority of the Convention, prevailed; whilst a new character was given to that assembly by the coalition of the moderates, Boissy-d'Anglas, Sièyes, Cambacérès, Chénier, Thibaudeau, with the Dantonists Tallien, Fréron, Legendre, Barras, Bourdon de l'Oise, Rovère, Bentabold, Dumont, and the two Merlins. The former

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[1] Mignet, *Histoire de la Révolution Française*, ii. 479, 480.

[2] The quantity of blood which was shed in France during the regime of terror will hardly be credited in future ages. Prudhomme, who, as a republican, could scarcely be disposed to exaggerate the crimes committed by the popular party, gives the following appalling enumeration of the victims of the Revolution:

There were guillotined by sentences of the Revolutionary Tribunals,

Nobility of both sexes	2,028	
Wives of labourers and artisans	1,467	
Priests	1,135	
Religieuses	350	
Common persons	13,623	
		18,603
Women died in premature childbirth, and from grief		3,748
Women killed in La Vendée		15,000
Children killed in La Vendée		22,000
Men slain in La Vendée		900,000
Victims of Carrier at Nantes		32,000
Killed at Lyons		31,000
Total		1,022,351

Of the victims sacrificed by Carrier, 500 children were shot, and 1500 drowned; 264 women were shot, and 500 drowned; 300 priests were shot, and 460 drowned; 1400 nobles were drowned; and 5300 artisans were drowned.

The general results of this enumeration are strikingly curious. The nobles and priests guillotined are only 2413, whilst the persons of plebeian origin put to death in this manner exceed 13,000. The nobles and priests exterminated at Nantes do not much exceed 2000, the infants drowned and shot amount exactly to this number, and the artisans drowned exceed 5000. It thus appears that the middling and lower ranks were the greatest sufferers by the Revolution, which professed to have been undertaken and carried on exclusively in their interest. Finally, the total number of persons destroyed at Nantes and Lyons alone exceeded the total number guillotined in virtue of the judgments pronounced by the Revolutionary Tribunals, by no less than 42,397.

In this enumeration are not included the massacres at Versailles, the Abbaye, the Carmes, and other prisons, on the 2d of September; the victims of the Glacière of Avignon; those shot at Toulon and Marseilles; nor the persons slain in the little town of Bedoin, which was almost entirely depopulated. (Prudhomme, *Victimes de la Révolution*; Chauteaubriand, *Etudes Historiques.*)

system of terror was consequently declared to be at an end, and a new system of moderatism succeeded, which was carried to as great a height as that of terror had formerly been; and all means were taken to render popular the fall of the tyrant. The committees were organized anew, and their members ordered to be frequently changed. The correspondence between the affiliated Jacobin Clubs was prohibited, and the Jacobin Club itself was at length abolished. This last event was accomplished without difficulty, and that society which had been the great engine of the Revolution was overturned almost without resistance. Seventy-one deputies of the Girondist party, who had been imprisoned since the 31st of May 1793, were set at liberty. The name of Lyons was restored. Some of the agents of Robespierre, particularly Lebon and Carrier, the former of whom had signalized himself by unheard-of cruelties at Arras and Cambray, and the latter at Nantes, were brought before the Revolutionary Tribunal, condemned, and executed, with the greater part of their accomplices.[1] Still, however, the Convention appeared so little decided with regard to objects of the first importance, that in all probability they would not have conducted the important struggle against the nations of Europe with more success than the Girondist party had formerly done, if the revolutionary government and the late system of terror had not already accumulated in their hands vast resources, and traced out a plan of procedure, which rendered it comparatively an easy matter to preserve their numerous armies in the train of success to which they were now habituated.

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The allies in their retreat having left strong garrisons in the French towns Condé, Valenciennes, Quesnoi, and Landrecies, which had surrendered to them, these now surrendered to the republican armies with so little resistance, that the conduct of the emperor began to be considered as ambiguous, and he was even suspected of having entered into some kind of compromise with the French. But this suspicion proved groundless; and as soon as the army which had besieged these towns was able to join the grand army under Pichegru and Jourdan, the operations of the campaign were resumed after a suspension of almost two months. The French army divided itself into two bodies. One of these under Jourdan advanced against General Clairfayt, who had succeeded the Prince of Cobourg in the command in the neighbourhood of Maestricht. On the 15th of September the French attacked the whole Austrian posts, extending along a line of five leagues from Liège to Maestricht; and on the following day the attack was renewed with nearly an equal loss on both sides. On the 17th the French, with fifty pieces of cannon, attacked General Kray in his intrenched camp before Maestricht; and the latter was already retiring when General Clairfayt arrived with a strong reinforcement, and, after a severe combat, compelled the French once more to fall back. On the 18th the French having renewed the attack with increased fury upon every part of the Austrian line, obliged the whole to fall back to the neighbourhood of Aix-la-Chapelle. General Clairfayt now took up a strong position on the banks of the Roer, where he declared it to be his wish that he might be attacked; but by this time the spirit of his army had been humbled, desertions were numerous, and discipline became extremely relaxed. On the first of October the French crossed the Maese and the Roer, attacked the whole Austrian positions from Ruremond to Juliers, and, after a bloody engagement, compelled the brave and active though unfortunate Clairfayt hastily to repass the Rhine with the loss of ten or twelve thousand men. The French general did not attempt to cross that river; but one detachment of his army took possession of Coblentz, whilst others laid siege to Venlo and Maestricht, which soon afterwards surrendered.

Progress of the French in the conquest of Holland.

In the mean time the French army under Pichegru entered Holland, and having attacked the allied army under the Duke of York between Bois-le-Duc and Grave, forced the advanced post of Boxtel. Lieutenant-general Abercromby was sent to attempt to recover this post, on the 15th of September; but he found the French in such force that he was obliged to retreat. They were in fact discovered to be nearly eighty thousand strong; and the Duke of York, unable to contend against a force so greatly superior, retired across the Maese with the loss of about fifteen hundred men. Pichegru immediately laid siege to Bois-le-Duc. On the 30th of September, Crevecœur was taken, and Bois-le-Duc surrendered in ten days thereafter.

The French now followed the Duke of York across the Maese; whereupon the greater part of the allied army under his royal highness crossed the Rhine and took post at Arnheim, whither the remainder followed soon afterwards. Nimeguen was occupied by the French on the 7th of November. At this time the Duke of Brunswick was requested to assume the command of the allied army, and if possible to protect Holland; and with that view he proceeded to Arnheim; but after attentively examining the state of affairs, he declined undertaking the heavy responsibility which such a command would involve. The allied troops had now so often fled before their victorious enemies, they had so long been in want of almost every necessary, and had been received so ill by the inhabitants of the countries through which they passed, amongst whom the French cause was extremely popular, that they had lost that regularity of conduct and discipline which alone can afford a reasonable prospect of success in military affairs. The French, on the contrary, well received, abundantly supplied with every thing, and proud of fighting in a popular cause, now conducted themselves with much order, and submitted to the strictest discipline; and, in addition to all these advantages, their leaders had the dexterity to persuade the world that new and unknown arts were employed to give aid to their cause.[2] In human affairs, and more especially in military transactions, opinion or moral force is all-powerful. The French soldiers confided in their officers as men possessed of a kind of omniscience, whilst the allied troops attributed their misfortunes to the incapacity of those in command, and beheld with anxiety new contrivances employed against them, the importance of which was magnified by ignorance, or exaggerated by fear.

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[1] Lebon was a young man of a feeble constitution, and apparently mild in his disposition. In his first mission he had been humane; but he was reproached by the committee for his lenity, and sent to Arras with orders to show himself a little more revolutionary. Determined not to disappoint the inexorable policy of the committee, he now abandoned himself to the most unheard-of excess; combined debauchery with extermination; had the guillotine, which he called *holy*, always in his presence; and made an habitual companion of the executioner, whom he admitted to his table. But Carrier having more victims to destroy, surpassed Lebon in the art of extermination. Bilious, fanatical, and naturally sanguinary, he wanted only an opportunity to execute all which the imagination of Marat would have dared to conceive. Sent to the borders of an insurgent country, he condemned to death the whole hostile population, priests, women, children, old men, and young girls. As the scaffolds were not sufficient for his purpose, he had replaced the Revolutionary Tribunal by a company of assassins, called the company of Marat, and the guillotine by scuttled boats, in which he drowned his victims in the Loire. Immediately after the 9th Thermidor, loud cries of vengeance and of justice for these crimes were raised in the Convention. Lebon was first attacked, as he had been more particularly the agent of Robespierre; the proceedings against Carrier, who had been the agent of the Committee of Public Safety, and whose conduct had been disapproved by Robespierre, were not instituted until some time thereafter; but both happily met the fate which their unparalleled crimes so richly merited.

[2] At this period the telegraph was first used for conveying intelligence from the frontiers to the capital, and from the capital to the frontiers. Balloons were also employed by the French during this campaign, to procure knowledge of the position of the ene-

Successes in Spain.

Whilst these events were occurring in the north, the French arms were scarcely less successful on the side of Spain. Bellegarde was taken, Fontarabia and St Sebastian surrendered, and the whole kingdom of Spain seemed panic-stricken. That feeble government, with an almost impregnable frontier and the most powerful fortresses, made but little resistance; and the difficult nature of their country seemed now their only protection. The history of this war is merely a list of victories gained by the French. On the 17th of November the French general Dugommier was killed in an engagement fought in the Eastern Pyrenees, where, however, his army was successful. On the 20th of the same month the French again attacked the Spaniards, and routed them with the bayonet, without firing a single shot. Tents, baggage, and cannon, for an army of fifty thousand men, fell into the hands of the conquerors, along with the greater part of the province of Navarre. Towards the end of the year an army of forty thousand Spaniards, intrenched behind eighty redoubts, the work of six months, suffered themselves to be completely defeated; their general was found dead upon the field of battle, and the whole Spanish artillery was taken. Three days afterwards, Figueiras, containing a garrison of above nine thousand men, surrendered, although it mounted a hundred and seventy-one pieces of cannon, and possessed abundance of provisions. The French continued their conquests; Rosas surrendered, and the whole province of Catalonia was left at the mercy of the invaders.

The conquest of Holland completed.

But the successes of this wonderful campaign were not yet terminated; the last, and perhaps the most important, although no great effort was necessary to its execution, yet remains to be noticed. The winter had now set in with uncommon severity. For some years past the seasons of Europe had been uncommonly mild; there had been little frost in winter, and no intense heat in summer. But during the preceding season the weather had been remarkably dry until the latter part of the harvest, when there fell a considerable, though by no means an unusual, quantity of rain. Towards the end of December a severe frost bound up the whole of the rivers and lakes of Holland, and in the beginning of January the Waal was frozen over, which had not occurred for fourteen years past. Taking advantage of this circumstance, the French crossed that river on the ice, and seized with little opposition the important pass of Bommell, which at other seasons is so strong by reason of its inundations. The allied army, having been joined by seventeen thousand Austrians, had received orders to defend Holland to the last extremity. They did so, and were successful in repulsing the French for some days between the Waal and the Leck; but the republican army, amounting to seventy thousand men, having at last advanced in full force, the allied troops were compelled to retire across the Yssel into Westphalia. In the course of their march through this desert country, in the midst of severe frost and deep snow, they suffered incredible hardships, and lost a great number of men. The French, in the mean time, advanced rapidly across the country to the Zuyder-Zee, to prevent the inhabitants from flying and carrying off their property. On the 16th of January 1795 a party of horse, without resistance, took possession of Amsterdam. The other towns surrendered at discretion; and in consequence of an order from the States-General, Bergen-op-Zoom, Williamstadt, Breda, and other strong places, opened their gates to the French. By the intense frost, the fleet and the shipping were fixed in their stations, and became a prey to the enemy, who thus, with little effort, made a complete conquest of this rich and highly-defensible country. The people were almost everywhere favourable to their cause; and in fact the power of the stadtholder had been supported solely by the influence of Prussia and England. Through hatred of this office, which had now become odious chiefly to the mercantile aristocracy of Holland, the people were unfriendly to the allies, and, during the war, gave them as little support as possible. The stadtholder and his family now fled to England. And thus terminated a campaign, in the course of which, even before the conquest of Holland, the French had taken two thousand pieces of cannon and sixty thousand prisoners; whilst after that event the conquered territories added a population of nearly fourteen millions to the Republic. Luxembourg and Mayence were the only places on the Rhine which resisted them. But the former was closely blockaded; and the latter, though several times assaulted, successfully held out.

A new c stitution

As the constitution which had been framed in the year 1793 was justly deemed impracticable, a committee was appointed to frame a new one. It was composed of Sièyes, Cambacérès, Merlin de Douai, Thibaudeau, Mathieu, Lesage de l'Eure, and Latouche. On the 19th of April Cambacérès reported that, in the opinion of the committee, a commission should be appointed for this important purpose; and a number of qualified persons were accordingly chosen, whilst all citizens were invited to communicate their sentiments upon the subject, and the committee was instructed to order the best plans to be published. The feelings of the nation at large received additional gratification from the conduct of the Convention towards Fouquier-Tinville, the public accuser,[1] and fifteen judges and jurors of the Revolutionary Tribunal. Having been fully convicted on the 8th of May, they were executed on the 9th, amidst the loud execrations of a vast multitude of spectators.

Insurrec tion of th Jacobins.

But although the Jacobins were defeated on the 1st and 2d of April, they did not consider themselves as entirely subdued. On the contrary, they were now plotting a more extensive insurrection, which was not to be confined to the capital alone, and they had fixed upon the 20th of May as the period of revolt. In truth, the Convention had been borne along too rapidly by the force of the re-action, and, in its desire at once to repair and to punish, it fell into a most imprudent excess of justice. In this way it drove to despair a numerous party, which had ceased to be formidable, and by threatening it with vast and eternal reprisals, left it no resource but in insurrection, to which many were but too well disposed from other causes, including famine. The arrest of Billaud-Varennes, Collot-d'Herbois, Barrère, and Vadier, not to mention other circumstances, convinced the Jacobins that their whole party was doomed to destruction. Accordingly, on the morning of the day fixed on, the tocsin sounded, and the drums beat to arms in the faubourgs of Saint Antoine and Saint Marceau, in which the Jacobins had always enjoyed the greatest influence. The Convention met on the first alarm; but although the insurrection was far from being a

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my. An engineer ascended in the balloon (which was suffered to rise to a great height, but prevented from being carried away by a long line), made plans of the enemy's encampment, and during an attack sent down notice of every hostile movement.

[1] "Je demande," said Fréron, making himself the organ of public indignation; "je demande qu'on purge enfin la terre de ce monstre, et que Fouquier aille cuver, dans les enfers, le sang qu'il a versé."

secret, the Committee of Public Safety did not appear to have taken any measures to prevent it; and it was only at the moment when the insurgents were approaching that General Hoche was appointed to the command of the armed force, and sent to collect the military and citizens for the protection of the Convention. The hall was presently surrounded, the guards were overpowered, and the mob forced their way into the midst of the assembly. The multitudes of women who appeared on this occasion shouted for bread and the constitution of 1793. Vernier, the president, a man far advanced in years, quitted the chair to Boissy-d'Anglas, who kept it with unexampled fortitude during the remainder of the day. The mob had written on their hats with chalk, "Bread, the constitution of 1793, and the liberation of the patriots." One of the party attached to the Convention having imprudently torn off the hat of one of the insurgents, the multitude attacked him with swords; and he was killed by a musket shot as he fled for protection towards the chair of the president. The majority of the members gradually retired from this scene of lawless intrusion, and left the multitude masters of the hall; but several of the members who remained espoused the cause of the insurgents. The triumph of the latter, however, was but of very short continuance. In the evening they were overpowered by a large body of military, aided by the citizens; the powers of the Convention were restored; and the deputies who had espoused the cause of the mob were put under arrest. But this day decided nothing.

It would appear, indeed, that the Convention and the citizens of Paris considered their triumph as complete; at all events no measures were adopted sufficient to prevent the repetition of a similar outrage. The Jacobins, however, were by no means disposed to consider their cause as desperate. Next day they collected their forces in the suburbs, and in the afternoon made a second attempt to regain the ascendency. The Place de Carrousel was taken without opposition, and some pieces of cannon were even pointed against the hall of the Convention. The members, being wholly unprotected, now endeavoured to gain over the mob by flattery; they fraternised with the fauxbourgs, without however making them any positive promise; and the intruders retired on receiving an assurance that the Convention was solicitously occupied with the means of procuring subsistence, and that it would soon publish the organic laws of the constitution of 1793. On the 23d, the citizens assembled, and proceeded to the Tuileries to defend the Convention from insult and violence. The military also collected in considerable force; and the Convention, at length encouraged to act on the offensive, decreed that if the faubourg of Saint Antoine did not immediately surrender its arms and cannon, together with the assassin of Féraud, who had been murdered in the very hall whilst covering the president with his body, it would be declared in a state of rebellion. The generals of the Convention at the same time received orders to reduce it by force if necessary; and the insurgents, finding themselves unequal to the conflict, were forced to surrender unconditionally, in order to preserve their property from the depredations of the military. All soldiers found amongst the prisoners were put to death. Six members of the Convention who had been concerned in the insurrection were also tried by a military commission, and condemned. These were Goujon, Bourbotte, Romme, Duroy, Duquesnoy, and Soubrany, all democrats of the Mountain party. When they heard the sentence pronounced they all stabbed themselves with the same knife, which they passed from one to another, exclaiming *Vive la République*. Romme, Goujon, and Duquesnoy were fortunate enough to strike home; the other three were conducted to the scaffold in a dying state, but with their countenances still serene.

In the south of France, the Jacobins, equally turbulent with their brethren in Paris, excited an insurrection at Toulon on the 20th of May; seized on the gates, which they planted with cannon; set at liberty such of their associates as had been incarcerated; and detained the fleet which was about to put to sea. From Toulon they proceeded to Marseilles, forming in all a body about three thousand strong, with twelve pieces of cannon; but on their march they were encountered by Generals Charton and Pactod, by whom they were defeated, and three hundred sent as prisoners to Marseilles.

The Mountain party were now much reduced, and exposed in many places to violent persecution; indeed associations were formed for the purpose of avenging the crimes committed by them during the continuance of their power. The character of Robespierre's government, and the amount of suffering which it inflicted on persons of all ranks and parties, renders it truly astonishing that any number of men should hazard their lives in attempting its restoration. The party was of course gradually abandoned on the fall of the tyrant; but there still remained a small number of its adherents, men of superior activity and enterprise, but uncompromising republicans, who fancied they beheld the revival of royalty and aristocracy in every attempt to establish a mild, sober, and regular government. Hence, even amidst the universal odium cast upon them, the Jacobins expected to rise once more into power; and, what is more singular, the revival of their strength may be dated from the unsuccessful insurrection to which we have just adverted. Their unpopularity began to affect even the Convention, for the people remembered how tamely that body had submitted to the tyranny of Robespierre, and how the majority of its members had been the servile instruments of his power. The press being now free, the most hideous picture of their conduct was accordingly held up to the public; and the greater number began to repent of their victory over the Jacobins, which they foresaw might in the end prove fatal to themselves.

New constitution.

On the 23d of June, Boissy-d'Anglas presented the report of the committee relative to the project of a new constitution. Like its predecessors, it was prefaced with a declaration of the rights of man, and, besides, consisted of fourteen chapters on as many different subjects, viz. the extent of the republican territories; the political state of citizens; primary assemblies; electoral assemblies; the legislature; the judicial authority; the public force; public instruction; the finances; foreign treaties; the mode of revising the constitution; with a provision that no rank or superiority should exist amongst citizens except such as might arise from the exercise of public functions. The legislature was composed of two assemblies; the Council of the Ancients, consisting of two hundred and fifty members, into which none but married men and widowers turned of forty could be admitted; and the Council of Five Hundred, consisting of as many members, who enjoyed the exclusive privilege of proposing the laws, whilst the Council of Ancients might reject or oppose, but without having power to alter, the bills or projects of law submitted to them. The executive power was intrusted to five persons, who were required to be forty years of age at least, and denominated the Executive Directory. The two councils had the power of electing its members; the Council of Five Hundred proposing ten times as many candidates as could be chosen, whilst the Council of Ancients selected the five directors from amongst the fifty candidates thus designed. One member of the Directory was to go out of office annually, by which means they would all be changed in the course of five years. In enacting laws the Directory had no vote, being appointed merely to superintend their execution, to regulate the coining of money, and to dispose of the armed force. The treaties made by the Directory with foreign courts were not binding without the sanction of the legislature, and war could not be declared without a decree of the two assemblies. All the articles of the new constitution underwent each a separate discussion, after which they were ordered to be transmitted to the primary assemblies for their approbation. Previously to this event, however, the Convention, in order to avert the danger which now threatened it from the loss of public favour, decreed that at the approaching general election the electors should be bound to return two thirds of the present members; and if this failed, that the Convention might themselves fill up the vacancies. Decrees to this effect accompanied the constitution; but at Paris the idea of re-electing two thirds of the old members was rejected with indignation, and the absurdity of doing so pointed out with every expression of acrimony and contempt.

The Convention, however, did not fail to publish the approbation of the decrees, as well as of the constitution, by the primary assemblies; although it is pretty certain that great numbers had confounded the one with the other, and given their approbation accordingly. Such, indeed, was the rage of many against the Convention, on account of the decrees already mentioned, that it was even proposed to try all the members before a new revolutionary tribunal, and to punish each according to his crimes. The sections remonstrated to the Convention against the decrees, and the more eager they appeared in the matter, the more persuaded was the Convention of its own imminent danger. Every remonstrance was accordingly disregarded, and the contending parties formed the resolution of settling the question by force.

The 13th Vendemiaire.

About a hundred electors of Paris met in the hall of the theatre in the suburb of St Germain, before the day of meeting which had been appointed by the Convention, and having chosen the Duke de Nivernois as their president, began their debates, absurdly concluding that the sovereignty was vested in the hands of the electors after these had been chosen by the primary sections. A body of troops was sent to dissolve them as an illegal assembly, and this was accomplished without any difficulty, because the citizens had not been unanimous in their sentiments respecting it. This, however, did not prevent the sections from presuming that, by steady perseverance, they would finally prove victorious; they had always found that the party favoured by the co-operation of the Parisian populace had carried their point ever since the commencement of the Revolution. The armed force with which the Convention was surrounded gave the people but little concern, as they had persuaded themselves that the military could never be brought to act against the citizens. The members of the Convention also appeared to suspect their fidelity, and therefore applied for assistance to those very Jacobins whom they had humbled on the 24th of May. If the sections of Paris detested the members for their connection with the atrocities of Robespierre, the Jacobins admired them for this very reason; and from fifteen to eighteen hundred of the latter, released from prison, were put in a state of requisition for assisting the legislative body, and regimented under the denomination of "Battalion of the Patriots of Eighty-nine." The sections of Paris beholding the Convention surrounded by men who had justly obtained the appellations of terrorists and men of blood, now exhibited the strongest desire to engage them. Their leaders designed to make the members prisoners till they could be conveniently brought to trial, and in the interval to conduct public affairs by committees of the sections, till a new legislative body could be chosen. General Miranda was to have the command of the armed force after the overthrow of the Convention; but as it was still problematical which party would be triumphant, he retired to the country till the event should declare it, ready to share the reward of a conquest to which he had resolved to contribute nothing. The superior officers of the Convention were not to be depended on; but the subalterns and the soldiers continued firm, to which they were strongly exhorted by their Jacobin auxiliaries. It was also greatly in favour of the Convention, that the first moments of enthusiasm were permitted to pass away; this was a fatal error, which no subsequent vigour could repair.

As the danger, however, was imminent, the Convention had declared its sittings permanent; called around its enceinte the troops in the camp at Sablons; and concentrated its powers in a committee of five persons, instructed to adopt such measures as they should judge necessary for the public safety. These members were Colombel, Barras, Daunou, Letourneur, and Merlin de Douai. In the night of the 11th Vendemiaire the decree which dissolved the college of electors, and armed the battalion of the patriots of 1789, excited the greatest agitation; the générale was beaten; the section Lepelletier thundered against the despotism of the Convention, and the return of terror; and during the whole day of the 12th it was occupied in disposing the other sections to combat. In the evening, the Convention, not less agitated itself, resolved to assume the initiative, surround the disaffected section, and terminate the crisis by disarming it. The general of the interior, Menou, and the representative Laporte, were charged with this mission. The head-quarters of the sectionaries was in the convent of the Filles-Saint-Thomas, before which they were drawn up in order of battle to the number of six or seven hundred. They were surrounded by superior forces, on flank by the boulevards, and in front on the side of the Rue Vivienne. Instead of disarming, however, the chiefs of the expedition parleyed with them; and it was at length agreed that both parties should retire. But scarcely had the troops of the Convention withdrawn when the sectionaries returned in greater force than before. This was to them a real victory, which, being exaggerated in Paris, excited their partisans, augmented their number, and gave them courage to attack the Convention the following day. At eleven o'clock, the latter received information of the issue of this expedition, and the dangerous effect which it had produced. Menou was immediately deprived of the command, which was conferred on Barras; and the latter demanded of the committee of five the appointment, as his second in command, of a young officer who had distinguished himself at the siege of Toulon; "a man," said he, "of head and resolution, and capable of serving the Republic at such a moment of peril." This young officer was Bonaparte, who immediately presented himself before the committee; but nothing in his appearance or demeanour yet indicated his astonishing destinies. Little connected with party, and called for the first time to perform a part on a great scene, his countenance betrayed something of timidity and want of confidence, which, however, he lost in the preparations for action and in the heat of the battle. He caused the artillery to be brought in all haste from the camp of Sablons, and disposed the guns as well as the troops, amounting to five thousand men, on the different points of attack. On the 13th of Vendemiaire (5th October), about mid-day, the enceinte of the Convention had the appearance of a strong place, which could only be taken by assault. The line of defence extended, on the left of the Tuileries, along the river, from the Pont-Neuf to the Pont Louis XV., and on the right occupied all the little streets which debouch into that of Saint-Honoré, from those of Rohan, L'Echelle, and the cul-de-sac Dauphin, to that of the Revolution. In front, the Louvre, the garden of the Infanta, and the Carrousel were planted with cannon; and behind, the

Pont-Tournant and the Place de la Révolution formed a park of reserve.

Thus prepared, the Convention waited for the insurgents, who soon advanced upon several points. They had about forty thousand men under arms, commanded by Generals Danican and Duhoux, and an ex-garde-du-corps named Lafond. The thirty-two sections which formed the majority had furnished their military contingents; but of the sixteen others, several sections of the faubourgs had their troops in the battalion of 1789; some sent reinforcements during the action, others, though well disposed, were unable to do so, and a few remained neutral. About three o'clock General Carteaux, who occupied the Pont-Neuf with four hundred men and two four pounders, was overpowered by several columns of sectionaries, and obliged to fall back as far as the Louvre. This advantage emboldened the insurgents, who were in force upon all points, and General Danican now summoned the Convention to withdraw the troops and to disarm the terrorists. Several members declared for conciliatory measures. Boissy-d'Anglas was for entering into a conference with Danican; Gamon proposed a proclamation, in which, on the citizens engaging to retire, the Convention should promise to disarm the battalion of 1789; and Lanjuinais, after some observations on the imminence of the danger, and the miseries of civil war, supported this proposition. But Chénier having declared that there was now nothing for the National Convention but victory or death, that body, on the motion of Fermoud, passed to the order of the day. Seven hundred muskets were now brought in, and the members of the Convention armed themselves as a corps de reserve. The combat began in the Rue Saint-Honoré, of which the insurgents were masters; the first shots proceeded from the Hôtel de Noailles, and a heavy fire was instantly opened along the whole of that line. On the other flank, two columns of sectionaries, about four thousand strong, commanded by Count de Maulevrier, debouched by the quays a few minutes afterwards, and attacked the Pont-Royal. The battle now became general; but it could not last long, as the place was too formidably defended to be taken by assault. After an hour's hard fighting the sectionaries were driven out of Saint-Roch and the Rue Saint-Honoré, by the cannon of the Convention and the battalion of 1789. The column of the Pont-Royal received three discharges of artillery, directly along the bridge, and obliquely from the quays, by which means it was completely shattered, and driven back in the greatest disorder. At seven o'clock, the troops of the Convention, victorious at all points, assumed the offensive; and at nine they had dislodged the sectionaries from the theatre of the Republic, and the posts which they occupied in the neighbourhood of the Palais-Royal. The latter had prepared to form barricades during the night; but several discharges of round shot fired along the Rue Richelieu prevented them. On the morning of the 14th the Conventional troops disarmed the section Lepelletier, and re-established order in the others. The victory was used with moderation. The assembly had only combated in its own defence, and had no vengeance to gratify.

The victors attributed this insurrection to the influence of the royalists; but whether they were right in this opinion or not, it is certain that the cause of royalty had now become less odious to the people generally than the bloody extravagance of republicanism; though, as to the mob, they seem to have looked no further than the disarming of the Jacobins, and obtaining new representatives. The sittings of the Convention terminated on the 27th of October, and it was succeeded by the new legislature, in terms of the constitution. Amongst its last decrees was one granting a general amnesty for all crimes and proceedings of a revolutionary nature; but the emigrants, transported priests, and every one concerned in the last insurrection, were excluded from the benefit of it.

Measures of the new legislature.

The first step of the new legislature was to divide itself into two councils, and proceed to the election of an Executive Directory. The Council of Five Hundred was bound to present to the other council fifty candidates, and a list was accordingly made out; but it consisted of no more than the five whom the council wished to be chosen, the other forty-five being obscure persons, farmers and peasants, so that the Council of Ancients, deprived of all power of election, were obliged to appoint Sièyes, Barras, Rewbell, Lareveillère-Lepeaux, and Letourneur de la Manche, none of the others being qualified for the office. Sièyes, however, did not deem it prudent to become one of the five republican kings; and on his declining to accept of the new dignity, Carnot was appointed in his stead. The form of government now established did not promise to be productive of much happiness or tranquillity, as the most important offices in the state were filled by men odious to the people. The members of the Executive Directory, excepting only Lareveillère-Lepeaux, had always been connected with the party of the Mountain, and employed the Jacobins in almost every official department; a circumstance which could scarcely fail to render the government peculiarly obnoxious. It was feared that a directory chosen by the Jacobins, and new legislators appointed by the people, might one day be the means of totally subverting the constitution; and the result showed that this apprehension was not groundless.

Treaty of peace with Prussia.

On the 10th of April a treaty of peace with the king of Prussia was presented to the Convention, in order to be ratified. By virtue of this treaty, it was agreed that the republican troops should be immediately withdrawn from the territories of Prussia on the right bank of the Rhine, but that the territories which France then possessed on the left bank of that river should be retained till a general peace. A mutual exchange of prisoners of war was agreed on, and the intercourse between the two countries placed on its former footing. Measures were also adopted to transfer the theatre of hostilities from the northern parts of Germany. The king of Sweden at the same time acknowledged the French Republic, and his ambassador was received at Paris with great solemnity. In the month of May another treaty was concluded with Prussia, which had a special reference to the line of neutrality. The cantons of Switzerland followed the example of the king of Sweden; and on the 22d of July a treaty of peace was also concluded at Basle, between the Republic and the court of Spain, in consequence of which France gave up all the conquests she had made in that country, and the original frontier was restored; whilst, in return, the Republic received all the Spanish part of St Domingo. In this treaty the Dutch Republic was included, and the mediation of the king of Spain, in favour of Portugal and the Italian princes, was accepted by France.

Death of Louis XVII.

On the 9th of June, the dauphin, the heir to the throne of the unfortunate Louis XVI., and also his only son, died in the prison of the Temple, where he had been confined with his sister since the death of his father. His death interested the French nation so deeply in favour of his family, that the Convention found it prudent to liberate the princess. The Committee of Public Safety proposed to the emperor to give her in exchange for the commissioners whom Dumouriez had sent as prisoners to the Austrians, together with Semonville and another person, who had been seized on their way to Turkey as envoys extraordinary from the French Republic. This proposition was agreed to, and the exchange took place in consequence, at Basle in Switzerland.

Expedition to Quiberon.

If Britain was unfortunate upon the Continent, she still retained her superiority on her own element. On the

14th of March a fleet under Admiral Hotham engaged a French fleet, and took two sail of the line, the Ça Ira and Censeur; but this was nearly counterbalanced by the loss of the Berwick and Illustrious. Three French ships of the line were captured by Lord Bridport on the 23d of June, in an attack on the enemy's fleet off Port L'Orient; the rest effected their escape. Britain having thus evinced her usual superiority by sea, advantage was taken of this circumstance to send assistance to the royalists in the western departments; but unfortunately for them it came too late. The Convention had offered them a treaty, which was accepted and signed at Nantes on the 3d of March, by deputies from the Convention on the one part, and, on the other, by Charette, Sapineau, and the rest of the chiefs of La Vendée, and by Cormartin, as representatives of the party called Chouans. Stofflet also submitted to the Republic on the 20th of April. But the countenance given by Britain to the royalists induced them to disregard these treaties. The troops sent to their aid were composed of emigrants in the pay of Great Britain, and a number of prisoners who had agreed to join the royal cause. Puisaye commanded this motley army, and the Count de Sombreuil afterwards joined him with an inconsiderable reinforcement. The expedition arrived in the bay of Quiberon on the 25th of June, and arms were put into the hands of the inhabitants of the country; but it was soon found that the latter could not be of much advantage to regular troops. A resolution was therefore adopted to withdraw the emigrant army within the peninsula of Quiberon; and the fort of the same name, with a garrison consisting of about six hundred men, was taken on the 3d of July, and occupied by the emigrants. But all the posts without the peninsula were carried by an army under General Hoche, the emigrants and Chouans escaping in the boats of the British fleet, or flying for protection under the cannon of the fort. The republicans then began to erect formidable works on the heights of St Barbe, which commanded the entrance of the peninsula. To prevent these operations, a sally was made from the fort on the 7th, but without effect; and another in still greater force had no better success. The whole forces in the peninsula, including Chouans, amounted to about twelve thousand men, five thousand of whom were sent to attack the heights of St Barbe. On this position the republicans were intrenched in three camps, two of which were taken without difficulty; but as the emigrants rushed forward to attack the third, a masked battery was opened upon them with grape shot, which caused a dreadful slaughter, and few of the emigrants would have effected their escape, had not the fire of the British ships compelled the republicans to abandon the pursuit.

Failure of the Quiberon expedition.

It was now evident what would be the fate of this expedition, and desertion amongst the emigrants became very frequent, especially those who had been liberated from prison on condition of serving against the Republic. On the evening of the 20th, the weather was tempestuous, and this induced the emigrants to indulge in a fatal security. The troops of the Republic were conducted in silence along an unguarded part of the shore, and surprised one of the posts, where they found the artillerymen asleep. They extinguished the lanthorn which was intended to give the British fleet the alarm, and seized on their matches. Some of the emigrants threw down their arms and joined the republicans, whilst others maintained an obstinate contest before they surrendered. The Count de Sombreuil was taken and put to death, together with the Bishop of Dol and his clergy; none being spared but such as pretended that their appearing in arms against the republicans was purely owing to compulsion.

Continental affairs.

But it is time to return to the affairs of the Continent. After a protracted siege Luxembourg surrendered on the 7th of June, and put the French in possession of the whole left bank of the Rhine, excepting Mayence, which the Austrians could conveniently supply with every necessary from the opposite bank of the river. The republicans therefore determined to cross the river, and to invest it on every side; but the attempt was delayed until the result of the Quiberon expedition should be fully known. In the month of August, the passage of the Rhine at Dusseldorf was effected by Jourdan, who had been appointed commander-in-chief of the army of the Sambre and Meuse. Having driven in the Austrian posts, he crossed the Maine, and invested Mayence and Cassel; whilst Pichegru, having crossed the river near Manheim with the army of the Rhine and Moselle, at the same time took possession of that city. But a strong detachment of this army having driven Wurmser from an important post, began to plunder, and getting into confusion, the Austrians took prompt advantage of the circumstance, returned to the charge, and defeated the republicans. Jourdan was pursued by Clairfayt as far as Dusseldorf, where he made a stand; and Pichegru recrossed the Rhine near Manheim, leaving in that city a garrison of eight thousand men. But after a vigorous siege it surrendered to the Austrians; and the republicans were also driven from the vicinity of Mayence, upon which an armistice of three months was agreed to.

Conduct of the Directory.

The Directory, however, still resolved to prosecute the war with vigour, and therefore, during the winter, made great preparations for another campaign. But the Mountain party being again possessed of power, now began to discover their restless and turbulent disposition; incapable of long submitting peaceably to any government, they soon became disgusted with the Directory which they themselves had established, and were continually disturbing the public tranquillity. After the 5th of October, the people of Paris durst not openly avow their abhorrence of the Jacobins; but as it was understood that wearing green cravats was a token of contempt for these partisans, this piece of dress was prohibited by the Directory, on the pretence of its being a mark of attachment to royalty. Ashamed of this absurdity, however, they in a few weeks recalled their edict, and the proscription of green cravats ceased. In the south of France, the authority of the Jacobins produced very serious effects. Fréron, by whom they had been abandoned after the death of Robespierre, rejoined them before the 5th of October, and was sent with full administrative powers to Toulon, where he dismissed the municipality which had been chosen by the people, restored the Jacobin clubs, and caused to be imprisoned every person whom he suspected. Alarmed at the numerous complaints which were made from every quarter against the conduct of these turbulent men, the Directory resolved to obtain the confidence and affections of the people by deserting them entirely. Fréron was recalled from Toulon, and moderate men replaced the Jacobins in most public employments. The Directory also issued a public declaration that its confidence had been abused. The minister of police was charged to remove from Paris the members of former revolutionary tribunals, and such as had been active leaders of the Jacobins; and ten thousand men, called the Legion of Police, who had acted against the Parisians on the 5th of October, and were decidedly favourable to the Jacobins, received orders to join the armies on the frontiers. This induced the violent Jacobins to concert a plan for the ruin of the Directory and the majority of the councils, who had now abandoned them. But their designs were discovered and completely defeated. On the 10th of May the guards were increased, and large bodies of cavalry were stationed round the Luxembourg and Tuileries. The Council of Five Hundred was informed by the Directory that a terrible plot was ready to break forth on the ensuing morning. The conspirators, at the ringing of the morning bell, were to proceed in small parties of three or four, to the houses of those persons whom they had singled out for destruction; and having murdered these, they were then to unite in one body against the Directory, whose guard they conceived themselves able to overpower. Some of the leaders of this conspiracy were arrested, amongst whom was Drouet, postmaster of Varennes, who had stopped the unfortunate Louis on his way to the frontiers: with ten others, he was condemned at Vendôme, but he subsequently contrived to make his escape. The defeats which the Jacobins thus experienced, and the disgrace into which they had fallen, determined the moderate party in the two councils to attempt to procure the repeal of the decrees of the Convention, which had granted them an amnesty, and confirmed the laws against emigrants. A number of days were occupied in the discussion of these topics, but the moderate party gained nothing in favour of the emigrants; and with respect to the Jacobins, all they obtained was, that such of that party as had owed their preservation to the amnesty, should be deemed incompetent to hold any public offices.

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Another matter of no less serious a nature now called for the attention of the republican government. This was the deplorable state of the finances. Whilst the usurpation of Robespierre continued, terror supported the credit of the assignats, which, joined to the sale of the church lands and the property of the emigrants, furnished ample resources; but no provision was at all thought of for future exigencies. If money was wanted, more assignats were fabricated, and no inquiry was made concerning the public expenditure, as no taxes were demanded from the people. The Directory having complained to the councils of the great distress under which they laboured, and of the want of sufficient funds to meet the unavoidable expenses of the ensuing campaign, a law was passed on the 25th of March, giving authority to dispose of the remainder of the church lands at the value formerly fixed on them, namely, twenty-two years' purchase. A new paper currency, termed *mandats*, was also to be issued, and to be received in payment; but government had now lost all credit, and the mandats became rapidly depreciated in value, which increased the demand for national property. To prevent this, the legislature decreed that one fourth of every purchase should be paid in cash; a provision which obstructed the sale of the national property, and increased the circulation of mandats.

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ablished.

During the preparations for the approaching campaign, the Directory attempted to render themselves popular at home, by establishing, under the protection of government, the French National Institute. Every man of science or learning who had escaped the persecution of the Mountain party was invited to become a member; and it was opened on the 4th of April, in the hall of the Louvre, when the ambassadors of Spain, Prussia, Sweden, Denmark, Holland, America, Tuscany, Genoa, and Geneva, were present, and the members of the Directory attended in their robes of state. The directorial president expressed the determination of the executive government to afford every encouragement to the improvement of science, literature, and the arts; and the president of the Institute replied that it was the determination of the members to endeavour to give lustre to the republican government, by the exercise of their talents, and by their publications. The speeches were enthusiastically applauded by a multitude of spectators, and the general expectation was, that France would now enter upon a career of glory and prosperity wholly unprecedented in her past history.

Proposal of peace by Great Britain.

About this time an approach towards a negotiation with France was made on the part of Great Britain, through Mr Wickham, ambassador to the Swiss Cantons. On the 8th of March a note was communicated to M. Barthélèmy, ambassador of the French Republic, in which it was inquired, whether France would be willing to send ministers to a congress to negotiate peace with his Britannic majesty and his allies? whether she would be inclined to communicate the general grounds upon which she would be willing to conclude peace, that his majesty and his allies might consider them in concert? and, whether she would desire to communicate any other mode of accomplishing a peace? Any answer which might be returned was directed to be transmitted to the British court; but it was at the same time intimated that Mr Wickham had no authority to discuss these subjects. On the 26th of the same month an answer was returned by Barthélèmy in name of the Directory, complaining of the insincerity of the British court in giving its ambassador no authority to negotiate, and stating that the proposal of a congress rendered negotiation endless. The Directory expressed their wish to obtain peace, but declared that no portion of territory would be relinquished which, in virtue of the constitutional decree, formed part of the Republic. To this note no reply was made; but it was complained of to the foreign ministers resident at the court of London, and considered as leaving Britain no alternative but the prosecution of the war.

Royalists in the west subdued.

During the winter season the Directory found means to reduce the western departments. The expedition from England had tempted the royalists once more to try their fortune in the field; but after a number of defeats, their leaders, Charette and Stofflet, were apprehended and put to death on the 29th of March; and this tended to suppress the insurgents in every quarter. Domestic enemies being thus subdued, the republican government was enabled to make the most vigorous exertions on the frontiers. Their military force was divided into three armies: the army of the Sambre and Meuse under Jourdan, principally stationed about Dusseldorf and Coblentz; the army of the Rhine and Moselle, commanded by General Moreau, stationed on the Upper Rhine, from Landau to Treves; and the army of Italy, which occupied the Italian coast from Nice towards Genoa, the command of which was now bestowed on General Bonaparte, who had so greatly signalized himself on the 13th Vendemiaire.

Bonaparte assumes the command of the army of Italy.

The army of Italy, which had hitherto operated on the flank of the Alps, was destitute of every thing, and scarcely thirty thousand strong; but it was full of courage and patriotism, and by means of it Bonaparte commenced that brilliant career of victory which had nearly terminated in the subjugation of all Europe. His plan was to debouch into Italy between the Alps and the Appennines, to turn the former range, intersect the enemy's line, and operate on his flanks. He had before him the allied force, consisting of ninety thousand men, placed in the centre under Argentau, on the left under Colli, and on the right under Beaulieu; but in a few days this immense force was dispersed by prodigies of genius and of courage. On the 9th of April the campaign was opened by General Beaulieu attacking the post of Voltri, six leagues from Genoa; the republicans defended themselves till the evening, when they retreated to Savona. Next day Beaulieu renewed his attempts, and penetrated to Montenotte, which was occupied by Colonel Rampon, with fifteen hundred men. In a moment of enthusiasm, their commander prevailed on them to swear that they would never abandon their post; and they kept their oath; for, in spite of every effort that could be made on the part of the enemy, they succeeded in arresting the progress of the Austrian general during the remaining part of the day. During the night the right wing of the French army, under Laharpe, took up a position in rear of the redoubt of Montenotte; whilst Bonaparte, Massena, Berthier, and Salicetti, advanced by Altara, to take the enemy in flank and rear. Powerful reinforcements were in the mean time sent to Beaulieu, who, on the morning of the 11th, again attacked the position of Montenotte; but the obstinate resistance of Laharpe, and the approach of Massena, at length forced the Austrians and Sardinians to give way on all sides; two of the enemy's generals were wounded, and two thousand five hundred men became prisoners. The republicans pursued them beyond Cairo, which, on the following day, fell into their hands.

Defiles of Millesimo forced.

On the 13th April, General Augereau forced the defiles of Millesimo, and by a rapid movement surrounded General Provera at the head of fifteen hundred grenadiers; but instead of surrendering, this brave officer forced his way through the enemy, and intrenched himself in the ruins of an old castle situated on the summit of the hill. Augereau with his artillery endeavoured to dislodge him, but without success; he then arranged his troops in four columns, and made an attempt to carry Provera's intrenchments by storm, which also proved unsuccessful. In this affair the French had two generals killed, and Joubert was wounded. A division was now left to continue the blockade of Provera. The hostile armies continued in presence during the 14th. On the following day the Austrians made an attack on the republican centre; but Massena turned the left flank of their left wing in the vicinity of Dego, whilst Laharpe turned the right flank of the same wing; one column kept in check the centre of the Austrians, another attacked the flank of their left wing, and a third gained its rear. They were completely defeated at all points, with the loss, besides killed and wounded, of eight thousand prisoners. General Provera also surrendered.

Dego retaken.

After his defeat at Millesimo, Beaulieu made a vigorous effort to change the fortune of war. With seven thousand of his best troops he attacked Dego, where the republicans after their success were indulging in security, and made himself master of the village; but the troops rallied under Massena, who renewed the combat, and employed the greater part of the day in his efforts to retake it. The republicans were thrice repulsed, but Bonaparte having arrived in the evening with reinforcements, the village was retaken, and fourteen hundred men were made prisoners. Bonaparte had now accomplished his object of separating the Austrian and Sardinian armies; for his right wing being secured against the efforts of Beaulieu by the village of Dego, he was enabled to act against the Piedmontese troops with the greater part of his force. Augereau powerfully seconded his exertions, and having opened a communication with the Tanaro, Serrurier was now approaching the town of Ceva, in the vicinity of which the Piedmontese had an intrenched camp with eight thousand men. The redoubts which covered this camp were, on the 16th, attacked by Augereau, who carried the greater number of them, and thus forced the Piedmontese, during the night, to evacuate Ceva, which Serrurier entered in triumph on the morning of the 17th. Count Colli repulsed Serrurier on the 20th; but Bonaparte, on the 22d, defeated the Sardinian general at Mondovi, and there decided the fate of Piedmont. The beaten army endeavoured to make a stand at Fossano, whilst its wings rested on Coni and Cherasco; but on the 25th the latter place was taken by Massena, Fossano by Serrurier, and Alba by Augereau.

Armistice with Sardinia.

Previously to these movements, however, Count Colli had requested an armistice, which General Bonaparte granted, on condition that the fortresses of Coni, Ceva, and Tortona should be given up to him, with their magazines and artillery, and that he should have permission to cross the Po at Valentia. The armistice was signed on the 29th of April, and a definitive treaty was concluded at Paris on the 17th of May. The conditions, in as far as they concerned his Sardinian majesty, were unquestionably humiliating. The duchy of Savoy was given up to France, as were also the counties of Nice, Tende, and Breteuil; an amnesty was granted to all his subjects who had been prosecuted for political opinions; and it was agreed that the French troops should have free access to Italy through his territory. His Sardinian majesty also bound himself not to erect fortresses on the side of France, to demolish those of La Brunette and Suza, and to confess that his conduct to the last ambassador of the Republic had been disrespectful.

In the mean time, the republican army advanced towards the Po. Deceived respecting the article of the armistice which stipulated permission to Bonaparte to pass the river at Valentia, Beaulieu, concluding that the republican chief seriously intended to cross at that place, made every possible preparation to oppose him; whilst Bonaparte rapidly penetrated into Lombardy, and on the 7th of May was sixty miles down the river towards Piacenza before the enemy had obtained information of his march. He passed the river without difficulty. Six thousand infantry and two thousand cavalry were dispatched by Beaulieu, when it was too late, to oppose the passage of Bonaparte across the river; but they were met and defeated on the following day, near the village of Fiombio, whilst five thousand more who had advanced to their assistance were repulsed by Laharpe. On the 9th an armistice was granted by General Bonaparte to the Duke of Parma, on condition of paying two millions of francs, and delivering ten thousand quintals of wheat, five thousand quintals of oats, and two thousand oxen, for the use of the army. The duke likewise consented to give up twenty of his best paintings, to be selected by the republicans.

Victory at Lodi.

Forced to abandon the Po, General Beaulieu crossed the Adda at Lodi, Pizzighettone, and Cremona, leaving some troops to defend the approaches to Lodi. On the 10th, the latter were attacked by the advanced guard of the republicans, who drove them into the town, and pursued them so rapidly that they had not time to break down the bridge on the Adda. The Austrians defended the passage with thirty pieces of cannon, and the republican officers, after holding a consultation, were of opinion that the bridge could not be forced. Bonaparte, however, having addressed his grenadiers, who declared themselves willing to make the attempt, formed them in close column, and, waiting a favourable moment, ordered them to advance. Under cover of the smoke of the enemy's artillery they reached the middle of the bridge unobserved; but the moment they were perceived a tremendous fire of grape and canister shot in a few seconds strewed the bridge with dead bodies. The republican officers, including the general-in-chief, now flew to the head of the column, and, urging on the troops, broke into the Austrian ranks, took the cannon, and forced the enemy to fly in all directions.

All that seems to have been expected from the campaign of Bonaparte in Italy was to induce the different princes and states to abandon the coalition against France, which every one of them had assisted, either with troops or with money and provisions. But this youthful chief far surpassed all that even the most sanguine had anticipated. The occupation of Alessandria, which opens the whole of Lombardy; the demolition of the fortresses of Suza and La Brunette on the side of France; the acquisition of the county of Nice and of Savoy; and the disengagement of the other army of the Alps under Kellerman, which was now rendered disposable; such were the fruits of a campaign of fifteen days, during which six victories had been gained. The king of Sardinia was also detached from the coalition against France, and so humbled and weakened as to be no longer in a condition to occasion any uneasiness to that country. Bonaparte likewise made himself master of Ferrara, Bologna, and Urbino, and granted to his holiness and the Duke of Modena an armistice on the usual terms of large contributions in money, as well as in paintings and curiosities for the national gallery of France. Terrified by his march into the Roman States, the Neapolitan cabinet, in like manner, requested a peace; and Bonaparte agreed to an armistice without any of the humiliating conditions demanded from the other states of Italy. He next proceeded to Leghorn, in order to drive out the English, and confiscate their property; and thus finished the task assigned him before the campaign on the Rhine had commenced. Mantua, it is true, was still in possession of the imperial troops; but that fortress was in a state of siege, and the rest of Italy had submitted to the French Republic.

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With a view to lessen the exertions of the republicans in Italy, the contest was renewed in Germany. General Jourdan was therefore instructed to denounce the armistice, and renew hostilities on the 31st of May. Jourdan at this time had to contend with General Wartensleben, whilst the archduke put himself at the head of the army in the Hundsruck to oppose Moreau on the Upper Rhine. The commencement of the campaign on the part of the French was distinguished by a singular stratagem, employed with the view of drawing the whole of the Austrian forces to the Lower Rhine, that an opportunity might thus be afforded General Moreau of suddenly entering Suabia, and carrying the war into the hereditary dominions of Austria. Jourdan began to make vigorous exertions, and Moreau remained inactive. On the 31st of May the lines of Dusseldorf were abandoned by the left wing of Jourdan's army, under the command of General Kléber, who defeated the Austrians in his march towards the Sieg. Advancing with his centre and right wing, Jourdan forced the Austrian posts on the Nahe, effected the passage of the Rhine, blockaded Ehrenbreitstein, and hastened forward as if he had intended to form the siege of Mayence. As these movements brought the archduke into the perilous situation of having Moreau in his front and Jourdan in his rear, he therefore crossed the river in haste, leaving the fortresses of Mayence and Manheim to retard the advance of Moreau, and attacked the advanced guard of General Jourdan, which, after an obstinate conflict, he forced to retire. Jourdan then withdrew to his former position, and Kléber on the 20th entered the lines of Dusseldorf.

But the archduke had no sooner withdrawn from the palatinate to force Jourdan down the Rhine, than Moreau marched speedily towards Strasburg, so that the hostile armies seemed to be receding from instead of approaching each other. The passage of the river opposite to Kehl was effected by Moreau on the 24th of June; an operation attended with considerable difficulty, owing to a sudden swell, which prevented the Austrians being taken by surprise, as appears to have been the original intention of the republican commander. The intrenchments on the islands occupied by troops were instantly carried at the point of the bayonet, and two thousand six hundred republicans effected a landing on the opposite bank, where they were exposed to the Austrian cannon from the camp of Wilstedt, and also to the fire of the fort. Still, however, they maintained their ground, and even acted on the offensive, until the boats returned with reinforcements, when the fort and redoubts were carried by storm, and the Austrians retreated towards Offenburg.

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In consequence of the archduke's departure to the Lower Rhine in pursuit of Jourdan, and the detachments sent to Italy to check the victorious career of Bonaparte, Moreau was in a condition to enter Suabia at the head of a superior force. On the 26th of June he succeeded in compelling the Austrians to abandon their camp at Wilstedt, and next day proceeded with his army in three columns against another body of fifteen thousand men posted near Offenburg. A strong detachment was sent to their assistance by Wurmser, but the reinforcement was defeated on its march by two republican columns, and Offenburg was evacuated during the night. On the 2d of July a body of the French under General Laroche seized on the loftiest point in the ridge of mountains denominated the Black Forest; and the Austrians were next day, after an obstinate resistance, driven from the pass of Friedenstadt, by which their communication with the emigrants under the Prince of Condé was entirely cut off. On the 8th the Austrians were attacked at Rastadt by the left wing of the republican army, commanded by General Dessaix, and, after a most determined resistance, obliged to retreat to Ettingen.

The archduke now arrived with his army on the Lower Rhine, leaving Wartensleben to check the advance of General Jourdan, who, as soon as he received information of the archduke's departure, resumed the offensive. Kléber, as before, set out from the lines at Dusseldorf, whilst the centre and right wing crossed the Rhine in the vicinity of Coblentz. The French forced the posts of Ukareth and Altenkirchen; the whole army under Jourdan crossed the Lahn on the 9th of July; and next day Wartensleben was defeated with great slaughter, and the loss of five hundred prisoners. On the 12th the republicans entered Franckfort. The two imperial armies were now at no great distance from each other, being in fact in the centre between those of Moreau and Jourdan. Had the archduke, therefore, found it practicable to resist for a time one of these armies, whilst he fell upon the other with the main body of his army, it is not improbable that an end might thus have been put to any further invasion of Germany. But the activity of the republican officers was not to be easily checked, nor could their progress be arrested by any partial exertions. His last resource, therefore, was to give battle to Moreau, which he accordingly did; and the action was obstinately contested on both sides. The French, in their endeavours to force the heights of Rollensolhe, were four times repulsed; but, after a terrible slaughter, they at length succeeded in carrying the position at the point of the bayonet.

In consequence of the loss sustained at the battle of Ettingen, the imperial armies retired eastward, the archduke retreating through Suabia towards Ulm, where he had magazines. At every position of any strength he made a stand, in order, as much as possible, to obstruct General Moreau's advance; whilst Wartensleben, in his retreat through Franconia, offered a similar opposition to Jourdan. The archduke was forced by Moreau to cross the Neckar, and afterwards the Danube, by which means the whole circle of Suabia was in the rear of the republicans; and Wartensleben was obliged to retreat through Aschaffenburg, Wartsburg, Schweinfurt, and to cross the Rednitz, in order to avoid the army of Jourdan, which was pressing on his rear. Jourdan continued his advance until his right wing, commanded by General Bernadotte, reached Neumarck, and his advanced posts Teining; and the main body of the army having pursued Wartensleben beyond the Nab, arrived at Amberg on the 22d of August.

Great alarm in Germany.

The three republican armies under Moreau, Jourdan, and Bonaparte, thus commanded an immense tract of country, extending from the frontiers of Bohemia to the shores of the Adriatic (excepting only a part of the mountains of Tyrol), and caused unspeakable alarm throughout the whole of Germany. The payment of four millions of francs procured a peace for the Duke of Wirtemburg; and the circle of Suabia obtained it on condition of paying twelve millions of livres, and delivering for the use of the army eight thousand four hundred horses, five thousand oxen, a hundred thousand quintals of wheat, fifty thousand quintals of rye, a hundred thousand sacks of oats, a hundred thousand pairs of shoes, and a large quantity of hay. Peace was granted to the Margrave of Baden upon similar terms; and negotiations were also entered into by the Elector of Bavaria and the circle of Franconia, each party offering large sums in order to obtain it; and even the diet of Ratisbon sent a deputation to the republican generals to treat for a neutrality. About the same time Spain concluded a treaty offensive and defensive with France, and in consequence soon afterwards declared war against Great Britain. Bonaparte was still detained in Italy; but had it been in his power to traverse the Tyrol, and reach the Danube, it is probable that the emperor of Germany would have been obliged to accept peace upon any terms which the conquerors thought proper to prescribe. But though abandoned by every member of the coalition except Britain, the pecuniary aid furnished by the latter enabled the emperor to extricate himself from the dangers which surrounded him; with an almost unlimited command of money, one army after another was raised to check the career of Bonaparte in Italy, whilst his German armies were recruited by extensive levies, and by mercenary troops drawn from the states which had made peace with France.

Able conduct of the Archduke Charles.

The Archduke Charles having received strong reinforcements, came to the resolution of encountering Moreau at Umersheim. A battle accordingly ensued, which lasted seventeen hours, when one of the wings of the Austrian army succeeded in gaining about four leagues of territory in the rear of the republican army; but as the archduke had received information that Wartensleben was unable to maintain his ground against Jourdan, he deemed it prudent to retreat, and adopt new measures. On the 17th of August he left General Latour to keep Moreau in check, and crossing the Danube at Ingolstadt, marched to the relief of General Wartensleben, determined with their united forces to fall upon Jourdan. On the 23d he attacked Bernadotte at Teining, and compelled him to retreat towards Nuremberg. The archduke having thus placed himself on Jourdan's right, whilst Wartensleben menaced him in front, the French general was forced to fall back, which he did accordingly on the 24th. The state of the French finances at the beginning of this campaign was such that the armies of Jourdan and Moreau were under the necessity of making the war support itself, or, in other words, supplying their immediate wants by means of requisitions. This was particularly the case with Jourdan's army, which, when it commenced its retreat, suffered nearly as much from the exasperated inhabitants as from the pursuing enemy. The archduke and Wartensleben having effected a junction of their forces, the former was enabled to detach General Nauendorf with reinforcements to Latour, in order to keep Moreau in check, whilst he continued his pursuit of Jourdan towards Würtzburg. Here the French made a stand on the 3d of September, and a severe engagement ensued, in which Jourdan was defeated with great loss, and obliged to continue his retreat during the night. Having crossed the Lahn, he made a feeble resistance, and marched along the banks of the Rhine, till his army on the 17th arrived at Coblentz and Dusseldorf, the points from which it had formerly taken its departure.

Moreau's situation and retreat.

The army of Moreau was now in a situation of extreme peril; yet he maintained his position till the 17th of September, the day upon which Jourdan reached Dusseldorf. But he obviously wavered as to his future movements, and indeed seemed completely at a loss what course to pursue. He made an unsuccessful attempt to arrest the archduke in his pursuit of Jourdan, and frequently attacked, but without effect; on whatever side he moved, the Austrian generals gave way before him. But finding that the retreat of Jourdan was irretrievable, and that Bonaparte was still detained in Italy, he finally resolved to retire. To prepare for this arduous undertaking, he had crossed the Lech, which he suddenly repassed as if fully determined to penetrate further into Austria, and thus compelled Latour to fall back on Lansberg. Having thus obtained a free passage, he commenced his memorable retreat, passing between the Danube at Ulm and the Lake of Constance, whilst Latour continued pressing upon his rear. The defiles of the Black Forest were occupied by numerous bodies of Austrians and armed peasantry, whilst his right flank was harassed by Nauendorf and Petrasch at the head of twenty-four thousand men. To disengage himself he once more turned upon Latour with terrible impetuosity, defeated him, and took five thousand prisoners. He then continued his retreat, checking Nauendorf and Petrasch with the right wing of his army under General Dessaix, whilst the remainder cleared the passages in front, till he reached the Valley of Hell. This pass, which is a narrow defile extending some leagues between lofty mountains, and in particular places not more than a few fathoms broad, he forced with the centre of his army in a mass, whilst the wings opposed the enemy under Nauendorf and Latour; and after incredible efforts he arrived at Fribourg on the 13th of October. The archduke having discontinued the pursuit of Jourdan, now arrived, forced Moreau to abandon all his positions on the Suabian side of the Rhine, excepting the forts of Kehl, and a tête-de-pont at Hunningen. This memorable retreat has been severely censured by Napoleon in his *Mémoires*, dictated at St Helena; but apparently without sufficient reason. His dislike of Moreau seems to have biassed his judgment, and sharpened the edge of his criticism.

As the French frontier was at this time in a defenceless state, the imperial forces took advantage of the circumstance to cross the Rhine at Manheim, and march in different detachments to Weissenberg, Seltz, and Hagenau, almost to the gates of Strasburg, levying contributions and demanding hostages wherever they went. When these detachments were recalled, the archduke formed the resolution of terminating the campaign by the reduction of Kehl and the fortification at Hunningen; but this he found no easy task. Much of the winter was spent by the Austrians in endeavouring to reduce these places; but the French at length agreed to evacuate Kehl on the 10th of January, and the fortification at Hunningen was surrendered in the month of February.

Bonapa victorio in Italy

But although the republicans had experienced considerable reverses of fortune in Germany, yet Bonaparte continued to be victorious in Italy. Having laid the whole of that country under contribution, he had the means of preserving a vigorous and steady discipline over a well-paid army. The great secret of his tactics consisted in keeping his army always in hand, advancing with the utmost rapidity, and operating in masses on the decisive point; a system which could scarcely fail to succeed against that of cordons, to which it was opposed.[1] The style, too, in which he addressed his army before any great action, was well calculated to inspire them with enthusiasm. He knew the soldier, and possessed the invaluable art of awakening in his mind all those feelings which prompt to the performance of daring actions. His address to the army on entering Lombardy is a masterpiece of its kind. "Soldiers," said he, "you have rushed like a torrent from the summit of the Appennines, you have driven back and dispersed all who opposed your march. Your fathers, your mothers, your wives, your sisters, your mistresses, rejoice in your success, and boast with pride of being related to you. But remains there nothing more for you to effect? Shall posterity reproach us with having found a Capua in Lombardy? But I already see you rushing to arms; an unmanly repose fatigues you, and the days lost to glory are lost to your felicity. But let the people be tranquil; we are the friends of all nations, and more particularly of the descendants of the Brutuses, the Scipios, and the illustrious personages whom we have chosen as models. To restore the capitol, to replace with honour the statues of the heroes who rendered it renowned, and to rouse the Roman people, become torpid by so many ages of slavery, such will be the fruit of your victories; they will form an epoch to posterity, and you will have the immortal glory of renovating the fairest portion of Europe. The French nation, free and respected by all the world, will give to Europe a glorious peace. You will then return to your homes, and your fellow-citizens, who, when pointing to you, will say, 'He was of the army of Italy.'"

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[1] Napoleon, when asked what he considered as the most important rule or maxim in the art of war, replied, "Faire douze lieues par jour, combattre, et cantonner ensuite en repos."

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During the early part of the month of July Bonaparte was occupied in commencing the siege of Mantua, a place of which he expected to become master towards the end of the month. In this, however, he miscalculated. Aided by Britain, Austria made great efforts, and poured reinforcements from all points into Italy. Twenty thousand troops were sent from the Rhine; large masses arrived from other quarters; and Italy had once more to be conquered. Bonaparte was therefore obliged to raise the siege, in order to make head against fresh masses descending from the Tyrol to dispute the possession of Italy with the youthful conqueror. On the 29th of July Massena was attacked and driven from his post at La Corona, whilst fifteen thousand Austrians forced the republicans to retire, first from Salo, and next from Brescia, with the loss of all the stores and magazines belonging to the army. The imperial troops, however, committed a fatal blunder in dividing into two columns, separated by physical obstacles, an army which, united, would have been more than a match for the enemy, and thus exposing themselves to be beaten in detail. Of this error the republican chief was fully aware, and did not fail to take advantage of it. He unexpectedly raised the siege of Mantua, and leaving only a small body of troops to keep the Austrians in check, marched rapidly westward, and on the 1st of August retook Brescia, with all the magazines and hospitals. Carrying the mass of his army along with him, he exceeded his enemies in numbers wherever he attacked them. Having formed a large body of his troops into close columns, he awaited the Austrians, who, as yet unacquainted with the new tactics, extended their line with the view of surrounding him. The result was such as might easily have been foreseen. He penetrated their line in all directions, threw them into the utmost confusion, made four thousand prisoners, and took twenty pieces of cannon. A division of the Austrians finding Salo in possession of the republicans, wandered about in quest of a road by which to make their escape, and, believing that the bulk of the French army had marched in search of Wurmser to give him battle, summoned Lonato to surrender. Their belief was well founded, but Bonaparte was still in Lonato, though with no more than twelve hundred men. His situation was no doubt critical, but, with great presence of mind, he threatened to destroy the whole division, for daring to insult the French army, by summoning its commander-in-chief to surrender. Persuaded that the whole army was in the place, the Austrians abandoned all idea of resistance; and by this admirable acting on the part of Bonaparte, four thousand men were induced to lay down their arms.

at of mser.

On the 5th and 6th Wurmser was attacked by Bonaparte, and driven from Peschiera and the line of the Mincio. But on the 7th the Austrians were obliged to abandon Verona, and again to betake themselves to the mountains of Tyrol; losing in a contest of a few days upwards of twenty thousand men, three fourths of whom were prisoners. The siege of Mantua was again undertaken by the French; but as their works had been destroyed by the enemy in their absence, and the cannon which they had left behind taken into the city, the French could not undertake a regular siege; and by the beginning of September Wurmser was in a condition to attempt the relief of the place. Informed of his approach, Bonaparte left a division to maintain the blockade of Mantua; and, directing his march northward with the main body of his army, drove the Austrians from Santo Marco and Roveredo to the pass of Calliano. Here however they made a stand, and an engagement ensued, in which the Austrians were defeated with the loss of six thousand prisoners, upon which the French entered Trent in triumph. But instead of retiring, Wurmser threw himself into Bassano, upon the flank and rear of Bonaparte, and then marched with great rapidity towards Mantua. He endeavoured to make a stand at Bassano, but was defeated with the loss of five thousand prisoners. He then crossed the Adige at Porto Legnago, and entered Mantua with no more than eight thousand five hundred men, infantry and cavalry. The loss which Wurmser had sustained was great beyond example, but still it had the effect of detaining Bonaparte in Italy to watch the numerous garrison of Mantua. He expected that, owing to its numbers, famine would soon reduce it to the necessity of capitulating; but the flesh of more than four thousand horses, which Wurmser carried into the place, afforded the troops subsistence for a considerable time, and enabled the gallant veteran to signalize himself by as brave a defence as any on record.

Battle of Arcole.

The emperor now endeavoured to relieve Mantua, by sending another army into Italy under the command of General Alvinzi. But having crossed the Piava, Alvinzi was met by the republicans, and compelled to repass that river. Davidovich, however, having with his division driven the French down the Adige towards Verona, Bonaparte found it necessary to concentrate his forces. Leaving General Vaubois to keep Davidovich in check, he therefore marched in person against General Alvinzi, and came up with the Austrians in position at the village of Arcole. But as the village could not be speedily turned, on account of a canal, the French were obliged to attempt the passage of a narrow bridge under the fire of the whole Austrian army. Their officers rushed to the head of the column, and in vain endeavoured to urge the troops to advance. Augereau rushed to the end of the bridge with a standard, but he was followed by no one. At length the general-in-chief hastened to the bridge, and exclaimed, "Grenadiers, follow your general;" the soldiers followed till within thirty yards of the bridge, when they became intimidated by the tremendous fire of the Austrians, and Bonaparte judged it prudent to withdraw the troops. In the evening General Guieux carried the village at the head of two thousand men, but the Austrians again recovered possession of it. On the 16th of November a desperate engagement took place in the vicinity of Arcole; but next day the Austrians, whilst pressing on the centre of the republican army, were unexpectedly taken in flank by the left wing of the French army, which was lying in ambuscade. Bonaparte having sent into their rear a party of horse with twenty-five trumpeters, the Austrians concluded from the noise that they were surrounded, and fled in all directions in the utmost confusion. Having driven Alvinzi across the Brenta, Bonaparte resumed the positions of Rivoli and La Corona, and Davidovich was driven back into Tyrol. Wurmser still defended Mantua, which held out during the remainder of the year; but with these operations the campaign in Italy terminated.

Whilst such was the fortune of the field of battle, Great

Negotiations between Britain and France.

Britain made an attempt to negotiate with France. Passports were obtained from the Directory, and Lord Malmesbury set out as ambassador to Paris. He commenced negotiations with Lacroix, the minister for foreign affairs; but his lordship soon discovered, or fancied he discovered, that the Directory had no serious intention of concluding a peace with Britain. As individuals, the British ministry did not approve of a peace at this time, yet officially they considered it as prudent to treat; that is, they sought from policy, what they had no desire, either from interest or inclination, to obtain. It was proposed by Lord Malmesbury, that the principle of mutual restitution should be agreed upon as the basis of the treaty; but the Directory desired that specifications should be made. Lord Malmesbury therefore proposed that the French should give up the Austrian Netherlands, in return for which Britain, he said, would consent to give up the foreign settlements belonging to the Republic which had been taken during the war. Many of the Dutch possessions abroad would also be relinquished, on condition that the authority of the stadtholder was acknowledged. His lordship was next required to give in the ultimatum of his government in twenty-four hours; and when he complained of this demand, he was informed, on the 19th of December, that the Directory would agree to no conditions repugnant to the French constitution, and that his further residence was unnecessary. During this year Great Britain maintained her accustomed superiority on the ocean. On the 16th of September 1795 the Cape of Good Hope was taken by Admiral Elphinstone; but as the Dutch were extremely anxious to recover this settlement, they advanced money to the French to enable them to fit out a squadron destined to co-operate in an attempt to reduce it. Seven ships of the line were accordingly sent out for this purpose, under the command of Admiral Lucas; but the latter having been caught between two fires, found it impossible to escape, and therefore surrendered to the British admiral without firing a gun.

Unsuccessful attempt on Ireland.

But although Britain maintained her superiority by sea, yet an invasion of Ireland was attempted by the French in the end of 1796; but as folly seemed to have concerted the scheme, it consequently proved abortive. The command was intrusted to General Hoche, without any second in command to take his place in the event of accident. The disaffected party in Ireland had received no information of the approach of the expedition, and the fleet was sent towards a part of the country where the people were not much disposed to receive them. In this expedition eighteen sail of the line, thirteen frigates, twelve sloops, and transports with twenty-five thousand men, were employed; but it was detained for some time when ready for sailing, in consequence of a mutiny. Hoche set sail on the 10th of December, but in working out of Brest a ship of the line was lost, and some others were considerably damaged. The frigate which had on board the commander-in-chief was separated from the fleet in a gale of wind, and when the latter arrived at Bantry Bay, it found itself without instructions. The officers and troops desired to disembark, but Admiral Bouvet refused to comply with their wishes. After remaining for some days on the coast, he sailed for France, and on the 31st reached Brest with part of the fleet. General Hoche reached Bantry Bay when it was too late, and consequently could not land. One ship of the line and two frigates foundered at sea, a frigate was captured by the British, and a ship of the line was run ashore to prevent her being taken.

Advantages gained by the Austrians.

In the beginning of the year 1797 the Archduke Charles was still employed in endeavouring to reduce Kehl and the fortifications opposite to Hunningen. Moreau continued his opponent. Hoche succeeded Jourdan on the Rhine; and Bonaparte was still occupied with the siege of Mantua, whilst powerful efforts were making to reinforce the army of Alvinzi. The youth of Vienna were requested to lend their assistance, and six thousand of them volunteered their services for Italy. By these and other means Alvinzi's army was augmented until it became fifty thousand strong; and with this force he menaced the republicans in all directions, in order to conceal from them the plan of his future operations. Bonaparte was at Bologna, to prevent the escape of Wurmser in that direction, when, receiving information of the approach of the Austrian army, he hastened to Mantua, and thence proceeded to Verona, where the centre of his line had already come to blows with the Austrians; but as they continued to attack on all points at once, he was as yet unable to penetrate the design of Alvinzi. On the 13th of January, however, the movements of the enemy became more serious upon the lower part of his line, near Porto Legnago; but having been informed in the evening that the upper extremity under Joubert had been attacked by greatly superior numbers, he concluded that the Austrians were there in greatest force. Notwithstanding all the lessons they had already received, the Austrians still persisted in dividing their army; experience had not yet taught them to correct an error which was soon to entail the same destruction on this as on former armies. Ten thousand troops, including the Vienna volunteers, received orders to proceed to Mantua by Porto Legnago, whilst Alvinzi in person advanced against Joubert, who was forced to retreat, and in fact reduced to such a situation that the capture of his whole division on the following day (the 14th) seemed highly probable.

Defeat o the Aus trians.

Bonaparte having received information as to the real state of affairs, left Verona on the 13th, having ordered Massena to follow him with the centre to Rivoli as fast as possible. On the 14th, at the break of day, the division of Joubert attacked the Austrians, a circumstance which much surprised them, ignorant as they were that Bonaparte had arrived with reinforcements. But the superior numbers of the Austrians baffled all the endeavours of the French troops to turn their divisions; and the two wings of the republican army were forced back upon the centre in considerable confusion. Alvinzi encountered the centre, which with difficulty maintained its ground; and the Austrian wings advancing on both sides, entirely surrounded the French. The victory seemed already won, and it is even reported that Alvinzi had sent a courier to Vienna to announce the approaching capture of Bonaparte and his army. But the tide was already at the turn. Forming his troops in three strong columns, Bonaparte led them against the right wing of the Austrians, which they penetrated at various points, and forced to fly in such confusion that four thousand Austrians laid down their arms to a party of republicans which had not arrived in time to join the army, and surrendered themselves prisoners of war. Bonaparte, perceiving that this part of his line was no longer in danger, left Joubert to prosecute the victory, and proceeded to oppose the march of Provera. A detachment under General Murat having continued their march during the whole night of the 14th, seized on Montebaldo in the rear of the position at La Corona, to which part of the Austrians retreated; and on the following morning Joubert attacked them in front. Thus surrounded, they were thrown into confusion, six thousand were taken prisoners, and numbers perished in attempting to cross the Adige.

During this bloody conflict on the upper part of the Adige, Provera forced his passage across the lower part of the river, near Porto Legnago, and obliged the republican general Guieux to retreat towards Ronco. But as Provera was marching rapidly to Mantua, Augereau came up with his rear, and made two thousand prisoners; notwithstanding which the Austrian general on the 15th reached the neighbourhood of that city, which was blockaded at St George and La Favourite. The Austrian general summoned the republican commander to surrender; but the latter having refused to comply, Provera endeavoured, without success, to carry it by assault. He next made an attack upon La Favourite, and was seconded by Wurmser with the troops in the garrison, who had observed his arrival; but as Bonaparte had by this time arrived with reinforcements, Wurmser was defeated, and Provera being surrounded by the French, surrendered both himself and his troops as prisoners of war. In consequence of these engagements at Rivoli and Mantua, the Austrians lost twenty-three thousand prisoners and sixty pieces of cannon. The surrender of Mantua had now become inevitable, and in fact it capitulated from famine on the 2d of February. That the French emigrants might escape, Bonaparte allowed Wurmser to select and take out of the garrison seven hundred men, who were not to be examined nor viewed as prisoners of war; and the general himself was permitted to depart unconditionally.

he pope's rces sub- ued.

The most active and vigorous preparations were now making both by the emperor and the French to recommence the contest on the German frontiers; and it was therefore of importance that Bonaparte should leave Italy in his rear in a state of tranquillity. On the 1st of February he sent General Victor with the legion of Lombardy to enter the papal territories; and after the surrender of Mantua, he himself followed in person. The Lombard legion, after storming the position occupied by the papal troops, made a thousand of them prisoners, and took all their cannon. General Colli had carried away most of the treasure from the chapel at Loretto; but the republicans still found articles of gold and silver worth a million of livres, and the image of the virgin was sent to Paris as a curiosity. At Tolentino the republican chief was met by a messenger from his holiness, with overtures of peace; and on the 19th a treaty was concluded, by which the pope promised to pay fifteen millions of livres, and to deliver eight hundred cavalry horses, with an equal number of draught horses and oxen. He also agreed to pay three hundred thousand livres to the family of the French ambassador Basseville, whom the rabble had murdered at Rome, and to make an apology through his minister at Paris for that outrage against the law of nations and of humanity.

einforce- nts sent Bona- rte.

The French having proved unfortunate in their invasion of Germany through Suabia and Franconia, now determined to make their principal attempt from Italy under the command of General Bonaparte. Considerable bodies of troops were therefore detached by the Directory from the divisions which had served under Moreau, and sent as secretly as possible towards Italy by the way of Savoy. The impending danger was however perceived by the court of Vienna, which accordingly conferred the command on the side of Italy on the Archduke Charles, the only Austrian general who had hitherto been successful against the republicans. The war was now about to be carried into territories where a foe had scarcely ever been seen by the house of Austria. It was necessary that Bonaparte should once more force his way across the Alps; that he should carry the war into that immense chain of mountains which, rising in the neighbourhood of Toulon and stretching northward, obtains the names of Piedmont and Savoy, and which, taking an easterly direction, forms the countries of Tyrol, Carinthia, and Carniola, and on the side of the Adriatic constitutes the frontier of the hereditary states of Austria. As to the fertile and level tract which belonged to Venice, it is situated between the mountains and the sea, and is crossed by many streams, which are increased by the melting of the Alpine snows, and the peculiar characteristic of which is, that they are greatest in summer and least in winter. But the archduke, instead of being ordered to make a stand in the defiles of the mountains, was sent into the plain to guard the passages of the rivers; a blunder which entered into the whole plan of defence adopted by the council of war at Vienna.

Progress of Bonaparte's army.

Whilst Bonaparte advanced into the territories of the pope, the Austrian army was assembling on the eastern bank of the Piava. The republicans were on the opposite side of the river, and Bonaparte, after quitting the papal territories, hastened to join them. Having effected the passage of the Piava on the 12th of March, the Austrians retired, skirmishing for some days, till they crossed the Tagliamento, where they halted and concentrated their whole force. On the 17th the republican army reached Valvesone, on the opposite bank of the river, and after some hesitation determined to force the passage. The stream had been diminished by the frost, and though the banks were high, the operation seemed practicable. After some sharp fighting, the French accordingly crossed the river in columns at different points. Joubert, with the left wing, then received orders to pass along the valley of the Drave, beyond the highest chain of the Noric Alps; Massena, at the head of the centre division, entered the defiles of these mountains; and the right division, commanded by Bonaparte, marched along the coast of the Adriatic. On the 19th the town of Gradisca, situated on the river Isonzo, surrendered to the right wing of the army; and its garrison, consisting of three thousand men, were made prisoners of war. On the 21st the same division entered Goritz, where it found the principal magazines and hospitals belonging to the Austrians. Trieste was taken on the 23d, and quicksilver, worth two millions of livres, was sent off by the French from the mines of Idria. On the 24th a large body of Austrians was kept in check by Massena and part of the right wing under General Guieux; but having procured reinforcements from the archduke, they engaged the French next day, and were defeated with the loss of five thousand prisoners and from three to four hundred baggage waggons. Equal success attended the left wing under Joubert, Baraguay-d'Hilliers, and Delmas. Four thousand prisoners were taken on the banks of the Lavis, and the enemy was defeated at Clauzen with the loss of fifteen hundred men. This division then directed its march eastward, along the valley of the Drave towards Clagenfurt, the metropolis of Carinthia, where it was met by General Massena, who had obliged the archduke to evacuate his head-quarters, and to fall back in order to cover the capital of the empire, which was now seriously threatened. Thus in fifteen days General Bonaparte had effected the passage of the Alps, taken twenty thousand prisoners, and arrived within twenty-four leagues of Vienna, which was thus completely exposed. Yet his own situation was not free from danger. The rapidity of his advance had rendered it impossible to take the necessary measures for protecting his line of communications; a hostile population hung upon his rear; a continued success could alone enable him to maintain his advanced positions, and the slightest reverse might lead to ruinous consequences. Bonaparte, therefore, prudently embraced the present moment of unprecedented success to make overtures of peace. On the 31st of March he wrote to the archduke, deprecating the continuance of the war, and entreating him to use his influence for putting a period to its ravages. But the prince replied evasively, that it did not belong to him to investigate the principles on which the war was carried on, and that he had no power to negotiate.

In the mean while the Austrians raised the peasantry of the Tyrol to harass the rear of the French army, and in consequence gained some advantages under Laudohn, who drove back the republican troops which had been left at Botzen and Brixen. The people of the Venetian states also rose against the troops which had been left amongst them, and, with the assistance of ten Sclavonian regiments, murdered every Frenchman they could find, not sparing even the sick in the hospitals, of whom five hundred were massacred at Verona. The Austrians now attempted to surround the invading army; but Bonaparte knew that the embarrassment of the court of Vienna was at least equal to his own. He was at the head of a body of men hitherto irresistible; and to surround his army was not to vanquish it. For these reasons he continued his advance, and on the 2d of April, after a bloody conflict, forced the strong defiles between Freisach and Neumarck, making six hundred prisoners. On the 4th his advanced guard reached Hunsmarck, where they again defeated the Austrians. The cabinet of Vienna, finding that there was now no place where the army of the archduke could make a stand, till it reached the mountains in the vicinity of the capital, thought it high time to treat for peace. With this view, therefore, Bellegarde and Morveldt requested a suspension of hostilities, to which the French commander consented, on condition of obtaining possession of Gratz and Leoben, about fifty miles from Vienna. This was on the 7th of April, but the armistice, which would have expired on the 13th, was afterwards renewed for a longer period. On the 19th a preliminary treaty was signed, by which the French were to retain the Austrian Netherlands, and the whole of Lombardy, now called the Cisalpine Republic, comprehending the Milanese, Mantua, Modena, Ferrara, and Bologna. Bonaparte consented to return to Italy, on condition that his army should be supplied with provisions during its march; and all further disputes were to be settled by a definitive treaty of peace. The overthrow of the Venetian government, which had so long been in a state of helpless decrepitude, speedily followed the signature of the preliminary treaty of Leoben. Bonaparte had for some time meditated the dismemberment of the Venetian states, and a pretext was now afforded him for carrying this design into execution by the insurrection and massacre above adverted to. He saw his advantage, and promptly seized it; announced that the hour of Venice was now come; declared war against the unfortunate city of the sea; brought up cannon to the edge of the lagoons; and by menaces of retaliation compelled the senate and the doge to pass a decree dissolving their ancient constitution, and establishing a kind of municipal democracy in its stead.

Peace between France and Austria.

During the approach of Bonaparte towards Vienna, the republican armies on the Rhine were pressing hard on the Austrians, to prevent their sending reinforcements to the archduke. An armistice was offered by the Austrians, but as the French required Ehrenbreitstein as a guarantee, both parties resolved to prosecute the war. The left wing of the army of General Hoche marched from Dusseldorf, whilst the centre and right wing crossed the Rhine near Coblentz. On the 18th of April a fierce contest took place between the hostile armies near the Lahn, in which the Austrians were beaten with the loss of four thousand prisoners. General Moreau having forced the passage of the Upper Rhine near Strasburg, attacked and carried the village of Diersheim; and next day the conflict was renewed with such vigour on the part of the republicans, that the fort of Kehl was taken, and five thousand Austrians were made prisoners. The French then advanced, and the Austrians were retiring towards the Danube, when all military operations were suspended, in consequence of intelligence received from the archduke and Bonaparte, that peace had been concluded. On the arrival of this intelligence, the army of General Hoche was making an attack upon Franckfort-on-the-Maine, which General Warnecht was employing every effort to defend. Both armies received the news about the same time, upon which the troops threw down their arms, and congratulated each other on the happy event.

Chang the Di tory; of part

A contest of a serious nature was now fast approaching between the legislative and executive branches of the French government. The time had arrived when a third part of the legislative body was to be changed. On the 19th of May Letourneur went out of the Directory by lot; on the 20th the new third took their seats; and on the 21st Barthélèmy was chosen a member of the Directory in the room of Letourneur. Pichegru, Jourdan, and Willot, were amongst the members of the new third, so that a decided majority of both councils was of the moderate party; and two members of the Directory, Carnot and Barthélèmy, were understood to be men of the same description. The old conventionalists, therefore, employed every means which seemed calculated either to render the Mountain party odious, or to embarrass the Directory. On the 14th of June Gilbert Desmolières brought up a report from a committee on the state of the finances, in which he inveighed against the prodigality of the Directory, and censured in the strongest language the conduct of its agents. On the 18th the same committee proposed a new plan of finance, which went to deprive the Directory of the administration of the public money. On the preceding day Camille Jourdan had presented a report of great length on the subject of religion, in which he insisted on the impropriety of forbidding its ceremonies to be publicly displayed, and the iniquitous nature of that persecution which its ministers had suffered because they could not take the oaths prescribed by the legislature. On the 15th of July the Council of Five Hundred decreed that all the laws against refractory priests should be repealed; and on the following day a decree, requiring from them an oath of fidelity to the constitution, was carried by a majority of no more than six members. Eméry, a new member, proposed the repeal of the laws by which the property of emigrants had been confiscated and their relations declared incompetent to succeed them. The discussion which these topics underwent made the Directory and the Councils professed enemies to each other. The Councils wished the Directory to be changed before the expiration of the legal time, and the Directory desired to deprive of their seats many new members who had been elected by the people. As Barras was upon the whole the most obnoxious member of the Directory, an effort was made to deprive him of his seat, on the pretence that he was less than the legal age of forty; but his colleagues maintained that he had been born in the year 1755, and no proof of the contrary could be produced. Still the Directory did not want a number of adherents. The resolution of the Councils in favour of the priests had the appearance of a counter revolution, which induced the royalists to resume courage, and journals were rapidly published in defence of their cause. On the 20th of July the Councils received information that a division of the army under Hoche was within a few leagues of Paris; whilst the constitution declared that the Directory incurred the penalty of ten years imprisonment, if it brought troops any nearer the residence of the legislative body, without its consent, than twelve miles. An explanation was demanded and given; the Directory declared their ignorance of the march, which they said had been undertaken without orders from them, and owing to a mistake on the part of the officer by whom it was conducted; but the Councils paid no regard to an allegation which they evidently disbelieved. The turbulent suburb of Saint Antoine adhered to the majority of the Directory; and this encouraged them so much that they lost no time in proceeding to action.

General Augereau had been sent from Italy, upon the pretence of delivering to the Directory some standards taken from the enemy. On the morning of the 4th, the Tuileries was surrounded by a division of the troops, under the command of this officer; the guard of the Councils refused to act against them, and Ramel their commander was made prisoner. On entering the hall, Augereau seized Pichegru and twelve more of the chiefs of the opposite faction, whom he immediately sent prisoners to the Temple. Carnot made his escape on the preceding evening; but Barthélemy remained, and was put under arrest. When several members of the Councils came to the hall at the usual hour, they were astonished to find that seals had been put upon the doors, and that they could not obtain admittance. They were ordered to go to the Surgeons' Hall, where the Directory, it was said, had appointed them to meet; but of both Councils not more than a hundred and twenty members assembled, who, however, sent to obtain from the Directory an explanation of the proceedings which had just taken place. They were given to understand, that what had been done was absolutely necessary for the salvation of the Republic, and the Councils were congratulated on their escape from the machinations of the royalists. According to the report of Boulay de la Meurthe, a great royalist conspiracy, the centre of which was in the bosom of the Councils, was endeavouring to subvert the constitution; but, by the indefatigable diligence and activity of the Directory, it had been defeated. It was proposed to banish the conspirators without a trial, and the Councils were so completely imposed upon, that they voted the deportation of fifty-three of their own members, and twelve other persons, amongst whom were the directors Carnot and Barthélemy. During these transactions the city of Paris remained tranquil. The unfortunate issue of the struggle on the 5th of October had so completely subdued the ardour of the inhabitants, that they suffered the national representation to be violated with impunity, and saw liberty trampled under foot, without a single exertion in its defence. The Directory excused their conduct to the nation, under pretence of the existence of a royalist conspiracy. Pichegru, it was said, had offered to join the emigrants under the Prince of Condé, and the Austrians under Wurmser, and, at the head of this aggregate force, to march directly to Paris, and re-establish the monarchy. Moreau was also implicated in this conspiracy, but, as is alleged, saved himself by betraying his accomplice.

eaty of mpo rmio.

The Directory were now powerful; but its members soon became giddy from the elevated nature of their situation, and seemed to act under the dangerous conviction that there was nothing in which they might not venture to engage, however great might be their ambition or rapacity. Whilst contending with the councils, they prolonged the negotiations with Lord Malmesbury; and, what is more extraordinary, acted in a similar manner respecting those which had been entered into between Bonaparte and the imperial ambassadors at Campo Formio. But the negotiations with the emperor were at length terminated, and on the 17th of October a definitive treaty was signed at Campo Formio. The Netherlands were given up to the French Republic, and the Milanese to the Cisalpine Republic; whilst the imperial territories in the Brisgau were surrendered to the Duke of Modena, as a compensation for the loss of his duchy in Italy. It was likewise agreed by the emperor that the French should possess the Venetian islands in the Levant, Corfu, Zante, Cephalonia, Santa Maura, Cerigo, and others; and, on the other hand, the emperor was to have the city of Venice, with its remaining territory, from the extremity of Dalmatia, as far as the Adige and the Lake of Garda. The Austrians accordingly withdrew from the bank of the Rhine, and the republicans were thus enabled to retake Mayence and Ehrenbreitstein. Venice was at the same time entered by the Austrians; and Bonaparte, when about to take his departure from Italy, left twenty-five thousand men to garrison Mantua, Brescia, Milan, and some other places, and to retain the Cisalpine Republic in a state of dependence upon France.

Naval successes of Britain.

At this time the empire of the seas was so completely possessed by Britain that the republican fleets lay blockaded in their own ports during the greater part of the year. But as the expedition against Ireland had completely failed, the Directory were at a loss how to dispose of the galley slaves who had formed part of Hoche's army. It would have been cruel to send them back to punishment; the troops refused to serve with them in the army; and by the new laws of France they could not receive a pardon, neither was it prudent to set so many criminals at liberty. To get rid of the difficulty, the Directory at last determined to send them over to England; and these criminals, to the number of about twelve hundred, were landed from two frigates and some small vessels on the coast of Wales, with muskets and ammunition, but destitute of artillery. On the evening of the day on which they landed, however (the 23d of February), they were made prisoners by a party of militia, yeomanry, cavalry, colliers, and others, under the command of Lord Cawdor. But although the navy of France continued in port, and therefore out of danger, the Spanish and Dutch allies of that country sustained serious losses by sea. A Spanish fleet of twenty-seven sail of the line, opposed to a British fleet of only fifteen sail under Sir John Jervis, was completely defeated off Cape St Vincent on the 14th of February. The Spanish fleet was on its way to Brest to effect a junction with the French fleet; but by the victory of Jervis this object was rendered unattainable. The Dutch were, if possible, still more unfortunate. Admiral Duncan having blockaded the Texel, where their fleet lay during the summer, a resolution was at length adopted to risk an engagement; and De Winter received positive orders to put to sea. Admiral Duncan was at this time refitting at Yarmouth; but on receiving intelligence that the Dutch fleet had sailed, he immediately put to sea in quest of the enemy, and on the 11th of October came up with their fleet, consisting of a force rather inferior to his own. The British admiral having carried his fleet through the enemy's line, commenced the attack between them and their own coast, about nine miles from Camperdown. The conflict lasted three hours, at the end of which time the greater part of the Dutch fleet had struck. Eight ships of the line, two of fifty-six and one of forty-four guns, were taken, besides a frigate, which was afterwards lost near the coast of Britain. See article BRITAIN.

Disturbances at Rome.

After the ratification of the treaty with the emperor at Campo Formio, Joseph Bonaparte was sent to Rome as plenipotentiary of the French Republic. The pope having now no expectation of foreign assistance, submitted to the demands for the reduction of his troops, and the liberation of every person confined in prison on account of political opinions. But on the 26th of December 1797, three men waited upon the ambassador, and requested the co-operation of France in bringing about a revolution which a party at Rome was anxious to effect. He refused to countenance the project, and did every thing in his power to dissuade them from embarking in such an enterprise; but unfortunately he neglected to communicate the intelligence to the papal government. On the 28th, however, he went to the cardinal secretary, and showed him a list of persons under his protection who had a legal authority to wear the tricolor cockade; he at the same time consented that all others wearing it should be punished; and he offered to give up six of the insurgents who had taken refuge in his palace. In the evening of the same day, a most serious tumult, in its origin not altogether unknown to his holiness, happened in the courts and vicinity of the French ambassador's palace, and the governor of the city endeavoured to disperse the rioters by parties of cavalry and infantry. But in attempting to induce the military to desist from firing upon the people, General Duphot, who belonged to the French mission, was shot by a petty officer belonging to the troops of his holiness. As soon as the Spanish ambassador received information of this event, he sent to the cardinal secretary, and protested against this daring violation of the privileges of plenipotentiaries. The palace of the French ambassador was still surrounded by the military, when he demanded his passports, which were granted, accompanied by many protestations of the innocence of government, and its sorrow that such an unfortunate occurrence should have taken place. Joseph Bonaparte retired to Florence, and thence proceeded to Paris. The protection of Austria, Spain, Naples, and Tuscany, was earnestly solicited by the pope; but all these powers seemed disinclined to interfere in behalf of the pontiff. General Berthier experienced little or no opposition on his march to Rome, where he subverted the dominion of the pope, proclaimed the sovereignty of the Roman people, and caused the tree of liberty to be planted on the very day on which the anniversary of the pope's election was being celebrated. Whilst in the Sistine chapel receiving the congratulations of the cardinals, the commissioner-general, and Cervoni, who commanded the troops within the city, entered the chapel during the ceremony, and announced to the sovereign pontiff that his reign was at an end.

Conquest of Switzerland.

But scenes of a different and more sanguinary character were in the mean time exhibited in Switzerland, a country which had preserved its neutrality during the conflict between France and the combined powers. About the end of the year 1797, an insurrection broke out in the Pays de Vaud, a district subject to the canton of Berne. This occurrence showed the government its critical situation, and induced it to issue a proclamation on the 5th of January 1798, requiring the people of the Pays de Vaud to appear in arms, renew their oath of allegiance, and reform all abuses. A commission of the senate of Berne was also empowered to examine every complaint, and redress every grievance; but their motions were considered as too tardy by popular impatience, and the insurgents endeavoured to make themselves masters of the strong places. Troops were sent against them by the government of Berne; but General Weiss having acted with hesitation, a body of republicans appeared under General Menard, who sent an aid-de-camp with two hussars to negotiate with Weiss. As the messengers returned, however, one of the hussars was killed, most probably by accident; but this circumstance was instantly magnified into a horrid breach of the law of nations. The French, therefore, continued to advance, and by the end of January were masters of the whole of the Pays de Vaud. The government of Berne, whilst it used every effort to maintain peace, prepared for war. But a truce was entered into with General Brune, the successor of Menard, and those who had killed the hussar were delivered up. An army of twenty thousand men was collected, the command of which was given to D'Erlach, once a field-marshal in the service of France. But disaffection prevailed in this army, and the people were far from being united amongst themselves. Of this the French were well aware, and therefore they demanded a total change of government. On the other hand, D'Erlach, apprehensive of a still greater defection in his army, requested permission to put an end to the armistice. The French now refused to negotiate, and on the 2d of March General Schawenberg took possession of Soleure at the head of thirteen thousand men; whilst Brune afterwards made himself master of Friburg, and forced the Swiss army to retreat. The government of Berne, now greatly alarmed, decreed the landsturm, or rising in mass, which the ancient customs of the country justified in the time of necessity. The people assembled, dissolved the government, and offered to dismiss the army, if the republican troops would retire. But this offer was rejected, except upon the condition of admitting a French garrison into Berne, and therefore the Swiss continued to advance. About six thousand of the army of D'Erlach had deserted, leaving him at the head of little more than fourteen thousand men; and although the rising had abundantly supplied him with numbers, yet raw and undisciplined levies, however numerous, were of little avail against veteran troops, and he was not allowed time to give them any thing like regular organization. He was accordingly attacked on the 5th of March, and driven from Newenbeg and Favenbrun; but having rallied his troops, he made a stand for some time at Uteren. The conflict was renewed at Grauholtz, whence the Swiss were driven four miles nearer the capital; and being at last completely defeated, they in a fit of fury and despair murdered many of their officers, amongst whom was their commander-in-chief. Berne capitulated to the French, and the more wealthy and populous states followed the example; but the poorer cantons made a vigorous effort to preserve their small possessions, and the independence of their country; they compelled Schawenberg to retire with the loss of three thousand men, but were at last totally vanquished by the superior skill and numbers of the republican army. The public magazines were plundered, and a new constitution, modelled on that of France, was forced upon them.

Conduc the Di tory.

As the Directory had made no scruple of violating the independence of other nations, it was but reasonable to expect that they would pay little regard to the liberties of their own. A third of the legislature was changed in the month of April; one member of the Directory also went out by ballot, and Treilhard was chosen to succeed him. Nothing was left unattempted by the Directory to influence the elections in favour of their friends; but their success was not commensurate with their exertions. On the 2d of May, they made a complaint to the Council of Five Hundred, of alleged royalist plots, by means of which it was said that the elections had been made to fall on persons who were inimical to the interests of the Republic; and on the 7th it was proposed by the committee which reported on the message of the Directory, that many electoral assemblies should be annulled. But General Jourdan opposed this plan, as incompatible with the freedom of election, and as proceeding upon the supposition of conspiracies the existence of which was not proved, and which most probably had no existence at all.

Threat invasion

After peace had been proclaimed between France and Germany, the Directory made no secret of their determination to attempt the invasion of Great Britain. Whether this project originated with Bonaparte himself, or was intended by his kind friends of the Directory as a snare for him and his victorious army, is a matter which our readers must be left to determine for themselves. It appears, however, that soon after the return of Bonaparte to the capital, where the Directory received him with all imaginable splendour, an army was offered him by the government, with which to invade England; and it is also certain that he accepted the command. Barras, indeed, told him not to repose on his laurels, but to prepare for undertaking the conquest of the bitterest and most formidable enemy of the Republic; a mission, however, which it was somewhat more easy to confer than to execute. This came eventually to be the opinion of the general himself; after calculating all the chances, he thought it possible to gain a battle on British ground, but quite hopeless to maintain a footing in that country. But England, though invincible on her own soil, might be deeply wounded through her commerce and her colonies;

these he considered as the principal sinews of her strength; and if he could divert in different channels the main branch of the one, and seize upon the most important of the other, he doubted not that he would thereby effectually humble the haughty island. Impressed with the common but groundless notion that Britain derived incalculable resources from her Indian dominions, and conceiving that commercial superiority must ever belong to the nation which is possessed of the safest and readiest communications with the East, Bonaparte thought of restoring the trade of India to its ancient channel through Egypt and the Levant. With such views he contemplated the seizure and conquest of the former, as the first step towards the realization of his design; and this once effected, he conceived that, proceeding from Egypt as from a place of arms, he might march towards the Euphrates, and in less than four months reach the Indus, there to dispute with the English the possession of that country whence he supposed they derived their inexhaustible resources. An expedition to Egypt was therefore resolved on, with the full concurrence of the Directory, who were delighted to be rid of a too fortunate soldier, and to the great satisfaction of Bonaparte himself, whose imagination seems to have been carried away with the idea of perhaps founding an eastern empire.

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pedition
Egypt.

This resolution, however, was kept a profound secret, and every artifice employed to mislead the English as to the real destination of the intended expedition. Threats of invasion were therefore studiously reiterated, and matters were so contrived as to give to the necessary preparations, which could not escape observation; an appearance calculated to confirm the idea that an invasion was actually intended. Prodigious stories were circulated concerning large rafts of timber, by means of which the Army of England was to be transported to Britain; and, to give the greater probability to this report, General Bonaparte, the commander-in-chief, made a journey to the coast opposite England. Meanwhile, the fleet was getting ready in the harbour of Toulon, and troops were collected in its vicinity; and when every thing had been prepared, Bonaparte embarked with forty thousand veteran troops, and, on the 9th of June, reached Malta. Having landed his troops in different places, he resolved to make himself master of this island; and, after a very feeble opposition, the grand-master capitulated, giving up in a few days a fortress which might have held out for months against all the troops of the French Republic. Bonaparte left in the island a garrison of four thousand men, and on the 21st of June sailed for Alexandria. Admiral Nelson was dispatched in pursuit of the French fleet; but being wholly ignorant of its destination, he sailed for Naples, where he obtained information of the attack upon Malta. To that island accordingly he steered his course, and on his arrival he found that Bonaparte was gone; but conjecturing that he had sailed for Alexandria, he immediately prepared to follow him. The French commander, however, instead of keeping a direct course towards the coast of Egypt, stood along that of Greece, until he had made the easternmost point of the island of Candia; then steering to the southward, he protracted his voyage, so as not to reach the Egyptian coast till Admiral Nelson had left it.

On the 5th of July, Bonaparte landed his troops, and took by storm the city of Alexandria. The republican transports were then drawn up within the inner harbour of Alexandria, and the ships of war were anchored along the shore of the bay of Aboukir. The republican army then marched on towards the Nile, and, in proceeding along the banks of that river, suffered much from the intense heat of the climate. They soon came to action with the Mamlukes; but this superb cavalry found itself unequal to contend with European discipline and valour. Under Murad Bey, their most distinguished chief, they made a last effort near the Pyramids; but were routed with the loss of two thousand men killed, four hundred camels with baggage taken, and fifty pieces of cannon. Cairo immediately surrendered.

Battle of the Nile.

Bonaparte having proceeded thus far in the conquest of Egypt, framed a provisional government, and issued proclamations in Arabic, protesting that the French were friendly to the religion of Mahommed, owned the authority of the Grand Signior, and were only come to inflict punishment on the Mamlukes, the oppressors and spoilers of Egypt. Thus far the good fortune of Bonaparte seemed still to attend him. But on the 1st of August the English fleet under Admiral Nelson appeared off the mouth of the Nile; and before the sun of the morrow rose, that of France had been destroyed, and all communication between the French army and Europe thus completely cut off. The action commenced at sunset, and continued, with occasional intervals, till daybreak, when the morning disclosed to the astounded invaders the extent of the calamity which had befallen them. (See article BRITAIN.) It would be difficult to point out any naval engagement of modern times, productive of results so important as this. The military exertions of France had by degrees destroyed the combination which the princes of Europe had formed against her; the victories of Bonaparte had humbled the pride of Austria; the Continent looked with dismay towards the new Republic; and when the Directory seized on Rome and Switzerland, no power ventured to interpose in their behalf. But in consequence of the victory of the Nile the aspect of affairs suddenly underwent a remarkable change, and the conqueror of Italy was shut up in a distant country, from which the fleets of Britain might prevent his return. Proposals were therefore made by Britain to the northern powers, to recommence hostilities against France; the states of Italy determined to make a vigorous effort for the recovery of their independence; and the court of Naples, encouraged by the destruction of the French fleet, threw off the mask which it had been compelled to wear, and joined the new confederacy against the Republic.

General Humbert invades Ireland.

The French, it is well known, had long held out encouragement to the Irish rebels; but as the expectations of the latter were disappointed, they broke out into open rebellion without the promised assistance; and when the spirit of insurrection had been almost wholly extinguished, the Directory, with its usual imbecility, made a feeble attempt to revive it. On the 22d of August General Humbert, with a handful of troops, amounting only to eleven hundred men, landed at Killala. Yet this force, small as it was, would have proved formidable a month before. On landing they were joined by a party of the more desperate rebels in the vicinity, and defeated General Lake at the head of a superior force, taking from him six pieces of cannon. They sent in different directions to announce their arrival, advanced a short way into the country, and maintained their ground for three weeks. But receiving no reinforcements from France, finding the rebellion in a great measure crushed, and being informed that General Cornwallis was about to surround him with twenty-five men, General Humbert laid down his arms to a British force four days after he had dismissed his Irish associates, that they might provide for their own safety. Active measures were now taken by the Directory to send troops to Ireland when it was too late; the vigilance of British cruisers defeated all their endeavours. On the 12th of October, La Hoche, a ship of eighty-four guns, and four frigates, were captured by Sir John Borlase Warren, in attempting to reach Ireland with three thousand men; on the 20th another frigate, destined for the same country, was also taken. The Directory therefore abandoned the attempt as hopeless.

1798. Imprudence of Naples.

The victory of the Nile, important as beyond all doubt it was in a political point of view, seems nevertheless to have been over-estimated by the court of Naples, which, considering the destruction of the army of Egypt as certain, now rushed headlong into a new war with France. Disdaining to wait until the Austrians were ready to take the field against the republicans, the king prevailed on General Mack to assume the command of his army, began the war without any foreign aid excepting that of the British fleet, and thus brought upon himself the vengeance of the French Republic. The Directory had no conception that he would adopt such an insane line of conduct; and consequently, when General Mack appeared at the head of forty-five thousand men, the troops of France in that quarter were not in a condition to contend with him. When General Championet complained of the attack made upon his posts, he was informed that his Neapolitan majesty had resolved to take possession of the Roman territory, advised to retire quietly into the Cisalpine states, and further apprised that his entrance into Tuscany would be considered as a declaration of war. Championet having no force sufficient to contend with the Neapolitan army, accordingly evacuated Rome; but he left a garrison in the castle of St Angelo, and concentrated what troops he could collect in the northern parts of the Roman states. In the end of November General Mack entered Rome without opposition. When these transactions became known at Paris, war was immediately declared against the king of Naples and the king of Sardinia. The latter had committed no act of hostility against the French; but he was accused of disaffection towards the Republic. This charge could scarcely fail to be true. For, ever since the entrance of Bonaparte into Italy, he had been reduced to a most humiliating condition; his strongest fortresses were in the possession of the French; a garrison had been placed in his capital; contributions were levied from his subjects at the pleasure of the conquerors; and he was reduced to such a situation, that, unable to protect himself, he made a voluntary surrender of his continental dominions, and agreed to retire to the island of Sardinia.

But a period was soon put to the dispute with Naples. As the French retreated, the people of the country gave them infinite trouble and uneasiness, and the Neapolitan troops scarcely observed the rules of modern warfare towards such as they made prisoners. When, by orders from General Mack, Bouchard summoned the castle of St Angelo to surrender, he declared that he would view the prisoners in the light of hostages for the conduct of the garrison, and that a man should be put to death for every gun which was fired from the castle. It is not to be imagined that the Neapolitan officers would have dared to hold such language if they had not calculated on the vigorous co-operation of the Austrian forces; but in this expectation they found themselves grievously disappointed, and were ere long obliged to change their tone. The Neapolitan troops were defeated by one fourth of their number, at Terni, Porto Fermo, Civita Castellana, Otricoli, and Calvi; and as the army of Mack was speedily reduced by defeat and desertion to less than twelve thousand men, he advised the king and his family to take refuge on board the British fleet which was then lying at Leghorn. This advice was adopted, and the royal family reached Palermo in Sicily on the 27th of December. General Mack now requested an armistice, which was refused; and being driven from Capua, the only remaining post of any importance in the Neapolitan territory, and in danger from the disaffection of his troops, he surrendered himself and the officers of his staff as prisoners to the republican general. And such was the lame and impotent conclusion of a campaign undertaken in contempt of all prudence, commenced with gasconading and cruelty, and carried on in such a manner as to leave it exceedingly doubtful which was more remarkable, the utter incapacity of the officers, or the abject cowardice of the troops.

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Condu of the zaroni

In Naples there had long been a numerous body of men called Lazzaroni, who subsisted entirely on charity. These vagabonds frequently threatened the state if their wants were not immediately supplied, and their submission was often purchased by liberal contributions. Having been informed that the French, wherever they came, destroyed all the monasteries and other sources of charity, this immense gang of sturdy beggars determined to oppose them to the utmost, and to appear forsooth as the advocates of royal government. In the beginning of January 1799 they exhibited marks of discontent, and at last broke out into open insurrection. They appointed as their commander-in-chief Prince Militorni, who, however, did his utmost to restrain their violence and love of plunder. But all his efforts were unavailing. They declared war against the French, forced open the prisons, and murdered all who had been incarcerated for disaffection to the government. Their ravages now became so dreadful and boundless, that Prince Militorni abandoned them, and proceeded to Capua, where he requested Championet to take possession of the city, in order to rescue it from utter destruction. It was accordingly agreed that a column of French troops should advance against the capital by a circuitous route, and endeavour to enter the city from the opposite quarter. But before this plan could be carried into execution, a great body of the Lazzaroni marched out (on the 19th and 20th of January) to attack the French in the fortifications of Capua. This daring attempt failed, as might have been expected, and multitudes perished by the fire of the French artillery; but in order to favour the capture of Naples by the detachment sent for that purpose, Championet continued on the defensive. On the 21st the Lazzaroni, informed that a French column had marched for Naples, returned to the city; and although Championet closely pursued them, they arrived in time to barricade the streets, and prepare for the defence of different quarters. A fierce conflict now commenced, and lasted from the morning of the 22d till the evening of the 23d of January, when, having been driven from street to street, they finally rallied at one of the gates, where they were almost totally cut off.

Unpop rity of Directo

This advantage may be considered as the last which the Directory obtained; for the consequences of their past misconduct were now rapidly gathering around them. They were justly unpopular at home, both from their mode of conducting public affairs, and their repeated violations of the constitution. Their profusion was boundless, and the demands which they made upon conquered countries exorbitant. Championet was so ashamed of their proceedings, that he refused to enforce their orders in Italy, and was in consequence deprived of his command, and thrown into prison; whilst Schérer, the war minister, was appointed his successor. Under the latter the rapacity of the government agents, and the embezzlement of the public stores, were carried to an incredible extent. Still France continued to be dreaded by foreign nations, to whom the true state of her internal affairs was but imperfectly known. A Russian army had arrived, but the cabinet of Vienna was at a loss whether to declare war or temporise a little longer. Britain solicited the aid of Prussia with an offer of large subsidies; but Sièyes, the French plenipotentiary at Berlin, artfully contrived to defeat the negotiation, and counteract the unpopularity of his country in Germany, by giving to the world the secret convention of Campo Formio, which determined the greater number of the German princes to observe neutrality under the guardianship of Prussia.

History.
1799.
War declared against the emperor.

On the 2d of January a note was presented to the congress at Rastadt, by the French plenipotentiaries, intimating, that if the entrance of Russian troops into Germany was not prevented, it would be considered as tantamount to a declaration of war. To this no satisfactory answer was returned. On the 26th of the same month the strong fortress of Ehrenbreitstein, which had been blockaded since the treaty of Campo Formio, surrendered; and the possession of this place, together with that of Mayence and Dusseldorf, rendered the French powerful on the Rhine. Switzerland and all the fortified places of Italy were also in their hands, so that they were fully prepared to commence active operations. At this period Jourdan commanded on the Upper Rhine from Mayence to Hunningen; the eastern frontier of Switzerland was occupied by Massena; Schérer commanded in chief in Italy, with Moreau under him; and Macdonald was at the head of the troops in the Roman and Neapolitan territories. But these armies thus disseminated did not exceed a hundred and seventy thousand men, a force greatly inferior to that of Austria, independently altogether of the Russian army. The Directory, however, trusting to the unity of its own plans, the wavering politics of the court of Vienna, and the slow movements of the imperial armies, was anxious to renew the contest; and, accordingly, on the 13th of March war was declared against the emperor of Germany and the Grand Duke of Tuscany. Jourdan had actually crossed the Rhine at Strasburg on the first of that month, and occupied strong positions in Suabia. Manheim was taken, and General Bernadotte summoned Philipsburg, whilst General St Cyr entered Stutgardt. To oppose the march of this army, the Archduke Charles crossed the Lech upon the 4th of March; whilst, on the other side, Massena entered the territory of the Grisons, surprised a strong body of Austrians, made the whole prisoners, with their general and his staff.

But the plan of campaign could not be carried into operation without the junction of Massena's and Jourdan's armies; and to accomplish this it was necessary to carry the important post of Feldkirch, which was occupied by General Hotze. Defeated in his first attempt, Massena renewed the attack five times with fresh troops; but the determined bravery of the Austrians rendered all his efforts ineffectual. As the French, however, were in possession of the Grisons, this facilitated the invasion of the Engadine, where the Austrians being too weak to resist, retreated into the Tyrol, and were pursued by the republicans, who forced some of the defiles, and pushed forward their flying parties as far as Glurentz and Nauders.

Battle of Stockach.

The vanguard of the principal Austrian army now advanced to meet the French, and on the 20th of March was attacked by Jourdan, who drove in the enemy's outposts; but on the following day the centre of the French army was attacked, and forced to retire to Stockach during the night. The archduke encamped before Stockach on the 24th, and the republicans again attacked him on the following day. Their main object of attack was his right wing under General Meerfeldt, which they succeeded in driving into a wood between Liptingen and Stockach. Meerfeldt renewed the conflict without success. But the left wing having maintained its ground, sent reinforcements to General Meerfeldt, who in his turn obliged the French to retire. The French, however, made four thousand prisoners during the various movements of the day. Yet their loss was so great, and the Austrian force so much superior, that Jourdan durst not hazard another engagement. He therefore retreated on the following day, and, finding that he was not a match for the enemy, sent part of his army to cover Kehl and Strasburg, and marched with the remainder towards Switzerland. By this event General Massena, who was forcing his way into the Tyrol and Engadine, was obliged to return to the protection of Switzerland. He was now appointed to the chief command in this quarter, and Jourdan was removed.

History.
1799.
Italy.

The Austrians were not less successful in Italy, notwithstanding they had been attacked by the French before the termination of the armistice. General Kray obtained a complete victory at Legnago, and forced the enemy to fly for protection under the walls of Mantua. On the 15th of April they were again attacked by the Austrians at Memiruolo, and forced to retreat after an obstinate resistance. The loss sustained by the French in these different engagements was certainly great; but the Austrians also purchased their success at a costly rate. Schérer at first gained some advantages over them, but he wanted the skill necessary to improve them. The Austrian posts were forced by a division of his army on the 26th of March, and four thousand men made prisoners; but another division being repulsed, Schérer withdrew his troops, and thus relinquished the advantages he had obtained. On the 5th of April the division under Moreau was again successful, and took three thousand prisoners; but, by the unskilful measures of Schérer, he was not supported, and the triumph of the Austrians was therefore complete.

Suwarof.

A short time previous to this, the Russians had effected a junction with the imperialists, and the command of the combined army was given to Field-marshal Suwarof. The Russian commander on the 24th of April advanced towards the Adda, and after carrying the outposts of Moreau, determined to attack him in his intrenchments. Suwarof maintained a show of attack along the whole line of Moreau, whilst he secretly threw a bridge amongst the rocks at the upper part of the river, where such an operation had been considered as impossible. By this bridge part of the combined army next morning turned the republican fortifications, and attacked their flank and rear, whilst the remainder forced the passage of the river at different points. The French fought with their usual intrepidity, but were soon driven from all their positions, and forced to retreat towards Pavia, with the loss of six thousand men killed, five thousand prisoners including four generals, and eighty pieces of cannon.

General Moreau now established the remains of his army, amounting to about twelve thousand men, upon the Po, between Alessandria and Valentia, where, on the 11th of May, he forced a body of Austrians to retreat, and took a number of prisoners. On the 12th about seven thousand Russians crossed the Po at Basignano, and marched towards Pecetto, when Moreau fell upon them with incredible fury; and as they obstinately refused to lay down their arms, about two thousand of their number were drowned in repassing the river, and a few taken prisoners. On the advance of Suwarof, General Moreau was under the necessity of retiring to occupy the Bochetta, as well as other passes leading to the territory of Genoa, when the combined army commenced the sieges of the fortified places in Italy then occupied by the French. Bellegarde drove the French from the Engadine; Massena, pressed by the archduke, was obliged to retire to the vicinity of Zurich; and nearly the whole of Piedmont had risen against the republicans. The armies received no reinforcements from the interior of France, and their officers were obliged to act upon the defensive. In one instance only they had the power of acting on the offensive, and it was certainly done with great vigour. General Macdonald had still a considerable army in the territories of Naples and of Rome; and the combined powers had made no effort to cut off his retreat, which, indeed, could scarcely be accomplished in the mountainous countries of Tuscany and Genoa. Knowing his situation secure, he was in no haste to withdraw, although nearly the whole of the country between him and France was occupied by the allies. His army amounted to about thirty thousand men, and he had received orders from the Directory to leave the territories of Rome and Naples, and unite, if possible, with the army of Moreau. From the situation of the allies, however, he resolved to hazard an action by himself. With Moreau he had concerted a plan for dividing the enemy, and vanquishing them in detail, as Bonaparte had previously done with so much success. Macdonald alone was in a situation to strike an important blow; but it was nevertheless necessary that Moreau should draw upon himself as many of the Austro-Russian forces as possible, in order that the remainder might be the more completely exposed to the attack of Macdonald.

Stratagem of Moreau.

Moreau artfully availed himself of the circumstance of the French and Spanish fleets being in the vicinity of Genoa, to spread a report that they had brought him powerful reinforcements, intending thereby to withdraw the attention of Suwarof from Macdonald. The Russian general was at Turin, and his advanced posts were at Susa, Pignerol, and the Col d'Assiette, whilst General Hohenzollern was stationed at Modena with a considerable force, and General Ott occupied Reggio with ten thousand men. General Macdonald began his operations on the 12th of June, when his advanced divisions attacked and defeated Hohenzollern, and made two thousand prisoners. General Ott was also attacked, and compelled to retreat, upon which the French made their entry into Parma on the 14th. The Austrian general was again attacked on the 17th, and forced to retire towards Giovanni; but here the progress of the French was arrested by a more powerful and determined antagonist.

French defeated by Suwarof.

Suwarof having received information of the approach and successes of Macdonald, left Turin on the 15th of June, at the head of twenty thousand men, and came up with the enemy upon the banks of the Tidone. The centre and right wing of Suwarof's army were commanded by Rosenberg and Förster; the Austrian general, Melas, commanded the left wing; Prince Bagration was at the head of the advanced guard; and Prince Lichtenstein commanded the reserve. An action immediately ensued, and was continued with desperate fury for three successive days, when victory at length declared in favour of Suwarof. Driven from the Tidone to the Trebbia, the French were finally defeated on the 19th, after a greater slaughter on both sides than the oldest officer ever recollected to have witnessed. Victory had remained doubtful until General Kray arrived with large reinforcements from the army besieging Mantua, and, in direct contempt of his orders, decided the fortune of this protracted and terrible battle. The republicans retreated during the night, and were next day pursued by the army of Suwarof formed in two columns. Seldom could the French be overtaken in retreat; but this the victorious barbarian accomplished, and, having surrounded the rear-guard, obliged them to lay down their arms. The rest of the army defended themselves in the passes of the Appennines and territory of Genoa, after losing nearly half their numbers in killed, wounded, and prisoners. Moreau, in the mean time, gave battle to the Austrians under Bellegarde, who, though greatly superior in numbers, were totally defeated. But this temporary advantage proved of little avail. Suwarof rapidly returned from the pursuit of Macdonald, and Moreau was compelled to retire. The fortresses of Italy now surrendered in close succession, and the combined powers regained a complete ascendency in that country.

Siege of Acre.

The affairs of the republic became equally critical in Palestine. After having defeated the Mamlukes, and made himself master of Alexandria and Cairo, Bonaparte led an army into Palestine. At the head of ten thousand men, with officers eminently skilled in war, he reached Acre on the sea-coast, and laid siege in due form to this town, which was but indifferently fortified, and defended by a small garrison. But Sir Sidney Smith received the command, and detained Bonaparte sixty days before Acre, although the number of the garrison by whom it was defended scarcely exceeded three thousand men. The French commander made eleven successive attempts to carry the place by assault; but in all these he proved unsuccessful, and was at last obliged to raise the siege, after he had lost eight generals, eighty-five inferior officers, and nearly one half of his army. The successful defence of this place destroyed the *prestige* of invincibility, and mainly contributed to decide the fate of the French army in Egypt.

Murder the Fre ambassadors at Rastadt.

Whilst France experienced such reverses abroad, she was much disturbed also by internal commotions, and the Directory now found itself in a most critical situation. The new elections were still unfavourable to their interest, and they could no longer command a majority in the Councils. When they sought money they met with reproaches for their profusion; and royalist insurrections in the west and south were with difficulty subdued, on account of the absence of the military. But in the midst of these difficulties an event occurred which seemed to promise the Directory the return of their former influence. On the 28th of April the French plenipotentiaries having received orders to quit Rastadt in twenty-four hours, demanded passports from Colonel Barbasey, but were informed that none could grant these excepting the commander-in-chief. They accordingly set out without passports. The three ministers, Bonnier, Roberjot, and Jean Débry, were in separate carriages, Roberjot having his wife, and Jean Débry his wife and daughters along with him; and they were attended by the ministers of the Cisalpine Republic. At a short distance from Rastadt, however, they were met by fifty Austrian hussars, who stopped the carriage of Jean Débry, and fiercely demanded his name. Débry gave them the information required, adding, that he was a French minister returning to his own country. He was immediately torn from his carriage, desperately wounded with sabres, and thrown into a ditch for dead; whilst Bonnier and Roberjot were murdered outright on the spot. When the ruffians departed, the carriages returned to Rastadt, and Jean Débry wandered all night in the woods. Next day he retraced his steps, and demanded the restitution of the papers which the assassins had carried off when they plundered the carriages; but these were refused. Rastadt and its vicinity had been occupied by French troops during the sitting of the congress, and the Austrians had obtained possession of the place only a few days before. In any view, therefore, this event was a severe reproach to the discipline of the Austrian army; but it is probable that more than the want of subordination was at the bottom of a crime so atrocious, indeed unprecedented in the history of civilized nations. The archduke, it is true, lost no time in declaring his utter ignorance of the matter, in a letter addressed to Massena; but this was far from giving satisfaction to the Directory or to France. In a message to the Councils on the 5th of May, they accordingly described it as a premeditated act on the part of the Austrian government, intended to insult France by the murder of her ambassadors.

Sièyes chosen a member of the Directory.

The introduction of a new third this year into the legislature was the commencement of a violent opposition to the Directory. Sièyes, who had been ambassador at Berlin, and possessed considerable influence over all parties, was elected a member of the Directory. This station he refused to occupy on the establishment of the constitution, and therefore his acceptance of it at such a critical juncture excited surprise. Treilhard was removed upon the pretence that he had held an office in the state within less than a year previously to his election; and Merlin and Reveillère-Lepeaux were under the necessity of resigning, to avoid a threatened impeachment. Barras, however, still retained his place, and Moulins, Gohier, and Ducos, men little known, were chosen members of the Directory. An attempt was made to revive public spirit by the establishment of clubs; a proceeding of which the Jacobins were the first to take advantage. They soon proposed violent measures, and began to denounce the members as well as the conduct of government. But their intemperance having alarmed the Directory, permission was at length obtained from the Councils to suppress their meetings.

B tle of N i.

The Directory now employed every effort to reinforce the armies which had lately suffered such dreadful losses. In the beginning of August the army of Italy amounted to forty-five thousand men, and General Joubert was promoted to the chief command. Turin, Alessandria, Milan, Peschiera, and Ferrara, were captured by the allies with astonishing rapidity. Turin sustained a bombardment of only three days, Alessandria held out seven, and Mantua only fourteen; the latter place contained thirteen thousand men, who were dismissed on their parole. The combined forces next laid siege to Tortona; but General Joubert resolved to attempt its relief, which he expected to accomplish before the arrival of Kray with reinforcements. On the 13th of August, the whole of the Austrian posts were driven in by the republicans, who took possession of Novi. But on the 15th they were attacked by Suwarof, who had by this time received reinforcements from Mantua under General Kray. The right wing was commanded by Kray, the left by Melas, and the centre by Prince Bagration and Suwarof in person. The engagement commenced about five o'clock in the morning; but soon afterwards General Joubert, whilst urging his troops forward to charge with the bayonet, received a musket shot in his body, and falling from his horse, immediately expired. Moreau now assumed the command, and after a bloody conflict the allied army gave way in all directions. The Russians in particular suffered severely from the obstinate manner in which they fought. The French line was attacked at three in the afternoon, but remained unbroken; and the whole would have terminated in the defeat of the allies if General Melas had not turned the right flank of the republican line, and, following up his advantages, obtained possession of Novi, when the French army began to retire under the direction of General Moreau. The French now lost all hope of being able to defend Genoa, and therefore prepared to evacuate that city and territory. The Directory fully expected that the south of France would immediately be invaded; but in this they were happily deceived. The conquered army was astonished to find itself unmolested after so signal a defeat, and in a few days sent back parties to reconnoitre the movements of the allies. Championet, the successor of Joubert, was amazed to discover that they had rather retreated than advanced, on which account he resumed the positions which the army had occupied before the battle of Novi.

Su rof ma hes to the elief of itzer- lan

So far from prosecuting the advantages which he had obtained in Italy, Suwarof was persuaded to abandon that country with the Russian troops, and to march to the deliverance of Switzerland. In the month of August, the army of Massena in this quarter amounted to seventy thousand men, a force which not only prevented the archduke from pursuing his advantages, but even enabled the French to threaten his position; and the right wing under General Lecourbe had carried Mount St Gothard, the great pass leading from the eastern parts of Switzerland into Italy. Suwarof's expectations were no doubt high, as he had never yet been beaten; and he felt flattered in being called upon to undertake an enterprise in which the Austrians had hitherto failed, even under their most fortunate general. But when he was ready to march, the Austrian commander in Italy refused to furnish him with mules for transporting his baggage, and asserted that he would be furnished with a competent number at Bellinzone, where, however, none were to be found. Suwarof had therefore no alternative but to dismount his cavalry, and make use of their horses to drag along the baggage. In spite of all obstacles, however, he arrived, by forced marches, on the frontiers of Switzerland, upon the very day which he had stipulated with the archduke. But the archduke, either supposing that it would demean a prince of the house of Austria to serve under a Russian general, or not having courage enough to require the most experienced general in Europe to receive orders from one so much his junior, immediately marched into Suabia, and carried with him a large body of troops. It is not easy to conceive upon what principle the council of war at Vienna could imagine that so very able an officer as Massena would continue inactive at the head of an army almost double that which had been sent to oppose him. The archduke marched against the French in Suabia, who resisted him as long as the small number of their troops would permit; but they were gradually driven towards the Rhine. To carry on the deception, however, they made a serious stand in the vicinity of Manheim, where they lost nearly eighteen hundred men.

In the mean time Switzerland was completely exposed to the army of Massena. The right wing of the combined army was commanded by General Hotze; the centre, composed of the newly arrived Russians, was headed by Korsakof, and the left wing by General Nauendorf. As soon as Massena understood that the archduke had entered Manheim, and that Suwarof was approaching Switzerland by St Gothard, he commenced his movements, and, as St Gothard was defended by Lecourbe, determined to anticipate the Russian general. Having by a false attack, on the 24th of September, drawn the attention of the Russians to another quarter, he suddenly crossed the Limmat, three leagues from Zurich. Some French divisions now engaged the Austrians, but the main body of the army marched against the Russians. Hotze fell in the beginning of the action, and Petrasch, who succeeded him, saved himself from a total defeat by retiring in the night with the loss of four thousand men. The Russians fought with singular obstinacy, though in a mountainous country to which they were strangers, and contending against the ablest commanders in Europe. It was in vain to attempt to put them to flight, for even when surrounded they refused to lay down their arms, and stood to be slaughtered on the spot. But the Austrians having retreated on the 25th, the Russians on the 28th followed their example, retiring in good order under General Korsakof, but with the loss of three thousand men, which, considering their perilous situation, was not very great.

Suwarof disgusted with the conduct of Austria.

During these transactions General Suwarof was advancing from Italy with an army of from fifteen to eighteen thousand men. Having carried the pass of St Gothard, he descended into the valley of Urseren, drove Lecourbe before him with great slaughter, and advanced as far as Altorf. He next day reached the canton of Glaris, and made a thousand prisoners, whilst General Linken defeated another corps of thirteen hundred men. Massena now turned upon Suwarof, and surrounding him on all sides, expected to take both the field-marshal himself and the grand duke Constantine prisoners. But Suwarof defended himself in a masterly manner, and there being one pass in the mountains which the republicans had left unoccupied, the veteran discovered it, and thus effected his escape, but lost his cannon and baggage amongst the dreadful precipices with which the country abounds. He made his way through the country of the Grisons, and arrived at Coire with only about six thousand men. When Suwarof discovered in what manner affairs had been conducted, when he ascertained the perilous situation in which the Russians had been left by the archduke, and saw the destruction which had in consequence overtaken them, his indignation knew no bounds; he considered himself and his men as betrayed, complained bitterly of the commander of the allies in Switzerland, publicly charged the council of war at Vienna with selfishness and injustice, and refused any longer to co-operate with the Austrian army. He transmitted an account of the whole to Petersburg, and withdrew his forces to the vicinity of Augsburg, there to wait for further orders from his court.

British invasion of Holland.

In the mean time Great Britain made active preparations to invade Holland, with an army of forty thousand men, composed of British troops and Russian auxiliaries. The first division, under General Sir Ralph Abercromby, sailed in the month of August, protected by a fleet under Admiral Duncan; but bad weather prevented any attempt to land the troops till the morning of the 27th, when the disembarkation was effected without opposition, at the Helder Point. As the invaders had not been expected to land in North Holland, there were but few troops in that neighbourhood to oppose them. But before the British had proceeded far they were met by a considerable body of infantry, cavalry, and artillery, hastily collected from the adjacent towns. The Dutch fought with great obstinacy, but, fatigued by the steady opposition of their antagonists, they fell back about two leagues, and in the night evacuated the fort of Helder, which was taken possession of by the British on the morning of the 28th. Admiral Mitchell now entered the Zuyder-Zee with a detachment of the British fleet, in order to give battle to the Dutch under Admiral Story; but the latter, instead of retiring to the shallow water with which that sea abounds, surrendered his whole fleet, on the 30th of August, without firing a gun, pretending that from the mutinous disposition of his seamen he could not prevail upon them to fight. If the expedition had terminated here it would have been fortunate. This success, however, was followed up by an attempt to restore the authority of the stadtholder, and to re-establish the ancient form of government. But as no more than the first division had arrived, the terror of invasion began to be dissipated, the enemies of the new government became disheartened, and time was allowed to prepare for defence. Nor were these the only errors chargeable against the expedition. The British troops were landed in the worst place which could possibly have been selected, in a part of the country everywhere intersected by ditches and canals, and abounding more than any other with persons disaffected to the person and government of the stadtholder; and this unfortunate expedition was undertaken towards the approach of the rainy season, when a campaign in Holland is next to impossible. An invasion of Holland seemed so natural an operation on the part of Britain, and one too which might be undertaken with so many advantages by a power which had the command of the sea, that when it was first talked of the French Directory hesitated to undertake the defence of that country; but when the time and the place of disembarkation came to be known, the prospect of an almost certain success put an end to every doubt on the subject; and General Brune was accordingly sent with such troops as could be hastily collected, to co-operate with General Daendels. In the mean while, as no reinforcement had arrived, General Abercromby could only act on the defensive; and the enemy, encouraged by his want of activity, ventured to attack him on the 10th of September. Two columns of Dutch and one of republicans advanced against the invaders, but were repulsed in every direction, and forced to retreat to Alkmaer. On the 13th additional troops arrived under the Duke of York, who now assumed the chief command; and the Russians having also arrived, the army, upon the 19th, assumed the offensive. The left wing under General Abercromby advanced along the shore of the Zuyder-Zee to attack Hoorne; Generals Dundas and Pulteney commanded the centre columns; and the Russians were led by their own general D'Herman. But, owing to some misconception, the Russians advanced to attack the enemy about three o'clock in the morning, some hours before the rest of the army had begun its march. Their first efforts, however, were crowned with success, and they made themselves masters of the village of Bergen; but as they pressed too eagerly forward, without waiting for the co-operation of the other columns, the enemy nearly surrounded them; their general was made prisoner; and notwithstanding that the British troops came up in time to cover their retreat, they lost upwards of three thousand men. This defeat of the right wing induced the commander-in-chief to recall his troops from their advanced positions, notwithstanding Abercromby had by this time made himself master of Hoorne and its garrison, and Pulteney had carried by assault the chief position of the Dutch army. The severity of the weather prevented any fresh attack being made till the 2d of October. On that day, however, an action was fought between the British and the united Dutch and French troops, which was warmly contested, and did not terminate till late in the evening, when the British regained possession of Alkmaer and the neighbouring villages. But as this engagement had taken place among the sand-hills near the sea, the fatigue which the troops had undergone prevented them from profiting by their victory; and the fugitives were enabled to take up a position between Baverwyck and Wyck-op-Zee. Here they were again attacked on the 6th by the Duke of York, who after a sanguinary contest kept possession of the field. This, however, was the last success gained by the invading army. The Duke of York, finding that he could make no further progress, that the enemy had been rapidly reinforced, and that the difficulties presented by the face of the country and the badness of the weather also conspired against him, retired to Schager Brug, where he waited for fresh orders from England. But being closely pressed by the enemy, the embarkation of the troops must have been effected with great difficulty, had he not entered into a convention with the Dutch and French that his retreat should not be molested, in return for which he engaged not to injure the country by demolishing any of the dikes which defended it against the sea, and also to restore to France and Holland eight thousand prisoners taken before the present campaign.

Frencl affairs.

The affairs of the French Republic now began to wear a more favourable aspect. Championet, it is true, had been defeated in Italy, and Ancona surrendered on the 13th of November to General Frölich; but the French were still masters of the Genoese territory, Switzerland, and Holland; and the new combination formed against them seemed about to be dissolved. Prussia withdrew at an early period, and still preserved a neutrality; and, from the fate of Suwarof's army, it was reasonable to conclude that the emperor of Russia would also desert the cause of the allies.

Revolu of the 1 Brumai

But the crisis of the directorial government was now fast approaching. Bonaparte, on his retreat from Syria, had received intelligence that a Turkish army, supported by a fleet, was about to invade Egypt. He hastened his return across the desert, and arrived in the vicinity of the Pyramids on the 11th of July, when he found that an army consisting of eighteen thousand Moslemins had landed at Aboukir, carried that place by assault, and put the garrison, consisting of five hundred men, to the sword. On the 15th he marched against these new invaders, and ten days afterwards not only defeated, but annihilated, their whole force, slaying about half their number, and driving the remainder into the sea. On the 10th of October the Directory received a dispatch announcing this victory; and on the 14th of the same month the less agreeable intelligence was communicated, that Bonaparte, accompanied with his principal officers, had landed on the shores of Provence. The state to which France had been reduced under the directorial regime was truly deplorable. Not to mention the disastrous defeats which had been sustained by the French army, the loss of Italy, and of all the advantages secured to the Republic by the treaty of Campo Formio, the provinces had fallen into a state of extreme disorganization; the roads were infested with brigands; and, by the law of hostages, all persons nobly born, or related to the nobility, were obliged either to skulk in concealment, or to join the insurgent bands. The rich were vexed with the same exactions as in the early period of the Revolution, when the country was menaced with invasion; the great mass of the population had been decimated by the consumption of the armies; the fields in many places remained uncultivated; disorder and misery everywhere prevailed. The necessity of a change was every day becoming more and more obvious; and whatever difference of opinion there might be in the capital, the provinces were prepared to submit to any government which might supersede the Directory. Even the members of this body itself had become convinced that the period of its demise was at no great distance. Barras treated with the Bourbons; Sièyes had repeatedly remarked that the chief thing wanting was a *head;* others held similar language; and the minds of all, excepting the extreme democrats, were prepared for a change.

Bonaparte, on his arrival, repaired to the Luxembourg. The Directory praised and feared, but dared not reproach him with the bold step he had taken in returning to France. He had evidently come to watch the course of events, and with this view shut himself up in a modest mansion in the Rue Chantereine. But it soon appeared that he was the loadstone which drew to it all interests and all ambition; ministers, generals, deputies, men in office who desired to retain their places, and men out of office who desired to dispossess the actual occupants, flocked in crowds to General Bonaparte. All parties in fact made overtures to him; the extreme democrats, who sought in him an instrument, and the moderates, who desired the re-establishment of order at almost any price. Not to have picked up the fragments of sovereign power which thus crumbled and fell at his feet, would have been an act of self-denial unexampled in the annals of ambition. The country had despaired of obtaining at once a free and an efficient government; and, torn by the violence of contending factions, it now languished for repose. Bonaparte took several days to mature his plans, and decide on the course which he was to adopt. The democrats and moderates were equally eager in their advances. But his revolutionary connections inclined him to the former; and as his brother Lucien had, in compliment to him, been chosen president of the Council of Five Hundred, Bonaparte proposed, through this party, to become Director in room of Sièyes. Gohier and Moulins were accordingly sounded, but these pragmatical blockheads objected on the ground of the law which required that a director should be forty years of age. The facility of getting a dispensation voted was hinted at; but they persisted, not seeing the inevitable consequences of their obstinacy; and Bonaparte instantly joined Sièyes and the moderates, with whom he planned a change, not only in the members, but also in the form of government. But to effect this, it was necessary to commence with a *coup d'état,* or revolution; and the success of the latter must in a great measure depend on the support of the military. Of that order Bonaparte was the natural representative, and great exertions were now employed to secure its co-operation. He could reckon on the inferior officers and the troops; their idol is always a victorious leader. But three of the generals, Moreau, Augereau, and Bernadotte, were either too high in rank to stoop to a comrade, or too republican in principle to acquiesce in a project of revolution which might terminate in establishing a despotism. Moreau, however, was irresolute, and being discontented with the Directory, suffered himself to be neutralized, if not gained over; Augereau, brave in the field of battle, wanted political courage and conduct; and even Bernadotte, who had both, and argued stoutly against Bonaparte, was stilled, awed, or duped by his address.

On the 18th of Brumaire, the day fixed for this revolution, Bonaparte summoned all the generals and officers in Paris to an early breakfast. It was a kind of levee; some regiments were to be reviewed; and it was necessary to harangue the troops. The Directors Barras, Moulins, and Gohier, were kept in ignorance of the plot; they inhabited the same palace, that of the Luxembourg, and, forming a majority of the Directory, might have done mischief. The first step, however, had all the forms of legality. The Council of Ancients, in which the influence of Sièyes predominated, met at six in the morning, and passed the preconcerted decree removing the sittings of the legislative body to Saint Cloud, and conferring upon Bonaparte the command of the troops in the capital. The decree was brought to Bonaparte in the midst of his levee, and immediately communicated to the officers present, whom he also addressed. The moment for action had now arrived. Seizing Lefebvre by the arm, he presented him with a sword, and won the rough soldier by a few magical words. The decree of the Legislative Assembly secured the obedience of Moreau. Bernadotte alone stood firm, but he was not permitted to retire, until he had given a promise not to raise agitations, harangue the soldiers, or act in any way until legally summoned. Having thus made himself certain of the military, Bonaparte rode to the Tuileries, reviewed the troops, and watched the course of events. Talleyrand had been sent to the Luxembourg to induce Barras to resign, and the latter had sent his secretary to the Tuileries to collect tidings. The directorial emissary was brought to Bonaparte, who instantly addressed him as if he had been the Directory itself: "What have you done with France, which I left so brilliant? I left peace and I find war, victories and I find reverses; I left you the millions of Italy, and I find nothing but spoliation and misery. Where are the hundred thousand soldiers, my companions in glory? They are dead." This was spoken to excite the officers around, and to dispose them to march against the Luxembourg, which he was now prepared to do. But the prudence of Barras rendered such a step unnecessary. Having received from Talleyrand a promise of oblivion for the past, wealth and impunity for the future, he signed his resignation, and left the capital for his house in the country, attended by an escort of dragoons. Moulins and Gohier, less accommodating, were ordered to be put under a guard in the Luxembourg, and Moreau was charged with this invidious duty. As Sièyes and Ducos had also resigned, the Directory was now virtually dissolved; and all that remained to be done was to replace it with a new executive government.

On the following day, being the 19th of Brumaire, the members of the two Councils met at Saint Cloud. Bonaparte had occupied the road and the environs of the château with troops; but his project was still far from being accomplished. The democratic majority in the Council of Five Hundred were indignant; the moderate majority in the Council of Ancients wavered as the crisis approached; and whilst the one prepared for extremities, the other began to repent their own act, and to be apprehensive of the intentions of Bonaparte. When the Councils met, the greatest agitation prevailed. In the Five Hundred the oath of fidelity to the constitution was renewed; and it was feared that some similar demonstration would be made by the Ancients. Informed of this dangerous spirit of resistance, Bonaparte resolved to confront, and if possible put it down by his presence. Surrounded by his staff, he accordingly entered the Council of the Ancients, and addressed their president, but with so much confusion both of language and of manner that his partisans began to despair. "Representatives," said he, "you are on a volcano. I was tranquil yesterday when your decree was brought me, and I have come with my comrades to your aid. On this account I am recompensed with calumnies. I am stigmatized as a Cromwell and a Cæsar. If such were my character, I had no need of coming here." He then mentioned the resignation of the Directors, the distress of the country, and the agitated state of the Council of Five Hundred, upon which, he said, no dependence could be placed; and he besought the Ancients to save the Revolution, liberty, and equality. "And the constitution," exclaimed a voice. "The constitution!" repeated Bonaparte, pausing and collecting himself; "I tell you, you have no constitution. You violated it in Fructidor, in Floreal, and in Prairial, when you seized by force and condemned the national representatives, when you annulled the popular elections, when you compelled three directors to resign. The constitution, forsooth! a name at once invoked and violated by every faction in turn. What force can it possess, when it has ceased to command even respect? The government, if you would have such a thing, must be fixed on a new basis." Having thus shown the necessity of the revolution, he then proceeded to re-assure his partisans, by promising it success; and, pointing to the glittering bayonets of the soldiers, "I am accompanied," added he, "by the god of fortune and of war." The Ancients applauded this speech, and Bonaparte, satisfied with the effect it had produced, hurried to the other wing of the château, where, in the Orangery, the Council of Five Hundred were in a state of extreme excitement. Leaving his staff behind, he advanced into the hall, whilst the grenadiers who followed him remained at the door. As he proceeded towards the chair, which was occupied by his brother Lucien, a violent tumult ensued, and the epithets "Cromwell," "Cæsar," "Usurper," were freely applied to him from all parts of the house. Had the assembly heard him calmly, and then voted him a traitor or outlaw, his career might have been speedily closed; for Jourdan and Augereau were both without, and might easily have withheld or drawn off the soldiers. Instead of this, however, the exasperated deputies sprang from their seats as soon as he appeared, and pressing upon him, collared, hustled, and maltreated him, whilst Arena Corsican endeavoured to dispatch him with a dagger. The grenadiers flew to his assistance, and rescued him from their fury. "Let us outlaw him; a vote of outlawry," was the instant cry of the assembly; "let him be treated like Robespierre, let him be put *hors la loi*." But Lucien refused to put the decree to the vote; he resisted, gained time, and at length, when about to be overpowered, was borne out of the hall by the grenadiers whom Napoleon sent to his assistance. Throughout the whole of this trying scene the civilian showed more courage and presence of mind than the soldier. Divesting himself of his robes, Lucien mounted a horse and harangued the troops, telling them that the majority of the Council of Five Hundred were held in terror by a few democrats armed with poniards, who menaced them, and attempted to assassinate the general. This declaration produced a great impression; and the demand whether they might be reckoned on was answered with acclamations by the troops. A company of grenadiers was instantly ordered to clear the Orangery. They advanced from the one end to the other with fixed bayonets, whilst the deputies escaped by the windows and through the woods, leaving in their retreat fragments of their robes upon almost every bush. In the evening of the same day the Council of Ancients, and about fifty members of the dispersed Council of Five Hundred, passed a decree abolishing the Directory, and establishing in its room three consuls, Bonaparte, Sièyes, and Roger Ducos, as a provisional government, which, in concert with two committees chosen from each council, was authorized to prepare a constitution.

A con gover ment tablis

The plan of a new constitution was presented to the public by the consuls in the month of December 1799. According to this plan, eighty men, who had the power of nominating their own successors, and were called the Conservative Senate, had likewise authority to elect the whole of the legislators and executive rulers of the state, whilst none of these offices could be held by themselves. One man, called the chief or first consul, was to possess the sovereign authority, to hold his office for ten years, and to be competent to be re-elected; and other two consuls were to assist in his deliberations, but to have no power to control his will. The legislative power was divided into two assemblies; the Tribunate, composed of a hundred members, and the Conservative Senate, of three hundred. When the first consul thought proper to propose a law, the Tribunate might debate upon it, without having authority to vote either for or against it, whilst the members of the Senate might vote, but were not entitled to debate. The consuls and the members of the legislative body, as well as of the Conservative Senate, were not responsible for their conduct; but the ministers of state employed by them were understood to be accountable. The committees which framed the constitution nominated the persons who were to execute the functions of government. Bonaparte was appointed first consul, and Cambacérès and Lebrun second and third consuls. Sièyes, as formerly, declined taking any active part in the administration of public affairs, and received, as a gratuity for his services, an estate belonging to the nation, called Crosne, in the department of the Seine and Oisne.

Bonap propos treat w Britain

Bonaparte had not been long in possession of the reins of government, when he made overtures for negotiating peace with the allied powers at war with France. Separate proposals were made to the different belligerent powers, no doubt with a view to dissolve the coalition; but the decrees of the Convention which had declared war against all the powers of Europe still remained unrepealed. Departing from the forms sanctioned by the custom of nations in carrying on diplomatic correspondence, he addressed a letter directly to his Britannic majesty, the substance of which was, whether the war, which had for eight years ravaged the four quarters of the globe, was to be eternal? and whether there were no means by which Britain and France might come to a good understanding? To these questions the British ministry made a formal and elaborate reply, in which they dwelt much on the bad faith of the revolutionary rulers, and the instability of the governments of France since the subversion of the monarchy. The overture transmitted to Vienna was of a similar description, and experienced similar treatment; but, irritated by the shameful treatment of Suwarof while carrying on the war in Italy and Switzerland, the emperor of Russia abandoned the coalition.

On the 7th of March Bonaparte sent a message to the legislative body, containing his ideas as to the conduct and designs of the British cabinet, and assuring them that he would invoke peace in the midst of battles and triumphs, and fight only for the happiness of France and the repose of the world. This message was followed by two decrees; the one calling, in the name of honour, upon every soldier absent upon leave from the armies of Italy and the Rhine, to join them before the 5th of April; and the other appointing a fresh army of reserve to be assembled at Dijon, under the immediate command of the first consul.

Affairs Italy.

About this time the belligerent powers were nearly ready to open the campaign both in Italy and on the Rhine. The Genoese Republic formed the only territory of any importance in Italy, which remained in the hands of the

French; but the army by which it was defended had been very much reduced since the preceding year, and might be considered as in a state of mutiny, from the want of pay, clothes, and provisions. The Austrians were most anxious to obtain possession of Genoa and its dependencies; and in this they were seconded by the Genoese themselves, who regarded the republicans as the destroyers of their commerce. Massena received the command of the army in Genoa, with extraordinary powers, and by his conduct proved himself a general of consummate abilities. Carrying with him a reinforcement of troops from Lyons and Marseilles, and reducing to order and obedience all whom he had found ready to desert their standards, he was soon at the head of a force sufficient to check the progress of the Austrians, and to keep the Genoese in subjection. But after a number of battles, all of them most vigorously contested, he was at length obliged to retire within the city, where he had soon an opportunity of distinguishing himself by one of the ablest and most obstinate defences on record. The appearance of the British fleet on the 5th of April was the preconcerted signal for Melas to attack Genoa, the communication between which and France was thus cut off. But previously to the arrival of Lord Keith, a quantity of wheat and other provisions had been thrown into the city, by which means the army and the inhabitants were rescued from immediate famine. The surrounding country was soon occupied by the Austrians; but as Massena still lived in the expectation of supplies from France, he obstinately refused to surrender the city. General Melas having nothing to apprehend from the army shut up in Genoa, left General Ott to continue the blockade, and with the remainder of his forces marched against Suchet, who commanded another division of the French army. On the 7th of May a battle was fought, between Ceva and St Lorenzo, in which the republicans were defeated with the loss of twelve hundred prisoners and ten pieces of cannon. The consequences of this defeat, which in the circumstances was perhaps inevitable, proved eminently disastrous to the French. Suchet was obliged to abandon his strong position on the Col di Tende, where he left behind him four pieces of cannon and two hundred prisoners; and though he disputed every defensible point on his retreat, the Austrians drove him from one post to another, till he was finally obliged to take refuge behind the Var; by which means General Melas became master of the whole department of the Maritime Alps.

Campaign on the Rhine.

But the campaign on the Rhine did not open in so favourable a manner for the Austrians as that of Italy. The court of Vienna directed the Archduke Charles to resign the command of the army to General Kray, who had eminently distinguished himself during the Italian campaign of 1799. Of his military talents there could be only one opinion, and his integrity and zeal had been sufficiently tried; but he had the misfortune not to be noble, and in the Austrian dominions the want of high birth cannot be compensated by the possession of great talents. It could scarcely be expected, therefore, that a divided army, commanded by an officer without birth, though possessed of ability, would make head against the united veterans of France, led on by a general under whom they had been accustomed to conquer; and, in fact, the Hungarian troops, finding themselves ready to be sacrificed to the dissensions of their officers, refused to fight against the enemy. At the opening of the campaign, the council of war at Vienna had sent General Kray instructions how to dispose of his forces; and having no general under him to support his views, he was under the necessity of obeying his instructions whether he approved of them or not. Instructions of a similar nature had been transmitted to Moreau by the chief consul, but he refused to fight under restraint. Conscious that in knowledge of the military art he was not inferior to Bonaparte himself, whilst he possessed the advantage of being infinitely better acquainted with the country, he sent a courier to Paris to inform the first consul, that if the orders sent him were to be rigidly obeyed, he should feel it his duty to resign his command, and accept of an inferior station. He accompanied his resignation with a plan of the campaign which he had framed for himself; and as the propriety of his suggestions forcibly struck the mind of the first consul, he was ordered to act according to his own judgment.

Being thus judiciously left to adopt and execute his own measures, General Moreau crossed the Rhine, and drove the Austrians from one post to another, till General Kray, finding it impracticable to adopt offensive measures with a mutinous army and disaffected officers, resolved to maintain his position at Ulm, and wait for reinforcements from Vienna. He had been defeated at Stockach, at Engen, and at Möskirch, although on almost every occasion he gave proofs of ability and determination; but no talents, however great, can counteract the pernicious effects of treachery and disaffection, to say nothing of an absurd and impracticable plan of operations. At one time, indeed, seven thousand men, when ordered to advance, instantly threw down their arms. Convinced that it was absolutely vain to attempt any offensive operation, Kray intrenched himself strongly at Ulm, which, as it commands both sides of the Danube, is consequently a place of great importance. But Moreau, perceiving his intentions, resolved to attempt the passage of the Danube, and force Kray to a general engagement, by cutting him off from his magazines at Donawert; and with this view he ordered Lecourbe, with one of the wings of his army, to take possession of a bridge between Donawert and Dillingen. This was not effected without difficulty and loss; but it fully disclosed the intentions of the French general. The Austrians, in fact, perceived their danger in all its magnitude, and accordingly disputed every inch of ground with the enemy. Kray sent reinforcements to the left bank to oppose the passage, and a battle in consequence ensued at Hochstet, in the vicinity of Blenheim, where victory again declared for the French, who made four thousand prisoners. Sensible that his situation had now become perilous in the extreme, Kray left a strong garrison at Ulm, and marched against the enemy, whom he attacked at Neuburg. The troops on both sides fought with determined bravery; but, after a severe contest, the Austrians were obliged to fall back on Ingolstadt. This battle may be said to have decided the fate of Germany. The electorate of Bavaria was now in the possession of the French, besides other territories of less extent; and as they approached the hereditary dominions of the emperor, republican sentiments were loudly expressed, whilst the people in many parts evinced such a leaning towards the enemy, as to convince the court that no dependence could be placed on armies composed of such persons. The imperial family, and the British ambassador, were openly insulted in the theatre, and the cry of "Peace, peace," resounded from every part of the house.

Views and wants of Napoleon.

"A new dynasty must be baptized in blood." This was the careless remark of a rhetorician, but Napoleon deeply felt its truth. His authority, which wanted the sanction of time, required the support of victory. It was necessary for his own sake, as well as for that of the country which had placed its destinies in his hands, that he should strike a blow which would at once humble the enemy, and impress the world with an idea of his irresistible power. With this view, he had caused to be assembled at Dijon, and organized by Berthier, an army of reserve (as it was called), which was thought to have no other destination than that of defending the course of the Rhine, but which was in reality intended to perform a conspicuous part on an independent theatre of action. The object of Napoleon was to reconquer

Italy, which, with the exception of Genoa, where Massena still held out, the Austrians now occupied to the foot of the Alps. And every thing seemed to favour the project which had been so boldly conceived. His preparations had been so skilfully masked, that when the government ostentatiously announced the real strength of the army of reserve, the statement was universally discredited; and Melas, who commanded the imperial forces in Italy, so little dreamed of being called upon to contend for the possession of that country with the most fortunate and enterprising general of his time, that his whole attention was directed towards the pursuit of Suchet, who was now retreating over the Alps of Savoy. In his head-quarters at Alessandria, he never suspected that he would have to oppose an invading force descending into Italy by the pass of the Great St Bernard. The real views of Bonaparte were too bold to enter into the conception of the Austrian general. These were, to traverse Switzerland by the lake of Geneva and the valley of the Rhone as far as Martigny, and thence to cross the Great St Bernard, and descend into the plains of Lombardy in rear of Melas; in other words, to intersect the communications of the Austrian general, disarrange all his plans, oblige him to countermarch and take up new positions, and, lastly, impose on him the necessity of receiving battle in a situation where defeat would be total ruin. He expected to reap the benefit of a complete surprise, and at all events to take the enemy *in flagranti delicto.*

Passage of the Alps; invasion of Italy.

On the 6th of May the first consul left Paris, and proceeded to take the command of an army the strength and destination of which had given rise to so many conjectures. This army, which had been reinforced from the Rhine, and amounted to about forty thousand men, immediately began its march into Switzerland, and on the 20th crossed the Great St Bernard. The passage of this mountain is justly accounted one of the most extraordinary achievements in modern warfare, and is not inferior in any of its circumstances to the celebrated passage of the Alps by Hannibal. The French army now advanced by a path which had hitherto been considered as practicable only for mules and foot passengers; they removed their cannon from the carriages, placed the guns in the hollowed trunks of trees, and thus dragged them up the steep ascent. In May winter still reigns with unmitigated severity in these regions; and the rigours of a northern climate, snow, ice, and whirlwinds, increased the dangers of the march; but all difficulties were overcome by the enthusiasm and perseverance of the troops. On reaching the summit, refreshments awaited them at the convent, to the monks of which large sums had been transmitted for the purpose; and in that cloud-capped habitation of peace, the soldiers as they passed received a cordial welcome, and enjoyed some needful rest. The division which crossed the Simplon encountered still greater difficulties than that which passed the Great St Bernard, having to clear deep fissures in Indian file, and sometimes clinging to a single rope. In descending from Mount St Bernard into the valley of Aoste, the road passes under the fort of Bard, by which it is completely commanded. Here, then, was a lion in the path. The troops might avoid it by clambering over the adjoining precipices, but for the artillery this was impossible. The fort was summoned and cannonaded, but in vain; the governor disregarded the menaces of the invaders, and his little citadel was secure against a *coup-de-main.* What was to be done? The case seemed desperate, but ingenuity at length triumphed. The street of the village immediately below was covered with straw and small branches, and the cannon were dragged past during a dark night without attracting the attention of the garrison. Had the fort opened its fire, and delayed the army longer, all the advantages of this bold march would have been lost. But fortune still remained true to her favourite; and Bonaparte, having cleared an obstacle which at first appeared insuperable, followed the course of the Doria and the Po, entered Milan and Pavia, and thus accomplished his first object, namely, that of placing himself on the communications of Melas.

The Austrian general had already retrograded; he could not credit the report of Bonaparte being in Italy, but still he had taken the precaution to fall back. What above all astonished him, was to hear that the French had cannon; how had they passed the Alps? Bonaparte arrived at Milan on the 2d of June, and there expected Moncey to join him with reinforcements from the army of Switzerland. In the mean time he dispatched his lieutenants to seize the towns on the Po; which was promptly effected. In occupying Piacenza, Murat intercepted a courier on his way to the Austrian head-quarters, with tidings of the fall of Genoa. This event, which disengaged and rendered disposable a large Austrian force, left Napoleon no alternative but either to fall back and wait for his expected reinforcements, or to march against Melas, and put all to the hazard of a battle. He chose the latter course, and trusting that his own genius and fortune would compensate for his deficiency in effective force, resolved to anticipate the enemy. Melas had concentrated his whole force at Alessandria, on the Bormida; and General Ott, having reduced Genoa, was rapidly advancing, with the intention of surprising the French advanced posts on the Po, and at the same time combining his operations with those of the principal army in a grand effort against the enemy. But Ott was himself surprised by Lannes at Montebello, and after a severe action completely defeated with the loss of five thousand men. The French army now advanced to Stradella, where it took up an advantageous position, and remained several days to allow Suchet to close upon the enemy's rear, and Massena, with the liberated garrison of Genoa, to join from the south. The Austrians in the mean while made no movement; and Napoleon, apprehensive that Melas might escape him, either by marching north towards Turin or south towards Genoa, advanced into the plains of Marengo; thus giving a prodigious advantage to the enemy. But although Melas was greatly superior in cavalry, and might at his option either attack the French, or defend the course of the Bormida, behind which his army was concentrated, Bonaparte was still so apprehensive that he might file off towards Genoa, that he detached Dessaix, who had just arrived from Egypt and taken the command of a division, to counteract any movement in retreat, and to compel the Austrians to receive battle. But this measure, which in its consequences had nearly proved fatal to the French army, proceeded on a total miscalculation; for at the very moment when Napoleon was thinking of preventing the flight of Melas, it was decided in a council of war that the only mode of securing Genoa was to give battle to the French.

Battle of Marengo.

On the morning of the 14th, which Melas had fixed on for the attack, the French were echelloned in an oblique formation, extending from Marengo, the village next the Bormida, which was occupied by their advanced guard, to San Giuliano, where the head-quarters were established, with considerable intervals between the divisions. The Austrians passed the Bormida in three columns, by as many bridges, which they had thrown across the river. One cause of the want of preparation on the part of Napoleon, was the assurance he had received that the principal bridge had been broken down; and this was perfectly true; but the Austrians had not lost a moment in re-establishing the bridge, and thus restoring their communications with the opposite bank of the stream. The first burst of the attack was directed against the French at Marengo. But instead of advancing boldly to the charge, and storming the key of the position, the imperialists deployed, planted batteries, and waited to effect tardily by their fire what an assault might have at once accomplished. This afforded the French time, which they so much wanted, and enabled Napoleon to recall Dessaix. The right and left of the Austrians had scarcely an enemy to contend with; for being composed chiefly of cavalry, in which arm the Austrian army was eminently powerful, they swept every thing before them; and at length, turning towards the centre, drove the enemy from the village of Marengo, across a swampy rivulet in the rear. At mid-day, the plain presented an extraordinary spectacle. The French in disordered masses were in half retreat, yet still maintaining a vigorous resistance; whole columns of wounded and stragglers were pressing towards the rear, and throwing into confusion the ranks which still held firm; the Austrian cavalry domineered in the plain, and threatened at every moment to break in among the disordered troops; the fate of the day seemed already decided. Seeing himself victorious at Marengo, General Melas retired to Alessandria to write his dispatches, leaving the chief of his staff, Baron Zach, to complete the victory. He had already withdrawn from the field a considerable body of cavalry, which he deemed it necessary to send against Suchet; a fatal error, which he had soon reason to repent. But whilst Melas thus indulged in the security of an assured triumph, Bonaparte was preparing to make a stand at San Giuliano, and to avenge the defeat of the morning by fighting a fresh battle in the evening. Dessaix had now joined, and highly applauded the resolution of the general-in-chief. The artillery was at the same time placed in battery upon an eminence commanding the high road, along which the Austrians shortly afterwards advanced in column. But success had rendered them as imprudently confident in the evening as the French were in the morning, and they came on less to dispute the victory than to gather up the fruits of one which had been already gained. Bonaparte now rode leisurely along his newly-formed line. "Soldiers," said he, "we have retreated enough for to-day; you know it is my custom to sleep on the field of battle." When the imperialists led on by Zach approached San Giuliano, the battery, unmasked, opened its fire; Dessaix led on his fresh division of infantry to the attack; Kellerman, with a brigade of light horse, watching the favourable moment, charged and broke through the advancing column, then wheeling round, charged back and again penetrated it. Thus surprised and enveloped, the head of the column laid down its arms, and the remainder scarcely attempted to make a stand; being speedily routed and put to flight, it communicated its panic to the troops in the rear, which, had they come up with suitable determination, might have repeated at San Giuliano the success of Marengo. All was now lost. The imperialists fled across the plain of Marengo towards the bridges, pursued by the French, who slaughtered the fugitives in all directions. The carnage was dreadful, and continued until nightfall, when the victors, weary of slaying and oppressed by fatigue, slowly withdrew. Thus the battle of Marengo, which a vigorous charge of cavalry would for ever have decided, was restored and gained by six o'clock in the evening. Dessaix fell early in the second battle, to which the brilliant charge so opportunely executed by young Kellerman gave the decisive turn.[1]

Italy was thus conquered at Marengo; and France by one battle regained her superiority in the field. An armistice was now agreed to, the terms of which were, that Piedmont and Genoa were to be given up to the French, and that the Austrians should retire behind the Mincio; thus abandoning at once all the conquests of Suwarof. The convention with Melas was considered as preparatory to a treaty; and, in fact, Bonaparte offered to Austria the terms of Campo Formio; but the cabinet of Vienna, more resolute in adversity than in prosperity, pleaded her engagements with Britain, as precluding her from treating excepting in conjunction with that power, her ally. Hohenlinden was destined to add its glories to that of Marengo, before peace could be conquered.

General Kray was anxious to avail himself of the armistice concluded in Italy in order to arrest the progress of Moreau; but that able general refused to listen to any overtures upon the subject, until he should have received instructions from Paris. Count St Julien, however, arrived with proposals of peace from the imperial cabinet, in consequence of which the armistice was extended to Germany; and the posts then occupied by the respective armies were considered as constituting the line of demarcation. But, in opposition to the spirit of the stipulations with General Melas, the French reinforced their army in Italy, levied immense contributions, and raised troops in different states which they themselves had declared independent.

Distress of the French in Egypt.

Whilst France was thus victorious in Europe, her troops in Egypt were subjected to the greatest hardships. The circumstance of their being abandoned by their chief gave rise to bitter complaints; and Kléber is said to have declared that the same universe should not contain him and Bonaparte. Under the auspices of the latter, a convention for the evacuation of Egypt by the French was concluded at El Arisch on the 24th of January 1800, between the Grand Vizier on the part of Turkey, and Sir Sidney Smith on that of Great Britain. By virtue of this convention, the republican army, with its baggage and effects, were to be collected at Alexandria, Rosetta, and Aboukir, and to be conveyed to France in vessels belonging the Republic, or such as might be furnished for that purpose by the Sublime Porte.

Kléber assassinated.

Towards the close of the year 1799 the British ministry had reason to believe that an arrangement would be entered into between the Grand Vizier and General Kléber for the evacuation of Egypt by the French; and as such an event was much to be desired, Lord Keith received orders to accede to it, but only on condition that Kléber and his army should be detained as prisoners of war. The convention of El Arisch accordingly fell to the ground; and, but for the honourable conduct of Sir Sidney Smith, Kléber would have been treacherously attacked by the Grand Vizier whilst resting upon his arms, in reliance that the treaty would be ratified. But the Turks paid dear for their meditated perfidy. On the 20th of March, Kléber attacked and totally routed them at Heliopolis, near Cairo, with the loss of more than eight thousand men killed and wounded on the field of battle. This victory restored to the French Cairo, which in terms of the convention of El Arisch they had abandoned. Kléber again proposed to evacuate Egypt, upon the terms agreed to by the Grand Vizier and Sir Sidney Smith; and Lord Keith being now empowered to agree to them, a suspension of hostilities took place, and the Turks were about to be delivered from an enemy whom they were not able to expel, when General Kléber was suddenly assassinated. Both parties had reason to regret this event, as Kléber was not only one of the most able, but also one of the most upright and honourable men ever intrusted with the command of an army.

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[1] The partisans of Napoleon assert that the order for this charge issued from him. But Kellerman, supported by almost all the officers who were present, claimed it as his own spontaneous act; and a strong feeling of resentment was excited in his mind by the omission of all notice of this achievement in the official account of the battle. The service thus rendered was perhaps too great to be acknowledged. "That charge of yours was opportune," observed Napoleon, after the battle, in a tone of lukewarm praise. "Opportune indeed," replied Kellerman; "it has placed the crown on your head."

Resolution of the British government.

Menou succeeded Kléber in the command of the French army in Egypt, but refused to quit that country by capitulation; in consequence of which the British government formed the resolution of expelling him by force. Sir James Pulteney had received the command of twelve thousand men in the Mediterranean, with orders to act in such a manner as might most effectually annoy the enemy; but as this plan had been disconcerted by the result of the battle of Marengo, he was superseded by Sir Ralph Abercromby, who carried out with him reinforcements, together with a train of artillery from Gibraltar. Having touched at Minorca and Malta, Sir Ralph steered his course thence for the coast of Egypt, which he reached on the first of March 1801, and next day anchored in the Bay of Aboukir. But the weather prevented him from attempting to land till the 8th, when the first division effected a landing in the face of the French, to the amount of four thousand men, and the disembarkation was continued during that and the following day. The army moved forward on the 12th, and coming in sight of the enemy, gave them battle on the 13th. The conflict was obstinate on both sides, and the loss very considerable; but victory in the end declared for the British. This advantage was followed up with vigour, and on the 21st a more decisive battle was fought about four miles from Alexandria, where, after various turns of fortune, the British were finally victorious. In the heat of the action, General Abercromby received a mortal wound, and died on the 28th. The loss on both sides was severe.

The northern confederacy.

As the fate of Egypt was in a great measure decided by these two battles, we shall now advert to affairs of great importance which about this time took place in Europe. The northern powers, jealous of the maritime superiority of Britain, and acting under the influence of the Emperor Paul, resolved to revive the armed neutrality of Catharine II. established during the American war, and to claim the right of trading to the ports of France without being subjected to what they conceived the intolerable evil of having their vessels searched. The ministry of Great Britain had determined to break up this confederacy; but, to the astonishment of the nation, which was not prepared for such an occurrence, they suddenly resigned.

Change of ministry in Britain.

Various causes have been assigned for an event so unexpected; but the ostensible reason was a difference in the cabinet relative to Catholic emancipation. After the union of Ireland with Britain, the minister appears to have proposed this subject in the cabinet; but his majesty, from some conscientious scruples founded on his coronation oath, gave it his direct negative, and in consequence Mr Pitt and his friends tendered their resignation. They were succeeded by men, however, who had generally supported Mr Pitt's administration during the war, and who were entirely of the same school in politics. Mr Addington was appointed first lord of the treasury and chancellor of the exchequer; Lord Eldon, lord high chancellor; the Earl of St Vincent, first lord of the admiralty; Lords Hawkesbury and Pelham, secretaries of state; and the Honourable Colonel Yorke, secretary at war. The former ministry was dissolved on the 11th of February; but owing to the indisposition of the king, the new ministry did not enter upon office until the middle of March, during which interval Mr Pitt and his associates had the chief management of public affairs. The new ministry commenced their career by solemnly pledging themselves to the nation that they would employ their united efforts in procuring a safe and honourable peace with France, which in fact was loudly demanded by the nation.

Proceedings of the northern confederacy.

About this time measures the most hostile were adopted towards Britain, by the powers composing the northern confederacy. The city of Hamburg was taken by a Danish force under the Prince of Hesse; and the king of Prussia likewise sent a numerous army into the electorate of Hanover, all with the view of injuring British commerce. To punish this audacious conduct, and dissolve the northern confederacy, a fleet of seventeen sail of the line, four frigates, four sloops, and some bomb vessels, was fitted out in the ports of Britain, and sailed from Yarmouth on the 12th of March, under the command of Admiral Sir Hyde Parker, Lord Nelson, and Rear-admiral Graves; and having passed the Sound, appeared before Copenhagen on the 30th of the same month. The Danes did not appear in the smallest degree moved by this display of force, thinking it impossible to molest either their fleet or their city without passing through a channel so extremely intricate that it was once believed hardly safe to attempt it even with a single ship unopposed by an enemy. But this channel was sounded by Lord Nelson, who undertook to conduct through it a large division of the fleet; and having requested from Sir Hyde Parker the command of the squadron, it was accordingly given him, and Rear-admiral Graves was appointed his second in command. As the largest ships drew too much water for being employed in so hazardous an attempt, his lordship selected twelve of from seventy-four to fifty guns, together with four frigates, four sloops, two fire-ships, and seven bombs. To this a prodigious force was opposed, consisting of six sail of the line, eleven floating batteries, each mounting from eighteen to twenty-eight heavy guns, one bomb-ship, and a number of schooners; and these were supported by the Crown Batteries, mounting eighty-eight pieces of cannon, by four sail of the line, moored in the mouth of the harbour, and by a few batteries on the island of Amak. On the 2d of April, Lord Nelson attacked this tremendous force, and after an obstinate and bloody action, which lasted four hours, silenced the fire of the batteries, taking, burning, and sinking about seventeen sail, including seven ships of the line. A suspension of hostilities was the immediate consequence of this brilliant victory, and the armed neutrality was in fact dissolved.

Battle of Hohenlinden.

When the armistice was signed between the Austrian and French generals in the year 1800, the troops of the latter were in possession of Germany almost to the banks of the Inn, and of Italy to the frontiers of Venice; but the spirit of the emperor was yet unsubdued, and he declined abandoning his allies by ratifying the preliminaries of peace which Count St Julien had agreed to at Paris, more especially as the latter was alleged to have exceeded his powers. Kray having retired from the army, the Archduke John succeeded him in the command, and with the emperor in person repaired to the army; but they soon found it impracticable to undertake any offensive operation against Moreau, and therefore another armistice, comprehending Italy, was agreed to. The emperor wished to include Britain in any treaty which might be entered into with France; but as Bonaparte refused to admit any plenipotentiary from that power until a naval armistice had been agreed to, Moreau received orders to resume his military operations. The command of the Austrian divisions was now given to generals whose very names were unknown beyond the confines of their own country, and who had shown themselves but little acquainted with the military art. Moreau was on the banks of the Iser, with his troops considerably disseminated; the Austrians were on those of the Inn, occupying a good line of defence if they had understood its importance, or had the prudence to maintain it. But whilst the French general-in-chief was meditating the plan of his winter campaign, the right wing of his army was attacked and driven back by the Austrians; and had they known how to make a judicious use of their advantage, the French commander would in all probability have been reduced to act on the defensive. Elated with success, however, they unaccountably abandoned their position on the Inn, and marched to attack the French along wretched roads, rendered nearly impassable by November weather. Moreau was with his army at Hohenlinden, behind the forest of Ebersberg, where he awaited the approach of the enemy. The archduke ordered his army to advance in separate columns by the roads and paths leading through the forest, on the exterior edge of which he intended to deploy and give battle. His centre, under Kollowrath, took the principal road, but was encountered as it debouched from the forest by the divisions of Ney and Grouchy; whilst another division of the French under Richepanse turned the flank of the Austrians, and fell with great fury upon its rear at the other side of the forest. This double attack was attended with complete success. The centre was entirely routed, with the loss of no less than eight thousand prisoners, besides killed and wounded; and the defeat of the rest of the army followed as an inevitable consequence. Had the Archduke Charles commanded on this occasion, a defeat caused by such a blunder would have been impossible; but this prince was now in disgrace for having counselled peace. At Hohenlinden the Austrians lost in all eighty pieces of cannon, two hundred caissons, and ten thousand prisoners.

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Moreau allowed the enemy no time to rally, but marching directly towards the Inn, crossed that river on the 9th of December, drove the enemy before him, and struck the court of Vienna with consternation and dismay. Prince Charles was recalled and invested with the command of the army; but after many fruitless efforts to retrieve its honour, he on the 27th of December proposed an armistice, which was acceded to by the French commander, upon condition that it should be immediately followed by a definitive treaty. If the archduke could have placed any dependence upon his army, this armistice would not in all probability have taken place. The position of Moreau was, in fact, perilous in the extreme. Having advanced into the very heart of the Austrian states, he had behind him on his right about thirty thousand men in the Tyrol, and upwards of fifty thousand on his left. But Austrian valour was now well nigh extinguished by so many reverses of fortune; the officers were discontented; and the army was not in a condition to make head for a single day against so able and enterprising an enemy. Accordingly, the armistice was followed by a treaty of peace, which was signed at Luneville on the 9th of February 1801, between the emperor for himself and the Germanic body on the one hand, and the first consul of the French Republic, in name of the people of France, on the other. By this treaty the emperor ceded the Brisgau to the Duke of Modena, in lieu of the territories lost by that prince in Italy, and bound himself to find indemnities in the Germanic empire to all those princes whom the fate of war had deprived of their dominions. The Grand Duke of Tuscany renounced his dukedom, with its dependencies in the isle of Elba, in favour of the Duke of Parma, who assumed the title of king of Etruria; and for this the empire was to provide him with an adequate indemnification. Italy resumed its republican forms and divisions of governments under French influence and protection; and the Rhine still continued the boundary of France on the side of Germany. On the 28th of March, peace was also concluded between the French Republic and the king of the Two Sicilies. By this treaty his majesty obliged himself to shut the ports of Naples and Sicily against ships of every description belonging either to the British or the Turks; and he renounced for ever Porto Longano in the island of Elba, his states in Tuscany, and the principality of Piombino, to be disposed of in such manner as the French Republic might think proper.

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Great Britain had now no ally left to aid her in the contest with France, excepting the Turks in Egypt and the Portuguese in Europe, powers which rather diminished than increased her strength. At the desire of France the Spaniards had made an attack upon Portugal, and conquered some of its provinces; but a treaty of peace was concluded on the 6th of June, by which the king of Spain restored all his conquests excepting the fortress of Olivenza; and the prince regent of Portugal and the Algarves promised to shut the ports of his territories against the ships of Great Britain, and to make indemnification to his Catholic majesty for all losses and damages sustained by his subjects during the war. When the first consul had made peace with all his other enemies, he threatened Great Britain with an immediate invasion; a circumstance which at first gave great uneasiness to a considerable part of the nation. But in order to assuage this alarm, Lord Nelson was sent to destroy the shipping in the harbour of Boulogne; and though his success fell short of what had been expected by many, he nevertheless made such an impression on the enemy as showed that Britain could annoy the coast of France with greater facility than France could molest that of Britain.

Treaty with France; peace of Amiens.

During the summer of 1801, attempts were again made by Britain to negotiate with France. From the total dissolution of the northern confederacy, the first consul could not fail to perceive that it was impossible for him to ruin British commerce, and consequently that all the treaties which he might make for excluding our ships from neutral ports would signify nothing. He seemed determined, however, to keep possession of Egypt; and Britain, on the other hand, was as fully resolved to wrest it from him. On this account the negotiations were protracted till the conquest of that country became known both at London and Paris. On the death of Rir Ralph Abercromby, General Hutchinson succeeded to the command of the British forces in Egypt, and as he was acquainted with the designs of his predecessor, one spirit seemed to actuate both. Rosetta surrendered, and this was soon followed by the capitulation of Cairo; and Menou having accepted of similar terms for Alexandria, the whole of Egypt fell into the hands of the allies, and the republican troops with their baggage were conveyed to the nearest French ports in the Mediterranean, in ships furnished by the allies. After these events, the negotiations between Britain and France proceeded more agreeably; and, on the 1st of October, the preliminary treaty was signed at London by Lord Hawkesbury on the part of his Britannic majesty, and by M. Otto on that of the French Republic. By this treaty Great Britain engaged to give up all the conquests made by her during the continuance of the war, excepting the islands of Ceylon and Trinidad, whilst France was in fact to restore nothing. The Cape of Good Hope was to be free to all the contracting parties; the island of Malta was to be given up to the knights of the order of St John of Jerusalem; Egypt was to be restored to the Ottoman Porte; Portugal was to be maintained in its integrity, excepting what had been ceded to the king of Spain by the prince regent; Naples and the Roman States were to be evacuated by the French, and Porto Ferrajo by the British, together with all the ports and islands occupied by them in the Mediterranean. Plenipotentiaries were also appointed to meet at Amiens, for the purpose of drawing up and concluding a definitive treaty. This accordingly took place on the 22d of March 1802, and the French Republic was thus acknowledged by the whole of Europe.

Retrospective view of the revolutions.

Having thus arrived at the period when the dogs of war were during a brief interval chained up, and the nations of Europe allowed to respire a little after the fierce contest in which they had been engaged, it may not be uninstructive or uninteresting to pause for a moment and pass in review that extraordinary series of revolutions in France which overthrew the monarchy to make way for the Republic, and in turn destroyed the Republic to make way for the Consulate and the Empire.

Popular insurrections, and an army, have hitherto been the usual means, or chief instruments, of every revolution; but insurrections of this description have generally been fomented by a certain number of factious men, devoted to and dependent upon some ambitious chief, daring, brave, possessed of military talents, the absolute conductor of every step of the revolt, and the master of all the means of the insurrection. In the hands of such a chief, the soldiers, or people armed, are mere machines, set in motion or restrained according to his pleasure, and are always employed to put an end to revolutionary disorders and crimes, as soon as the object of the revolution has been attained. Thus Cæsar and Cromwell, after they had usurped the supreme power, lost no time in securing it, by placing it upon the basis of a wise and well-regulated government; and they employed in quelling the troubles which had favoured their usurpation, those very legions which they had used to excite them.

But this was not the case in France. In that country the revolution, or rather the first of those revolutions it experienced, and of which the others were the inevitable consequence, does not seem to have been the result of a conspiracy or preconcerted plan to overturn the monarchy and to establish a republic in its place. It was unexpectedly engendered by a mixture of weakness, ignorance, negligence, and numberless errors in the government. The States General, however imprudent their convocation may have been, would have produced only useful reforms, if they had found the limits of their power marked out by a hand sufficiently firm to keep them within their natural boundaries. It was but too evident, however, that even before their opening they were dreaded, and that consequently they might attempt almost any thing they pleased. From that time, under the name of Clubs, various associations and factions sprang up; some more violent than others, but all tending to the subversion of the existing government, without agreeing upon the form of that which was to be substituted in its stead: and at this period also the projects of the faction whose views were to get the Duke of Orleans appointed lieutenant-general of the kingdom began to manifest themselves.

This faction, or, as some call it, this conspiracy, was, in truth, of the same nature with those which had produced all former revolutions, and might have been attended with the same consequences had the Duke of Orleans been possessed of the energy and courage requisite in the leader of a party. The people had already declared in his favour, and he might easily have corrupted and brought over a great part of the army had he been equal to the command of it; but, on the very first occasion of personal risk, he discovered such cowardice and meanness that he defeated his own conspiracy, and convinced all those who had entered into it that it was impossible to continue the Revolution, either in his favour or in conjunction with him. The enthusiasm which the people had felt for him ended with the efforts of those who had excited it.

First revolution.

Neckar, whom the multitude had associated with this prince in their homage, still preserved for some time his worshippers, and that little cabal was for ever exalting him to the skies. But inferior even to Orleans in the talents and dispositions necessary to influence the army in his favour, he was as little calculated to be the leader of a revolution; and for this reason his panegyrists confined themselves, in the pamphlets and placards with which they inundated the capital, to insinuating that the only means of saving the state was to declare Neckar dictator, or at least to confer upon him, under some title more consistent with the monarchy, the authority and powers attached to that republican office. In fact, if after his dismission in the month of July 1789, he had dared to make this a condition of his return to the ministry, it is more than probable that the king would have been under the necessity of agreeing to it, and perhaps of re-establishing in his person the office of mayor of the palace. At that moment he might have demanded any thing; eight days later he might have been refused every thing; and soon afterwards he was reduced to the humiliating necessity of sneaking out of the kingdom like an outlaw, to escape the effects of the general contempt and censure which he had brought upon himself.

General Lafayette, who then commanded the Parisian national guard, gathered the wrecks of all this popularity, and might have turned them to the greatest advantage, if he had possessed that resolute character and heroic judgment of which Cardinal de Retz speaks, and which serves to distinguish what is truly honourable and useful from that which is only extraordinary, and what is extraordinary from that which is impossible. With the genius, the talents, and the ambition of Cromwell, he might have gone as great a length; with a less criminal ambition, he might at least have made himself master of the Revolution, and directed it at his pleasure; in a word, he might have secured the triumph of whatever party he chose to declare himself the leader. But, as unfit for supporting the character of Monk as that of Cromwell, he soon betrayed the secret of his incapacity to all the world, and was distinguished amongst the crowd of constitutional leaders only by his tri-coloured plume, his epaulettes, his white horse, and his saying that insurrection is the most sacred of duties when oppression is at its height.

The Revolution, at the period when the faction which had begun it for the Duke of Orleans became sensible that he was too much a coward to become a leader, and when Lafayette discovered his inability to conduct it, was too far advanced either to recede or to stop; and hence it continued its progress, but in a line which no other revolution had ever taken, namely, without a military chief, or the intervention of the army; and it gained triumphs, not for any ambitious conspirator, but for political and moral innovations of the most extraordinary kind, innovations the most suited to mislead the multitude, who were incapable of comprehending them, and to let loose those passions which are most dangerous to the repose and happiness of nations. The more violent combined to destroy every thing; and their fatal coalition gave birth to Jacobinism, a revolutionary product till then unknown, and till now not sufficiently unmasked. This new creation took upon itself alone to carry on the Revolution; it directed and executed all its operations, all the explosions and the outrages which occurred; it everywhere appointed the most active leaders, and employed as instruments the profligates of every country. Its power far surpassed that which has been attributed to the inquisition, and other similar tribunals, by those who have spoken of them with the greatest exaggeration. Its centre was at Paris; and its ramifications, formed by means of clubs in every town and little borough, overspread the whole surface of the kingdom. The constant correspondence kept up between those clubs and that of the capital, or, to use their own expressions, between the affiliated popular societies and the parent society, was as secret and as speedy as that of free-masons. In a word, the Jacobin clubs had succeeded in causing themselves to be looked up to as the real national representation. Under that assumed character they censured all the authorities in the most imperious manner; and whenever their denunciations, petitions, or addresses failed to produce an immediate effect, they gained their point by having recourse to insurrection and assassination. Whilst Jacobinism thus subjected all France to its control, an immense number of emissaries propagated its doctrines amongst foreign nations, and prepared for it new conquests in distant countries.

The National Assembly, the capital, indeed all France, was divided into three distinct parties. The most considerable in number, but unhappily, through a deficiency of plan and resolution, the weakest, was the party purely royal; it was adverse to every kind of revolution, and was solely desirous of some improvements, with the reform of abuses and pecuniary privileges. The most able and most intriguing was the constitutional party, or that which was desirous of giving France a new monarchical constitution, but modified after the manner of the English, or even the American, by a house of representatives. The third party was the most dangerous of all, by its daring spirit, by its power, and by the number of proselytes it daily acquired in all quarters of the kingdom; it comprehended the democrats of every description, from the Jacobin clubs, calling themselves Friends of the Constitution, to the anarchists and plunderers of the school of Hebert and Chaumette.

The democratic party, which at first was only auxiliary to the constitutional one, in the end annihilated it, and became itself subdivided into several parties, whose fatal struggles produced all the subsequent revolutions. But in principle the constitutionalists and the democrats formed two distinct though confederate factions; both were desirous of a revolution, and employed all the usual means of accomplishing it, except troops, which could be of no use to them, for neither of them had a leader to put at the head of the army. But as it was of equal importance to both that the king should be deprived of the power of making use of it against them, they laboured in concert to disorganize it; and the complete success of that manœuvre was but too fully proved by the fatal issue of the departure of the royal family for Montmédy. The revolution then took a more daring and rapid stride, which was concluded by the constitutional act of 1791. But the incoherence of its principles, and the defects of its institutions, present a faithful picture of the disunion of its authors, and of the opposite interests by which they were swayed. It was, properly speaking, a compact or compromise between the party of the constitutionalists and that of the democrats, in which, to secure co-operation, mutual concessions and sacrifices were made. But this absurd constitution, the everlasting source of sorrow and remorse to all who had a part in framing it, might have been got over without a shock, and led back to the old principles of monarchical government, if the assembly who framed it had not separated before they witnessed its execution; if, in imposing on the king the obligation to maintain it, they had not deprived him of the power and the means; and if the certain consequence of the new mode of proceeding at the elections had not been to secure, in the second assembly, a considerable majority of the democratic against the constitutional party.

The second assembly was likewise divided into three factions, the weakest of which was the one that desired to maintain the constitution. The two others were for a new revolution and a republic; but they differed in this, that the former, composed of the Brissotines or Girondists, was for effecting it gradually, by beginning with divesting the king of popularity, and allowing the public mind time to wean itself from its natural attachment to monarchy; and the latter, which was the least numerous, was eager to have the republic established as speedily as possible. These two factions, having the same object in view, though taking different roads, were necessarily auxiliaries to each other; and the pamphlets, excitations to commotion, and revolutionary measures of both, equally tended to overthrow the constitution of 1791.

Those different factions, composed of advocates, attorneys, apostate priests, doctors, and a few literary men, having no military chief capable of taking the command of the army, dreaded the troops who had sworn allegiance to the constitution and obedience to the king, and who moreover might be influenced by their officers, amongst whom there still remained some royalists. The surest way to get rid of all uneasiness on the subject, was to employ the army in defending the frontiers. For this purpose a foreign war was necessary, to which it was known that the king and his council were equally averse. Nothing more was wanting to determine the attack which was directed, almost at the same time, against all the ministers, in order to compel them to retire, and to put the king under the necessity of appointing others more disposed to second the views of the parties. Unhappily this attempt was attended with all the success which its authors had promised themselves; and one of the first acts of the new ministry was to declare war against the emperor. At the same time, the emigration which had been provoked, and which was almost everywhere applauded, even by the lowest class of people, drained off the flower of the royalist party, and left the king, deprived of his best defenders, exposed to the suspicions and insults which sprung from innumerable calumnies, for which the disasters at the beginning of the war furnished but too many opportunities.

In this manner was prepared and accelerated the new revolution, which was accomplished on the tenth of August 1792, by the deposition and imprisonment of the king, and by the most flagrant violation of the constitution of 1791. The latter, however, was not entirely abandoned on that day; for the project of the Girondists, who had laid the plot of that fatal conspiracy, was then only to declare the king's deposition, in order to place the prince royal upon the throne, under the guidance of a regency composed of their own creatures; but they were hurried on much further than they meant to go, by the violence with which the Jacobins, who took the lead in the insurrection, conducted all their enterprises. The prince royal, instead of being crowned, was shut up in the Temple; and if France at that moment was not declared a republic, this was less owing to any remaining respect for the constitution, than to the fear the legislative body entertained of raising up against it the majority of the nation, who could scarcely fail to be astonished and exasperated at finding a constitution fenced by so many oaths thus precipitately overthrown. It was on these grounds that the opinion was adopted, that a National Convention should be convoked, in order to determine the fate of royalty.

Second revolution.

From this moment the Girondists daily lost ground, and the most furious members of the democratic party, supported as they were by the Jacobin club, by the new commune of Paris, and by the tribunes, made themselves masters of every debate. It was of the utmost importance to them to control the ensuing elections; and this was effected by the horrible consternation which the massacres of September excited throughout the kingdom. The terror of being assassinated, or at least maltreated, drove from all the primary assemblies not only the royalists and constitutionalists, but moderate men of all parties; those assemblies became entirely composed of the weakest men and most desperate characters to be found in France; and from amongst the most frantic of these a large proportion of the members of the Convention was chosen. Accordingly, this third assembly, in the first quarter of an hour of its first sitting, was heard shouting for the abolition of royalty, and proclaiming the Republic, upon the motion of a member who had formerly been a player.

Such an opening but too plainly showed what was to be expected from that horde of plunderers who composed the majority of the National Convention, and of whom Robespierre, Danton, Marat, and the other leaders, formed their party. That of the Girondists still existed, and was the only one really republican. Glutted with the horrors already committed, they seemed desirous of arresting the torrent, and laboured to introduce into the assembly the moderation necessary to give to the new Republic a wise and solid organization. But the superiority of their knowledge, talents, and eloquence, which their opponents could not dispute, had no power over men thirsting for blood, and determined to rule by the instrumentality of terror alone. They had no doubt occasion for atrocities, to prepare the terror-stricken nation to suffer them to commit, in its name, the murder of the unfortunate Louis XVI.; and that sacrifice was necessary to commit the Revolution beyond all possibility of retreat, and bring about a third revolution, which Robespierre and his associates were already preparing. Fear had greatly contributed to the two former; but this was effected by terror alone, without popular tumults, or the intervention of the armies, which, being now drawn by their conquests beyond the frontiers, never heard any thing of the revolutions at home till they were accomplished, and always obeyed the prevailing faction, by whom they were either paid or allowed to pay themselves.

By the degree of ferocity discovered by the members of the Convention in passing sentence upon the king, and in the debates relative to the constitution of 1793, Robespierre was enabled to mark which of the deputies were most likely to second his views, and which of them it was necessary to sacrifice. As to the people, they could not but receive with transport a constitution which seemed to realise the chimera of their sovereignty, but which would only have given a kind of construction to anarchy, if the execution of this new code had not been suspended, on the pretence common to all acts of despotism and tyranny, that the safety of the state is the supreme law. This suspension was effected by establishing the provisional government, which, under the title of revolutionary government, concentrated all the powers in the National Convention until there should be an end to the war, and to all intestine troubles.

Third revolution.

Although the faction which acknowledged Robespierre as its head possessed a decided majority in the assembly, and might consequently have considered themselves as exclusively exercising the sovereign power, he was a demagogue of too despotic a nature to endure even the appearance of sharing the empire with his associates. Hence he greatly reduced their number, by causing all the powers invested in the National Assembly by the decrees which had established the revolutionary government, to be transferred to a committee, of which he got himself appointed a member, and in which he was certain to rule, by obtaining as colleagues men less daring, but if possible even more wicked, than himself; such as Couthon, Saint-Just, Barrère, and others of the same stamp. This committee, styled the Committee of Public Safety, soon seized upon both the legislative and executive powers, and exercised them with the most sanguinary tyranny ever heard of amongst men. The ministers were merely their clerks; and the subjugated assembly, without murmur or objection, passed all the revolutionary laws which were proposed, or rather dictated, by them. One of their most decisive proceedings was the establishment of those revolutionary tribunals which covered France with scaffolds, on which victims of every rank, age, and sex, were daily sacrificed; so that no class of men should be beyond the influence of that stupifying and general terror which Robespierre found it necessary to spread in order to establish his power. Nor was this all. He soon dragged some members of his own party, such as Danton, Camille Desmoulins, and others, whose energy and popularity had offended him, before one of those tribunals, where he had them condemned to death. By the same means he had got rid of the leaders of the Girondists; and had caused all the moderate republican party, who were still members of the assembly, except those who had time and address to escape, to be sent to prison, in order to be sentenced and executed on the first opportunity.

In this manner ended the third revolution, in which the people, frozen with terror, dared not take a part. Instead of an army of soldiers, Robespierre employed an army of executioners and assassins, set up as revolutionary judges; and the guillotine, striking or menacing all indiscriminately, rendered France submissive from one end to the other. A nation, formerly proud, even to idolatry, of its kings, was thus seen to expiate, by rivers of blood, the crime of having suffered the most virtuous of all their monarchs to be murdered on a scaffold. In the room of the famous Bastille, whose capture and demolition had set only seven prisoners at liberty, two of whom had long been in a state of lunacy, the colleges, the seminaries, and all the religious houses of the kingdom, were converted into so many state prisons, into which were incessantly crowded the victims devoted to feed the ever-working guillotines, at once the chief resource of supplies for the government, and the instrument of its ferocity. "The guillotine coins money for the republic," said Barrère. In fact, according to the jurisprudence of the revolutionary tribunals, the rich of every class were declared suspected persons, and received sentence of death for no other reason but that of giving to the confiscation of their property a show of judicial form.

Fourth r volution.

But still blood flowed too slowly to satisfy Robespierre; his aim was but partly attained by the proscription of the nobles, the priests, and the wealthy. He fancied not only an aristocracy of talents and knowledge, but of the virtues, none of which however his orators and journalists would admit, save that horrid "patriotism" which was estimated according to the enormity of the crimes committed in favour of the Revolution. His plan was to reduce the French people to a mere plantation of slaves, too ignorant, too stupid, or too pusillanimous, to conceive the idea of breaking the chains with which he would have loaded them in the name of liberty; and he might perhaps have succeeded, had not his ambition, as impatient as it was jealous, too soon unveiled his intention of resorting to the guillotine to strike off the shackles with which an assembly of national representatives fettered or might fetter his power. He was about to give the decisive blow, which he had concerted with the Commune of Paris, the Revolutionary Tribunal, the Jacobin Club, and the principal officers of the national guard, when the members of the Convention, who were marked out to be the first sacrificed, anticipated him at a moment when he least expected it, by attacking himself in the assembly, with energy sufficient to rouse against him and the Jacobins all the sections of the capital. The parties came to blows, and for several hours victory remained uncertain, but at length it declared in favour of the Convention. In the space of a day that execrable monster was dragged from the highest pitch of power ever attained by any tyrant, to the very scaffold which was still reeking with the blood of his last victims. His principal accomplices in the Committee of Public Safety, in the Commune, in the national guard, in the Revolutionary Tribunal, and many of his agents in the provinces, met the same fate. The revolutionary tribunals were suppressed, the prisons thrown open, and the terrorists hunted down wherever they could be found.

This fourth revolution, in which the faction which was then esteemed the moderate party overthrew the terrorists, and seized the supreme power, was no less complete than those which had preceded it, and produced the constitution of 1795. All France received as a great blessing a constitution which delivered them from the revolutionary government and its infernal policy. Besides, in spite of great defects, it had the merit of coming nearer than the two preceding ones to the principles of order, justice, and real liberty, the violation of which had, during the five preceding years, been the source of so many crimes and disasters. The royalists, considering it as a step towards monarchy, were imprudent enough to triumph in it; and their joy, as premature as it was indiscreet, so alarmed the assembly, that they passed the famous law, ordaining the primary assemblies to return two thirds of the members of the Convention to the legislative body destined to succeed that assembly. It was thus that the spirit of the Convention continued, for the first year, to be displayed in the two councils. In the year following, the bias of the public mind, too hastily turned towards royalty, showed itself, in the elections of the members for the new third, so clearly as to alarm the regicides who composed the Directory, and the conventionalists who still formed a third of the legislative body; nor did they lose a moment in devising means for their defence. That which appeared to them the surest, was to publish notices of plots amongst the royalists, and annex one or more denunciations, in terms so vague as to leave room for implicating, when necessary, all their adversaries; whilst by the help of this imposture they procured some secret information, ever easily obtained by those who have at command the guillotine and the exchequer. This masked battery was ready to be opened before the members of the new third took their seats. These at first confined themselves to the object of securing a constant majority in the two councils in favour of moderate opinions; but in a little time every sitting was marked by the repeal of some revolutionary law, or by some decree tending to restrain the executive authority within the limits fixed by the constitution.

Fifth and sixth revolutions.

Alarmed at the abridgment of their power, and dreading still more serious attacks, the Directory came to the resolution of no longer postponing the blow which they had been meditating against the Legislative Assembly; and in the manner already related they accomplished a fifth revolution, as complete as any of those by which it was preceded. It differed indeed from them essentially in the facility and promptness with which it was effected; although the party which prevailed, that is to say, the majority of the Directory, and the minority of the legislative body, had to combat, not only against the constitution, but against the opinion, and even against the indignation, of the public. That moral force, on which the majority of the two councils had unluckily placed all their reliance, vanished in an instant before the physical force of a detachment of troops consisting of six or seven hundred men. The Directory, compelled to withdraw the larger body of troops which they had thought necessary to ensure the revolution they were meditating, discovered great ability in securing the two councils, by appearing to dread them; but it was chiefly to the energy of their measures, and to the concentration and promptness with which they were executed, that they owed their success. Two days before, the legislative body might without obstruction have impeached, arrested, and even outlawed, the majority of the Directory, who were execrated by the public under the title of the triumvirate; and, if requisite, they would have been supported by more than thirty thousand armed citizens, who, with Pichegru and Willot at their head, would soon have dispersed, and perhaps brought over, the feeble detachments of troops of the line which the Directory had at their command. But the legislative body, relying too much upon its popularity, did not sufficiently consider that the people, whose impetuosity is commonly decisive when allowed to take advantage in attack, are always feeble when acting on the defensive, and totally unable to withstand any assault made previously to an insurrection, seeing it is always easy to prevent their assembling. It was on this principle that the Directory founded their operations, and the 5th of September too well proves how justly. That day reduced the legislative body to the most degrading subjugation, a mere caricature of national representation; it invested the Directory with the most arbitrary and tyrannical power, and restored the system of Robespierre, under a form less bloody, but not less pernicious; for the revolutionary tribunals which that monster had established were scarcely more expeditious than the military commissions of the Directory. The power of arbitrary and unlimited transportation is, in time, as destructive as the guillotine, without possessing, like that, the advantage of exciting a salutary horror, which, by recovering the people from the state of stupor and apathy, the first effects of terror, gives them both recollection and force to break their chains. Though, in violating the most essential regulations of the constitution, the Directory obtained a temporary confirmation of their power, their example pointed out to Bonaparte and Sièyes the path which they pursued with infinite address, and in which they accomplished a sixth revolution, by the establishment of the consulate, the character of which will be sufficiently unfolded in the sequel.

Policy of Bonaparte.

The truce of Amiens having been concluded (it had none of the characteristics of a solid peace), Bonaparte pursued his plans of internal organization with an evident view to the re-establishment of monarchy in France. A church had already been reared up, and the Catholic religion, with a suitable hierarchy, re-constituted by the state. With this view the pope had been spared when the course of events placed him at the mercy of the conqueror; and the year 1801 was spent in negotiating a "concordat" with Rome, by which, in return for a decree declaring the Catholic religion that of the great majority of the French, and undertaking to grant salaries to the clergy, the pontiff agreed to consecrate such bishops as should be nominated by the French government, to give up all claim to the lands which had belonged to the church, and to order a public form of prayer for the consuls. At the desire of Bonaparte, the court of Rome further consented to secularize Talleyrand, and to make certain other concessions, all indicating an accommodating, if not an obsequious spirit towards the ruler of France.[1] The next desideratum was an aristocracy, which, after the conclusion of the peace, every effort was used to supply. The ancient nobility were allowed, nay even encouraged, to return to France; Napoleon seemed anxious to gather around him the fragments of a monarchy sanctioned by time, though at last overthrown by the force of opinion and circumstances; but, stripped of their properties, and alike disinclined to the Revolution and its representatives, they refused to abandon the cause of legitimacy for an equivocal or anomalous place in the consular court. In one sense they judged rightly; for, even if they had availed themselves of the permission granted by the French government, it would still have been necessary to counterbalance the old nobility by elevating to the same rank those who had attained to distinction during the wars and struggles of the Revolution, in short, warriors and civilians, who had earned their honours in the school of democracy. Accordingly Napoleon, obliged for a time to abandon this idea, formed a scheme eminently calculated to attach to him a nation which, with all its professed republicanism, still retained a strong predilection for the trappings of monarchy. This was the institution of the Legion of Honour, by which, at the expense of red ribbons and very moderate pensions, an order of merit was created, into which every man of ambition or enterprise might hope one day to gain admission, and which was calculated to ensure the attachment of all the men of courage and ability in the country. But when the project was communicated to the council and the legislative body, an instant outcry was raised against it. "It destroys equality, it contradicts the principles of the Revolution. The legion of honour contains all the elements of hereditary nobility; privileges, powers, honours, titles and pensions. It is sowing the seeds of an aristocracy." Bonaparte combated these objections, of which he must nevertheless have felt the force. "You cite the Roman republicans against me; the Romans, amongst whom distinctions were perhaps more marked than amongst any other people. Observe the consequence when the noble class of patricians was destroyed at Rome; the Republic, left at the mercy of the populace and its leaders, ran straight through anarchy and proscription to despotism." And was not this also the case in France? Did not the re-action which followed the reign of terror prepare the way for that despotism which Napoleon himself was so soon to establish over France? In one respect, however, the first consul acted with equal firmness and justice. When Mathieu Dumas proposed to confine the decorations of the legion of honour to the military, he peremptorily refused to admit any such exclusive limitations, and persisted in his determination to render the new order equally accessible to the soldier and the civilian.

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[1] In re-establishing religion in France, Bonaparte encountered much opposition from the prejudiced incredulity of those around him. "Hearken," said he to one of his councillors during a promenade at Malmaison; "I was here last Sunday, walking in this solitude amidst the silence of nature. The sound of the church bells of Ruel suddenly struck upon my ears. I was moved, and said, if I am thus affected, what must be the influence of those ideas on the simple and credulous mass. The people must have a religion, and that religion must be in the hands of the government." The councillor, thus addressed, waiving the broad question of religion or no religion, objected to Catholicism. "It is intolerant; its clergy are counter-revolutionary; the spirit of the present time is entirely opposed to it. And, after all, we, in our thoughts and principles, are nearer to the true spirit of the gospel than the Catholics, who affect to reverence it." Bonaparte urged, that by his leaning to Protestantism the government would be weakened, not strengthened; one half of France might embrace it, but the other half would remain Catholic. "Let them call me papist if they will. I am no such thing. I was a Mahommedan in Egypt, and I will be a Catholic here for the good of the people." This was certainly very accommodating; but, notwithstanding, considerable resistance was experienced. The theophilanthropists raised the cry of no popery. The soldiers, too, were excessively indignant. In commemoration of the re-establishment of the church, Cardinal Caprara celebrated *Te Deum* in Nôtre Dame on Easter Sunday 1802, when the first consul attended, surrounded by his officers. On his return he asked several of them their opinion, and, in particular, addressing General Delmas, said, "Well, general, we have just witnessed a very imposing ceremony; I hope you are satisfied." "Yes," replied Delmas, "a pretty capucinade; there was only wanting the million of men who have perished in overthrowing all you have built up. We must now, I presume, fasten beads to our swords." Lannes expressed his resentment in still stronger terms. Perceiving in the hall of the Tuileries Cardinal Caprara and several bishops, he accosted them in the rudest manner; then entering without ceremony the cabinet of Bonaparte, he exclaimed, "Eh! que fais-tu de ce tas de prêtres dans tes antichambres; chasse-moi toute cette canaille; est-ce avec des soldats de cette espèce que tu as gagné la bataille de Marengo? A quoi diable songes-tu donc? Tu verras qu'un beau jour ils te jetteront bas." Delmas received orders

Plans for establishing the sovereignty in his family.

But whilst Napoleon was thus reconstructing the supports and providing the ornaments of monarchical power, he did not neglect the necessary means for raising the edifice itself; that is, the establishment of a permanent sovereignty in his own person and family, on a basis involving a full recognition of the rights and interests created by the Revolution. In this, accordingly, he laboured with equal skill and perseverance, advancing step by step towards his object. It was at first hoped indeed that he would be contented with the second place, and restore the crown to the Bourbons; and, on this supposition, Louis XVIII. twice addressed him in terms which might perhaps have conciliated ordinary ambition. But although Josephine exhorted him to imitate the conduct of Monk, and there were not wanting others to insinuate the same advice, Bonaparte, satisfied that there were more difficulties in the way of restoring the Bourbons than of founding a new dynasty, and that the men of the Revolution would more readily tolerate as sovereign one who had risen from its ranks, than receive back any member of a family who had so many wrongs to avenge, resolved to put on his head the crown which genius and fortune had enabled him to win. Accordingly, he began by feeling the pulse of the nation in a pamphlet, which, it is said, was written by his brother Lucien, and corrected by himself. But as the public mind was not yet prepared for so violent a transition, the experiment failed; ridicule was provoked at the idea of an Emperor of the Gauls; and the first consul, throwing the blame of this alleged imprudence on his brother, deprived him of his office of minister of the interior, and sent him as envoy into Spain. Meanwhile, the Tribunate, or representative body, had been remodelled, and the most froward patriots excluded; an "epuration" which materially facilitated the development of his plans. In May 1802, Bonaparte was declared first consul for another ten years; and, after a short interval, this was amended into a vote by which he was appointed first consul for life. Under a republican designation, he thus became the acknowledged sovereign of France; and it is not less remarkable than instructive that this surrender of the liberties of the country encountered much less opposition in the council than the institution of the legion of honour had done. The history of the Revolution shows, indeed, that it is not liberty which the French prize, but equality and military glory.

Effects of the peace of Amiens.

The views of the consular government in concluding the peace of Amiens were now sufficiently indicated by the course which Napoleon pursued in extending his influence over the neighbouring states. The Cisalpine Republic had been remodelled to suit his views, and the first consul elected as president of its legislature. The Batavian and Ligurian Republics were obliged to submit to similar modifications; Piedmont was formally annexed to France, and divided into departments; and the stipulations of the treaty of Luneville, which guaranteed the independence of the republics of Italy and Holland, thus became void. Britain began to show alarm and distrust, though the grounds for such a feeling were scarcely stronger now than at the time when the treaty of Amiens had been concluded. Bonaparte was merely following out the system which he had previously adopted. Remonstrances were made against these encroachments and usurpations; but the answer was ready and conclusive. "You must have foreseen all this. The Cisalpine Republic chose the first consul as its president in January 1802, two months before the signature of the preliminary treaty of Amiens; you could not be ignorant of the fact. And why should England complain of the infraction of the treaty of Luneville, when Austria, with whom it was concluded, remains silent?" This seems wholly unanswerable. Great Britain was neither a party to nor the guarantee of the treaty of Luneville, and no stipulation had been included in that of Amiens, that the articles of the treaty of Luneville should be observed. She had obviously, therefore, no right whatever to interfere. According to the admission of Lord Castlereagh, she had made "a peace to try France;" but then this trial should in justice and fairness have been confined to the treaty which she had actually concluded, and not extended to a different one in which she could not even pretend to have any concern, excepting upon the assumption that she held Aus-

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to quit Paris immediately; Lannes, more favoured, was only admonished to show a little more patience, and less vivacity. "I shall know," said Napoleon, "how to govern these men, and prevent them from exciting any disturbance. What I do is necessary; I pray you in future to be more reserved." Moreau, Bernadotte, Oudinot, Colaud, Victor, and others, entertained the same sentiments as Lannes and Delmas; and the army, generally, was decidedly opposed to the concordat, and the re-establishment of the clergy. (Montgaillard, *Histoire de France*, tome v. p. 445.)

tria in tutelage. On the other hand, it was equally futile to complain of interference with the Helvetian Republic, because, in concluding a peace with France, it must have been foreseen that Napoleon would inevitably act by it as he had already done by the Cisalpine Republic. In treating, the object of both powers was most probably the same, namely, to display to Europe a readiness to make peace, and thus cast on each other the blame of the inevitable and speedy rupture. But in playing this difficult and not very creditable game, English diplomacy was completely at fault. The French observed the treaty to the letter; by the English it was decidedly violated. The former continually appealed to the compact which had been entered into between the two countries; the latter were obliged to travel out of the bond in quest of reasons or pretexts to justify the nonfulfilment of its stipulations. The British ministry may have had rational grounds for their mistrust; indeed it is certain that they had such; but in withholding Malta and the Cape of Good Hope, merely because France had increased her territories and encroachments in Europe, they took up an indefensible position, and consequently were under the necessity of supporting their cause with vague and unstatesmanlike recrimination.

F h ca es of ali ation.

But whilst the peace which had so recently been concluded was thus endangered by the hesitation of the British government to surrender Malta, and the transmission of counter orders not to deliver up the Cape of Good Hope to the Batavian Republic, other sources of division and alienation were unhappily opened up. Sensitive at all times to public opinion, and peculiarly so at this time when employed in rearing the fabric of his power, the first consul felt deeply the unsparing attacks which were now made upon him by the English press, and re-echoed by the papers of the French royalists in England. To him this was a species of warfare at once more dangerous and more galling than any other. A formal demand was therefore made by the French ambassador in London that this torrent of abuse should be checked; and further, that the press should be prohibited from indulging, in future, in strictures offensive to the head of the French government. The ministry replied that the press in this country was free; that so far from having any control over its conduct, they were themselves daily exposed to the utmost severity of remark; and that all persons aggrieved by it must seek redress in the ordinary courts of law. Nevertheless, to avoid the appearance of conniving at or encouraging such attacks, they consented to gratify him as far as might be done in a constitutional way, by sending one of the libels complained of to a jury. But this made matters ten times worse. Peltier was acquitted, and an obscure libel received consequence from the prosecution, and notoriety, if not fame, from the incomparable splendour of the defence. Another demand, that the Bourbons and their partisans should be expelled from England, met with a firm and generous refusal. Chagrined and exasperated, Bonaparte now condescended to enter into a personal quarrel with the English press, and employed his time in dictating articles for the *Moniteur*, filled with acrimony and insult. About the same time also appeared a report by Sebastiani (who had been employed in a mission to the Levant), in which, amongst other things, it was stated that six thousand French soldiers could reconquer Egypt, and that England durst not renew the war against France. To say that intemperate paragraphs in newspapers, and silly vaunting in reports, could ever become a reasonable ground of war, is preposterous. But the English government, by its want of foresight and precaution, if not also by its want of faith, was reduced to the humiliating necessity of appealing to such authorities in vindication of its conduct. The first consul now demanded why Malta had not been evacuated according to stipulation. The English ministry replied by a claim to retain it, on the ground that France had increased her territory in Europe, and that Egypt was threatened. But the first objection was irrelevant, and the second ridiculous. Bonaparte, whose throne was being erected on the basis of national glory, could never consent to the retention of Malta by the English; to demand it of him was in fact to declare war. "England," said the French minister, "shall have the treaty of Amiens, and nothing more than the treaty of Amiens."

A rupture inevitable.

A rupture was now inevitable, as indeed it had from the first been, and accordingly both countries made preparations for war. Napoleon assembled troops in the fortresses of Holland and the north of France, and dispatched envoys to Austria and Prussia. Britain was not less active; in all her ports and harbours the deep note of preparation was heard. Still Bonaparte was unwilling to commence war, and, unavoidable as it now seemed, made a last effort to ward it off. In an interview with the British ambassador, Lord Whitworth, he expressed himself with a degree of frankness and sincerity unusual in diplomacy, but which unhappily led to no amicable result. "Why should I wish for war?" said he. "A descent upon England is the only mode I have of combating her; and this, if compelled, I am resolved to undertake. But why suppose that, arrived at my present height of power, I should risk my reputation and life, unless constrained thereto by necessity, in an expedition in which myself and the greater part of my army would most probably go to the bottom of the sea; for there are a hundred chances to one against me." But all this candour proved unavailing. Napoleon was exceedingly averse to war at this time, when he had good cause to apprehend that the basis on which his power was fixed had not yet become sufficiently consolidated to withstand the rude shock of a fresh contest. For the same reason England was inexorably bent upon trying again the fortune of arms. A warlike message from the king to parliament in March 1803 formed the prelude to the storm which was now ready to burst. Bonaparte replied in a diplomatic note of singular ability and unanswerable cogency of reasoning. It was important to him to cast upon England the whole blame of the rupture; he had at once to satisfy the people of France, and to conciliate the other powers of Europe; and, besides, his pride was mortified to find England assume the language of cold and haughty defiance, if not insult, at the very moment when he had almost humbled himself before the minister of that country. Hence his keen and quick resentment prompted him to break through the rules of courtly decorum, and, at a public levee held on the 13th of March, to give vent to the bitterness of spirit which this conduct had excited. "You are decided on war, it seems you wish it," said he, addressing the British ambassador. "After fifteen years of combats, we must yet recommence and fight for fifteen years to come. You force me to it." Then turning to the ambassadors of Spain and Russia, he said, "The English will have war. They are the first to draw the sword; I will be the last to put it in the scabbard. They do not respect treaties, which we must henceforth cover with black crape. You may destroy France, but you shall not intimidate her." "We do not wish to do either the one or the other," replied Lord Whitworth. "Respect treaties, then. Wo be to those who do not respect them; they shall be responsible to Europe for the consequences." At the conclusion of the levee, he again addressed the British ambassador when near the door: "The Duchess of Dorset has passed the unpleasant season at Paris; I sincerely wish she may pass the pleasant one also; but if it be true that we are to have war, the responsibility, in the sight of both God and man, will rest on those who shall refuse to execute the treaty." It has been said by some that this burst of anger was calculated. Why might it not be natural and sincere? War at this time was not for the interest of Napoleon, or of the country which had placed him

British ultimatum.

at its head; he required time to mature his plans of government; France languished for repose. But the die was now cast, and all that remained was to abide the hazard of the throw.

Lord Whitworth was now instructed to demand that the French forces should evacuate the Batavian and Swiss territories; that a suitable provision should be made for the king of Sardinia, and that Britain should be permitted to retain possession of Malta for ten years. This was called an ultimatum, and a week was insultingly fixed as the term beyond which no reply would be received. Yet even now the French government did not assume a peremptory tone. Talleyrand was sincerely averse to war, and up to the last moment used every effort to prevent it; foreseeing, probably, the pernicious consequences which would result even from fresh victories. But the English ministry resisted every advance towards an accommodation of the points in dispute, gave wretched and shuffling reasons for a mistrust which in the main was perhaps not altogether groundless, and sought to cover the blunders of their diplomacy by means of sullen pride and defiance. Outwitted, out-argued, and outdone, both in talents and in good faith, they had no voice for, no resource in, any thing but war. Orders had already been issued for seizing the ships of France, and those of the states dependent on or in close alliance with that country; a measure entirely in the spirit of that usurpation which they at once denounced and imitated; and the first consul retaliated by detaining all the British subjects whom curiosity or business had induced to visit France. And thus recommenced between the nations a quarrel unrivalled for the inveteracy of its spirit and the variety of its fortunes. "The rupture was to the first consul," says Bignon, "the decisive point of his destiny. Henceforth he saw England rise before him like a cape of storms, which he was for ever forbidden to pass."

Renewal of hostilities.

The first step of Napoleon, on the renewal of hostilities, was to put his armies in motion; that of Holland to occupy Hanover, and that of Lombardy to invade Naples, and garrison Tarentum. Britain, secure from direct attack in her insular fortress, could only be combated by establishing the power of France in the sea-ports, and excluding British commerce from the Continent. To bestride Europe like a huge colossus, having one foot on the Mediterranean and the other on the Baltic, was therefore the grand object of Napoleon; and this menacing attitude he lost no time in preparing to assume towards England. That power now reigned supreme as empress of the seas; but "her control stopped with the shore," which was now about to be closed against the enterprise of her people. Towards the end of May 1803, General Mortier marched against Hanover with an army from Holland, and speedily made himself master of the country. The troops of the electorate, incapable of offering any serious resistance, retreated before the enemy, and at length capitulated, when they were discharged on condition of not serving against France during the war. About the same time the kingdom of Naples was re-occupied with equal facility by a French force. These sudden conquests, however, excited uneasiness and suspicion on the part of the northern powers. Russia, which had taken the Sicilian court under its protection, was offended by the re-occupation of the Neapolitan territory, and still more seriously displeased to observe the French flag waving on the shores of the Baltic. Prussia had still greater cause for alarm at the presence of so formidable a neighbour; more especially as the French, not satisfied with Hanover, already threatened to occupy Hamburg and Bremen, the possession of which was necessary to enable them to give the law to the north of Germany. The blow aimed at England thus recoiled on a power whose selfish and temporising policy had induced her to withdraw from the contest with republican France, and leave her allies to defeat and humiliation. But as these proceedings placed the courts of Berlin and St Petersburg under the necessity of either humbling themselves before France, or throwing themselves once more into the arms of Britain, Napoleon sought by every means to conciliate these powers, and even to bribe them to join him in his attempts to destroy the commercial and maritime superiority of this country. "The germ of what was subsequently called the Continental System," says Bignon, "already existed in the mind of the first consul, and this system reposed upon the support of Prussia. One of the objects of the usurpation of Hanover was to make that court feel the inconvenience of a state of indecision towards France, and the advantages of a close alliance with her. To render Prussia powerful, in order that by its union with France it might awe the Continent to quiet, was the aim of Napoleon. If it be asked why, towards the close of his reign, Napoleon showed himself inexorable towards Prussia, the reason is, that Prussia was the power which wished him most ill, in forcing him to combat and destroy her, instead of extending and strengthening her monarchy, in order that she and France united might keep Austria and Russia immoveable, and at the same time give that development to the continental system which would force England to make peace." Prussia, in short, was to be fattened and enriched at the expense of acting in subservience to the views of France, and Hanover was offered to her as the price of her submission. The bribe was tempting, and there was considerable hesitation in refusing it. All the old ministers were disposed to accept the electorate with the French alliance; Hardenberg alone was of a contrary opinion, and his view ultimately prevailed. But the influence which decided the Prussian court to reject the insidious proposals of Bonaparte was that of the Emperor Alexander, whose opinions, arguments, and weight overcame all the representations of Duroc and the other French envoys, even when on the point of accomplishing their object.

Effect o Napoleon measures on publi opinion.

By a singular turn of opinion and events, every act of Bonaparte now told in favour of Britain, the ministry of which, had he remained on the defensive, could scarcely have persisted in a war which had been undertaken without any adequate object, and in the prosecution of which there was no reasonable prospect of success. But the occupation of Hanover and the south of Italy excited the apprehensions of Europe; whilst the army collected on the northern coasts of France, and destined to invade England, had the effect of exciting the patriotic energies of that country, silencing the arguments of the friends of peace, firing the national pride, and uniting all by the tie of a supposed common danger. The voice of reason, prudence, and humanity, was drowned in the tumult of contending passions; and the most unjustifiable war in which Britain had ever engaged, suddenly became, in the broadest sense of the term, a national one. Meanwhile, as a field of battle was denied to Napoleon, he turned his activity towards military organization, forming the armies and preparing the resources with which his most brilliant conquests were afterwards achieved. Alessandria was fortified upon the most approved principles, at an enormous expense, and rendered the bulwark of Italy. From Otranto to the Texel every coast and sea-port was put in a state of defence; and the British fleet, whilst blockading every harbour, and menacing every accessible point, might observe the gigantic attempt made by the enemy to surround Europe, as it were, with a wall of iron. The few remaining colonies or foreign possessions of France now fell into the hands of Britain; and Louisiana, which had been wrested from Spain, was sold to the United States, as the only mode left of deriving advantage from the acquisition, and at the same time defeating the views which England might entertain in regard to the occupation of the province.

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Whilst public attention was mainly directed to the army and flotilla assembled at Boulogne, Ambleteuse, and other places adjoining, for the professed purpose of invading Britain, it was suddenly diverted from military projects by the discovery of a conspiracy against the first consul. The hopes which the royalist party had entertained upon his first accession to power have already been noticed. They fancied that, satisfied with military glory, he might be prevailed on to favour a restoration, if not directly to assist in bringing it about; and, in two letters, Louis XVIII. demanded of him this act of disinterestedness, which, however, he calmly but firmly declined. His subsequent measures for strengthening and perpetuating his power left no doubt that, occupying the first place in the state, he would never voluntarily descend to the second, and that the hopes which they had so hastily formed were entirely fallacious. Disappointment now gave place to intrigue, and intrigue became envenomed by the spirit of revenge. The decree which conferred upon Napoleon the consulship for life had encountered very considerable opposition. Lafayette protested against it; Camille Jourdan published a reclamation in favour of the liberty of the press; and Madame de Staël opened her brilliant saloon to the most distinguished opponents of the consular government. Of all this the royalists now took advantage; and a correspondence was entered into with Louis XVIII., who promised, in the event of his restoration, to respect the principles of liberty, and further to grant a charter in which these should be fully recognised. The hopes of the royalists were thus kept alive; the activity and confidence of their adherents were augmented; whilst the watchfulness and jealousy of the government were proportionally increased. But although the opinions and predilections of speculative persons seldom lead those who entertain them to embark in the perilous adventure of conspiracy, the Bourbons counted amongst their more zealous and active partisans men eager to strike a blow at the head of the new government, and to anticipate events rather than to wait for their tardy development. Of these, General Pichegru was one. His fortunes were now desperate; and he had many wrongs, or at least misfortunes, to avenge. Having escaped from Sinamary, to which he had been banished by the faction of the 18th of Fructidor (4th September 1797), the expatriated general returned to Europe; openly espoused the cause of the Bourbons; and, as Bonaparte had now become master in France, wished to attempt by a *coup-de-main* to overturn the principal author of his misfortunes. A plan of conspiracy, having for its object to overthrow the consular government and to restore the Bourbons, was accordingly arranged at London, in conjunction with Georges Cadoudal, son of a miller at Morbihan, a determined Chouan, and other persons well fitted to engage in such an enterprise. The views of the conspirators can only be gathered from circumstances, and from the admissions afterwards made by themselves when arrested by the French police; but it seems tolerably certain that the assassination of the first consul was regarded by them as a preliminary measure, indispensable to the success of the counter revolution which it was their main object to bring about. The whole fabric of Bonaparte's power rested on the basis of his character and reputation; he was not part of a system established on a wide and solid foundation, but the system itself; the existence of the consular government depended entirely on him; and hence the surest as well as speediest mode of overturning his authority was to begin by destroying himself. But be this as it may, the ultimate success of the enterprise depended on providing beforehand the means of giving it a determinate character, and at the same time acting powerfully on public opinion.

What the conspirators most wanted, therefore, was a name to oppose to that of Bonaparte; a leader of eminence, whose reputation might conciliate public opinion, and bear to be put in competition with that of the first consul. Moreau was precisely such a personage, indeed the very man they required. Possessing great talents for war, his success had been commensurate with his ability as a commander, and the renown of Hohenlinden had equalled, if not eclipsed, the glory of Marengo. Besides, he was discontented, living in affected obscurity, and full of resentment on account of the unmerited neglect with which he had been treated since the 18th of Brumaire. But though a brave soldier, Moreau was deficient in moral courage. He could not persuade himself either to yield or resist; he wanted the strength of mind or the dissimulation necessary to restrain the expression of his resentment; nature had denied him that promptitude of volition as well as energy of action which are so indispensable in the chief of a party; and, on the 19th of Brumaire, he had not dared to convert that revolution to his own advantage or that of the nation, and had even served, though with a bad grace, as aide-de-camp to his more audacious rival. His wife also had great influence over him, and having been slighted at the consular court, now exerted it to induce him to listen to propositions for overthrowing the tyranny of Bonaparte. The royalist agents, ever on the watch, took advantage of these dispositions, effected a reconciliation between him and Pichegru, and thus entangled him in a scheme destined to prove his ruin. Pichegru arrived from England in January 1804; Georges Cadoudal had preceded him by several months. They both saw Moreau, who was disgusted with the ferocity of the Chouan; but their scheme, whatever it was, made little progress towards maturity. From the first, indeed, Fouché had spread his toils around them; numbers of their accomplices were already arrested; and if Pichegru and Cadoudal were still allowed to remain at large, it was only that they might gain over Moreau, and effectually implicate him in their schemes. Meanwhile the conspirators were unable to come to any decision. At their last interview Pichegru showed much hesitation; Moreau possessed ambition which he could not conceal, but was totally wanting in character; Georges, and especially Pichegru, perceived that he had personal views. Cadoudal, endowed with great energy, and devoted to the cause of the Bourbons, pressed, conjured, threatened Moreau, but could not decide him to act; and Pichegru ended by proposing to adjourn the execution of the plot for four days. But in the night fixed for action, the conspirators, whilst impatiently waiting the signal agreed on, received counter orders, and dispersed; some indulging in the most violent proposals, others resolved to mix no longer in such intrigues. The police was on the alert; the most inquisitorial means were employed; all kinds of seduction were had recourse to; Moreau, Pichegru, and Georges were successively arrested. When interrogated as to the project of assassination, the Chouan answered frankly, "I came to Paris to attack the first consul openly by force; by the same means, in short, which he takes to protect himself. We waited to act until a French prince arrived in Paris." This prince was, it seems, the Duke d'Enghien; and the voluntary confession of the Chouan sealed his fate.

Murder of the Duke d'Enghien.

But in the interval between the arrest and trial of Pichegru and his associates, Bonaparte struck a blow which stunned all Europe, and was no doubt intended to strike terror into the hearts of those who had so often plotted his destruction. We allude to the seizure and military execution of the Duke d'Enghien. This young prince, a son of the Duke de Bourbon, and grandson of the last Prince of Condé, inhabited the château of Ettenheim, belonging to the elector of Baden, and only four leagues distant from Strasburg, where he had lived for some time in perfect security. The proximity of his residence to the French frontier, the fact of which the consular government had received information that Dumouriez was at Ettenheim,[1] and, above all, the confession of Cadoudal that he and his brother conspirators only waited for the arrival of a French prince in order to commence operations, satisfied the first consul that the duke was not only aware of, but deeply implicated in, the counter-revolutionary movement which had been concerted in Paris; and this conviction was much strengthened by the reports of the police, all of which represented the conspiracy as having assassination for its principal object. "The air," said Fouché, "is full of poniards." The life of the first consul had already been attempted by means of the infernal machine; and although, on that occasion, he had escaped as it were by miracle, he could not always hope that the hand of the assassin would miss its aim, or that his machinations would fail of success. The law of self-preservation, which gives to every man, when his life is in jeopardy, the right of defending it by all the means in his power, seemed therefore to sanction the adoption of measures calculated not merely to ward off the present danger, but also to strike a salutary terror, which might in future prevent the renewal of such attempts. Accordingly a detachment of French gensdarmes, under the order of Captain Charlot, was directed by General Ordener to surprise the castle of Ettenheim, and carry off the Duke d'Enghien; whilst another expedition, under General Caulincourt, moved upon Kehl and Offemburg to seize some emigrants at those places.[2] But the gensdarmes advanced so rapidly, that on the night of the 15th of March the prince was seized in his bed, and hurried off to Strasburg. The tidings of his capture were immediately conveyed to Paris by the telegraph, and through the same channel orders were received on the morning of the 18th, in consequence of which the prisoner was rapidly transported to the castle of Vincennes, but without traversing the capital. He reached Vincennes at nine o'clock in the evening, much fatigued with his journey, and the same night was brought before a military commission, specially appointed to try, or rather to condemn him.

The charges brought against him were six in number; first, having borne arms against the Republic; secondly, having offered his services to England, the eternal enemy of France; thirdly, having received accredited agents of that country, facilitated their correspondence in France, and conspired against the internal and external safety of the state; fourthly, having placed himself at the head of a corps of French emigrants in the pay of England, which had been formed in the Brisgau and in Baden; fifthly, having maintained a correspondence in Strasburg, with the intention of raising the adjoining departments, and operating a diversion in favour of England; and, lastly, having entered into the conspiracy formed by that power for the assassination of the first consul, and held himself in readiness, in the event of success, to enter France with arms in his hands. Interrogated on each of these heads, the prince made the best defence which circumstances admitted of, oppressed as he was with fatigue, and exhausted from want of food and rest; but, after a sham trial, which lasted about three hours, he was found guilty upon all the counts, and condemned, although not a single document had been produced, nor a witness examined in evidence against him. It is said that the commission which so summarily tried and convicted the young prince, did so under the impression that the punishment of death would not be inflicted; but if they entertained any such belief, the event speedily showed that it was entirely groundless. The prince requested to see and speak with Bonaparte, and begged that this request might be communicated to the first consul. Savary, however, who had positive orders to see the judgment carried into execution, refused to grant any indulgence; and at daybreak the prince was conducted to the fosse of the château, where, beside a new-made grave, destined to receive his remains, he was shot by a party of gensdarmes, and died with a courage worthy of his race.

Whatever excuse Napoleon may have had for seizing and detaining the Duke d'Enghien as a hostage, he had none whatever for putting him to death; whilst the circumstances attending this tragedy, the rapid journey, the nocturnal trial, the shameful conviction without evidence, and the immediate execution of the sentence, gave to it the character of a premeditated assassination. In this light, accordingly, it was regarded throughout Europe, men of all parties uniting in execrating the deed as a foul midnight murder, only rendered more revolting by the mockery of justice with which it was accompanied. It has indeed been said, that in accelerating the catastrophe, and condemning the prince clandestinely by night, the fermentation which might have arisen had the procedure been prolonged was avoided; and that the circumstances which had created the necessity for a great example, also required that it should be promptly made. But is the policy of him who seeks to profit by a crime, any justification of the crime itself? or can mere expediency ever sanction a proceeding by which justice is trampled on, and the door shut against mercy? It is no doubt true that the life of the first consul was aimed at, and that the principle of self-preservation warranted him to take some measures for his own protection; but the law of self-defence requires of him who resorts to such a plea, proof that he has not exceeded the *moderamen inculpatæ tutelæ*, or, in other words, that the measures he had recourse to did not go beyond the necessity of the occasion. Had Napoleon confined himself to the seizure and detention of the prince as a hostage for his own safety, all Europe would probably have thought that he was justifiable in taking such a precaution; by acting as he did, he outraged the sentiments of justice and humanity, armed public opinion against him, and exhibited himself to the world in the light of a man capable of committing any crime, however dark and atrocious. Fouché was right, therefore, in pronouncing the murder of the Duke d'Enghien, a great political fault, which, in his estimation, was worse than a crime. Napoleon, in a laboured defence of his own conduct, dictated many years afterwards, endeavours to inculpate Savary, by charging him with precipitation; and affirms that if the request of the prince for an interview had been communicated to him, it would have been granted, and might have been followed by a remission of the capital punishment. But is it to be believed that in a matter of so much importance, a subaltern would have ventured to act as Savary did without positive orders? or that having such, he would dare to disobey them? On this point, indeed, the vindication of Savary is complete; for, whatever may be thought generally of the part which he acted in the affair, he has at least established this point, that he merely obeyed his orders.

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[1] This proved to be a complete mistake. The person whom the spies of the French police represented as General Dumouriez, was in reality the Marquis de Thumery, the German pronunciation of whose name had led them to confound him with General Dumouriez. (Montgaillard, *Histoire de France*, tom. vi. p. 47.) It moreover appears that, among the persons present at Ettenheim, was a Count Demoustier of Franche-Comté, the consonance of whose name approaches still more nearly to that of Dumouriez. (*Ibid.*)

[2] The minister of exterior relations, Talleyrand, in a letter dated the 11th of March, sent to the minister of the elector a notification of the intended arrest of the Duke d'Enghien, but it is uncertain whether this letter reached Carlsruhe before the seizure of the prince, which was so rapidly effected by the gensdarmes under Charlot. Talleyrand evidently desired to prevent the commission of a crime which, he foresaw, would arm public opinion against the new order of things established in France.

The French government had early intimation of the sentiments with which this crime was regarded in other countries. The emperor of Russia lost no time in instructing his chargé d'affaires at Paris to notify that he had learned with equal surprise and grief the event which had taken place at Ettenheim, the circumstances which followed it, and its deplorable result; and that the interest felt by his imperial majesty was the stronger, because he could in no way reconcile the violation of the territory of Baden with those principles of justice and humanity regarded as sacred by nations, and which alone protect their mutual relations. The Russian minister, at the diet of Ratisbon, also presented a note, in which he forcibly represented this violation of the Baden territory as endangering the peace and security of every state in Germany.[1] A long diplomatic correspondence ensued, without leading to any result; and on the 29th of August the Russian chargé d'affaires quitted Paris, after which all relations ceased between his country and France.[2]

Dh of Piegru.

Some time after this tragedy, Pichegru, who had been confined in the Temple since the 28th February, was found strangled in his prison. The operation had been performed by means of a faggot-stick inserted between the neck and the cravat, so as to act like a tourniquet, or rather like what is commonly called a Spanish windlass. Wright, an English captain, who had landed Cadoudal upon the coast of Normandy, and had afterwards been taken prisoner, was also found with his throat cut. The French government published all the details relative to both suicides; but the recent catastrophe of the Duke d'Enghien had produced in all minds an impression so unfavourable to Bonaparte, that, without proof, and even without examination, the death of Pichegru, in particular, was at the first moment imputed to him. But time has demonstrated the injustice of this imputation. The circumstances of real evidence connected with the deed itself, the clear interest of Napoleon to bring Pichegru to a public trial, as he afterwards did Moreau, the situation of that unfortunate man himself, and, above all, the fact that, even after the fall of Bonaparte, not a particle of evidence was discovered to contradict the statement originally published by the government, or to warrant so much as a suspicion of foul play, all unite to prove that Pichegru died by his own hand. What possible motive could the first consul have to order this unhappy man to be privately assassinated? The evidence against him was complete. His negotiations with the Bourbons could not be disavowed; the agents of Louis XVIII. and of the English ministers, with whom he had corresponded, were detained as prisoners in the Temple; and that correspondence was about to be judicially authenticated by their respective depositions. Was it not for the interest of the first consul, and of the government of which he was the head, that all this should be clearly established in a court of justice, and that the man who had associated himself with assassins should also be proved to have been a traitor to his country? But Pichegru appears to have judged more correctly of his position in the Temple, than those who preposterously attempted to invest him with the honours of martyrdom. He saw himself undone without resource, and being unable to endure the ignominy of ascending the scaffold with brigands, chiefly known by their exploits on the highway, he put an end to his existence. Georges Cadoudal, and several of his more guilty associates, were soon afterwards brought to trial, condemned, and executed, without the slightest manifestation of public feeling in their favour.

Trial of Moreau.

The prosecution of Moreau commenced on the 10th of June. He was arraigned on a law which declared the concealment of proclaimed conspirators an offence punishable with six years' imprisonment in fetters; and the specific fact charged against him was the harbouring of Georges Cadoudal and his accomplices. His conduct on this occasion fully justified the opinion which we have previously pronounced as to his character. The public declared loudly in his favour; but he did nothing corresponding to the great interest excited in his behalf. Brave and decided on the field of battle, he constantly showed himself timid, and sometimes pusillanimous, on the political arena; nature, in giving him the bravery of the soldier, had denied him the courage of the citizen. He must indeed have been conscious that he was deeply compromised; but, on the other hand, never did a person accused find so many defenders in almost every class of society. The enemies of Bonaparte, and they were numerous, loudly expressed the interest with which Moreau had inspired them; a crowd of military men, who had served under his orders, prepared to defend him by open force, nay, even to rescue him from the tribunal; and the very gensdarmes appointed to guard him turned towards him the hilts of their sabres in token of their readiness to assist in his deliverance. But always feeble, and incapable of taking a decided part, Moreau had recourse to supplications addressed to the first consul, to whom, in a letter from his prison in the Temple, he presented the most humble excuses, at the same time imploring the "bienveillance" of the head of the government. Nor was his conduct less humiliating when brought before his judges. The exigencies of his defence imposed upon him the dire necessity of denying the statement which he had written to the Directory, and signed with his own hand, that "the proofs of the treason of Pichegru were as clear as day, but that he doubted whether they could be exhibited in a judicial form." Accordingly, after having repeatedly affirmed that "it was but too true that Pichegru had betrayed the confidence of the whole nation," he had now recourse to the most miserable shifts in order to invalidate all the accusations which he had presented against Pichegru, when the latter commanded the army of the Rhine and Moselle in 1795 and the beginning of 1796, as guilty of maintaining a correspondence with the Prince of Condé and the enemies of the Republic. But the force of public opinion had made itself felt even on the bench; and the recollection that he had gained thirty battles for the Republic, and saved two armies, created an interest in his favour which all his weakness and folly could not destroy. The culpability of Moreau was evident, and Bonaparte required that he should be condemned to death, or to some degrading punishment, intending, as is said, to have remitted the sentence, which would have effectually destroyed Moreau in public opinion. But in vain did he attempt to seduce or intimidate the judges. Out of twelve, seven feared not to resist;[1] and by a sort of transaction between the government and public opinion, Moreau was declared culpable, but excusable, and condemned to suffer two years' imprisonment, which was afterwards commuted into exile.[2] Of forty-six others who were at the same time arraigned, twenty were condemned to death, five to two years' imprisonment, and the rest acquitted, but not released. The Polignacs were spared at the intercession of Josephine, and Madame Murat, afterwards queen of Naples.

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[1] As a proof of the sentiments with which he professed to regard the murder of the Duke d'Enghien, the Emperor Alexander caused to be erected in the principal church of St Petersburg, a funeral monument in honour of the unfortunate prince, with a Latin inscription, in which the latter is described as a hopeful scion of the house of Bourbon, *quem Corsica bellua immaniter trucidavit.* Yet, four years later, we shall find the autocrat, who on this occasion professed so much hatred and contempt for Bonaparte, loading him with every mark of regard, priding himself on being acknowledged as a friend by the new emperor of the Gauls, and even exclaiming, in the words of a French poet, "L'amitié d'un grand homme est un présent des dieux." At Erfurt, the *Corsica bellua* of the inscription was held out, by this Greek of the lower empire, as little short of an angel of light.

[2] In replying to the first note of M. d'Oubril, the Russian chargé d'affaires, the French minister made a palpable hit: "Si lorsque les Anglais concertaient l'assassinat de Paul Ier., on fût venu avertir l'Empereur Alexandre que ses assassins n'étaient qu'à une lieue de la frontière Russe, ne se serait-il pas mis en devoir de les faire arrêter?" This was a home-thrust, which admitted of no riposte.

Civil code.

In the early part of this year a law was passed which decreed the re-union of the civil laws in a single code, under the title of *Code Civil des Français*. The advantage which a country derives from the establishment of uniform laws does not need to be proved; but, to appreciate the full importance of this benefit to France, it is only necessary to cast a glance at the state of the law under the old regime. It was divided into two principal systems; that of written law, and that of the countries governed by customs or common law. Both systems were subdivided into an infinite number of branches. There were about three hundred general customs, varying in the extent to which they prevailed; and these, again, were modified by a multitude of local usages. The number of commentators was immense. France was also governed by many other written institutions, such as ordonnances, edicts, declarations of the sovereign, and arrêts of the parliaments; each province, each diocese, each bailliage, each town, each corporation, had in fact its own usages and its own jurisprudence. "Besides the forty thousand Roman laws, of which some one is always cited at random," says Voltaire, "we have five hundred different customs, reckoning the small towns and burghs, which derogate from the usages of the principal jurisdiction; so that a person travelling post in France changes laws oftener than he changes horses, and an advocate who is very learned in one city is no better than an ignoramus in that next adjoining." This description is not in any respect overcharged. Never in any other country had chicanery and oppression so wide a field to expatiate in; never was there so urgent a necessity for substituting, in the room of conflicting usages and accumulated anomalies, a comprehensive and uniform system of laws.

The empire.

The failure of the royalist plot to overthrow the consular government, together with the exposure of the follies committed by Drake and Smith, the English residents at the courts of Munich and Stutgardt, materially contributed to advance the project which Napoleon had for some time cherished of assuming the imperial purple. A despotism for life is an absurdity; and besides it holds out a sort of premium for assassination. That the first consul's life had been aimed at, the infernal machine, and the conspiracy of Pichegru and Georges, placed beyond all doubt; that similar attempts would be repeated, as long as the hope remained that, by taking off a single individual, a counter revolution would be effected, was indeed most probable. According to the logic of the time, a necessity had arisen, not for abating the despotism, but for placing it on a more solid and permanent foundation; or, in other words, for declaring it hereditary in the person and family of the man who was already invested with absolute power. Thus reasoned the partisans of Napoleon, and, in their view of the question, correctly; because any thing was preferable to a government which might at any given instant of time be overthrown. Measures were therefore taken to effect the object which was now declared to be so necessary to the safety and happiness of France. On the 30th of April a motion was made in the Tribunate to confide the government of the Republic to an emperor, and to declare the empire hereditary in the family of the first consul Napoleon Bonaparte. This motion was made by an obscure member of the legislative chamber, named Curée, who concluded his speech on the occasion by declaring that the nation desired a chief as illustrious as its destiny. Ever since the 2d of August 1802, when, by an organic senatus-consultum, the members of the Tribunate were reduced to a hundred and fifty, Bonaparte had completely controlled the deliberations of that body; indeed almost all the tribunes were either sold or intimidated, and scarcely a shadow of representation remained. The proposition to confer upon Bonaparte the title of emperor was therefore adopted by the Tribunate; but the unanimity of that body was greatly troubled by the heroic opposition of Carnot, who on this occasion expressed the most noble and generous sentiments. "I voted," said he, "at the time against the consulate for life; I shall in like manner vote now against the re-establishment of the monarchy in France." He contended that the government of a single individual was any thing rather than a guarantee of stability and tranquillity. "The duration of the Roman empire," said he, "was not longer than that of the Republic would have been; the intestine disorders were still greater, and crimes more multiplied; republican highmindedness, heroism, and all the masculine virtues, were displaced to make room for the most ridiculous pride, the vilest adulation, the most insatiable cupidity, and the most complete disregard of national prosperity. What evil, pray, was remedied or obviated by declaring the succession to the throne hereditary? Was not this in fact regarded as the legitimate inheritance of the house of Augustus? Was not Domitian the son of Vespasian, Caligula the son of Germanicus, Commodus the son of Marcus Aurelius?" He concluded a powerful address in the following words, the beauty and force of which we shall not impair or enfeeble by any attempt at translation. "La liberté fut-elle donc montrée à l'homme pour qu'il ne pût jamais en jouir? Fut-elle sans cesse offerte à ses vœux comme un fruit auquel il ne peut porter la main sans être frappé de mort? Ainsi la nature, qui nous fait de cette liberté un besoin si pressant, aurait voulu nous traiter en marâtre? Non, je ne puis consentir à regarder ce bien si universellement préféré à tous les autres, sans lequel tous les autres ne sont rien, comme une simple illusion; mon cœur me dit que la liberté est possible, que le régime en est facile et plus stable qu'aucun gouvernement arbitraire, qu'aucune oligarchie."

The vote of the Tribunate was communicated to the Conservative Senate, which, on the 4th of May, decreed, on the motion of the second consul, Cambacérès,[1] "that it is for the decided interest of the French people to confide the government of the Republic to Napoleon Bonaparte as hereditary emperor;" and fourteen days afterwards the same body, without waiting until the vain formality of obtaining the sanction of the people had been gone through, passed another decree, in which the first consul is styled "Emperor of the French," a title which, according to the mover, "is only the expression of an authentic wish already manifested by the nation." It appears, however, that the people were not in any shape consulted or referred to in the matter. For form's sake, they had been admitted to vote respecting the question of the consulate for life; but on the present occasion the experiment was not repeated, however advantageous it might have been to obtain at least a semblance of popular assent; and, what is not a little remarkable, this fact is established by the conclusion of the very discourse in which it is unblushingly affirmed that the assumption of the imperial dignity by Napoleon is only the expression of an authentic wish *already* manifested by the nation. "If it is in the principles of our constitution," says Cambacérès, in presenting the decree of the senate, "and already several examples have been given, to submit to the sanction of the people the part of the decree which concerns the establishment of an hereditary government, the senate nevertheless conceives that it ought to supplicate your imperial majesty to consent that the organic dispositions should immediately receive their execution; and, for the glory as well as for the happiness of the Republic, it proclaims, *on the instant even*, Napoleon emperor of the French." What, then, becomes of the assertion, so often advanced, as if it could not be contradicted, that "the wish of thirty millions of men had crowned the Emperor Napoleon?" By evidence the most conclusive it is here established that Bonaparte was created emperor by the senate, consisting entirely of his own creatures, and that the nation was not consulted or appealed to in the matter. An organic senatus-consultum next declared the imperial dignity hereditary in the direct, natural, and legitimate descendants of Napoleon, from male to male, in the order of primogeniture, to the perpetual exclusion of women and their descendants. It provided, however, that the emperor might adopt the children or grandchildren of his brothers, if he had no male offspring himself at the moment of adoption, and that the children who might thus be adopted should enter into the direct line of descent, but could only be called to the succession after legitimate and natural descendants. In default of an heir of Napoleon, the imperial dignity was to devolve upon Joseph-Napoleon and his descendants, and, failing the latter, upon Louis Bonaparte and his descendants. And thus expired the French Republic, surnamed indivisible and imperishable by so many orators and rhetoricians; and thus was monarchy re-established in France, with even greater facility than it had been overthrown eleven years before. Having passed through a course of representative government, they now hastened to submit to the government of one man invested with despotic power; like the ancient slaves, they voluntarily replaced themselves under the yoke which for a day they had entertained the design of for ever shaking off.[2]

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[1] These were, Clavier, the learned translator of Pausanias, Lecourbe, Martineau, Desmaisons, Rigault, Laguillaumie, and Demeuve. To an emissary who informed him that Bonaparte only desired the condemnation of Moreau in order to pardon him, Clavier replied, "Et qui nous la fera, à nous?" Who will pardon us?

[2] After the sentence had been pronounced, every facility of escape was afforded to Moreau; but, discovering the snare laid for him, he avoided it by returning alone to the prison of the Temple. At length a compromise was entered into, and, after having paid the whole expense of the prosecution, he retired through Spain to America. "En montrant un caractère moins indécis, moins pusillanime," says the Abbé de Montgaillard, "Moreau aurait trouvé de l'appui dans le sénat, dans l'armée, dans la population de Paris, et même dans la nation; mais son infirmité politique se montre ici tout entière. Il ne s'était fait une idée positive de la part qu'il pouvait et devait prendre dans ces grandes crises de Fructidor et de Brumaire; il ne sut se déterminer ni dans l'une ni dans l'autre de ces circonstances; patriote sincère, ami de l'ordre, de la justice, et de la liberté, il ne sent jamais que des velléités incohérentes d'imiter ces grands hommes qui se signalèrent contre les oppresseurs de la patrie." (Montgaillard, *Histoire de France*, tome vi. p. 125, 126.)

Measures of Napoleon to obtain the recognition of his new dignity.

Having assumed the title of emperor, which the obsequious senate had, by a sort of improvisation, bestowed on him, Bonaparte lost no time in exercising the powers belonging to his new dignity. On the 19th of May he created eighteen of his generals marshals of the empire. This was an act of homage to the army, the real basis of his power, and it was performed without even waiting until the senate had taken the oath of allegiance, which it did on the 27th. Addresses now flowed in from all parts of the hundred and eight departments into which the territory of the imperial republic was divided. The authorities, the functionaries, the magistracy, and the army, all brought to the foot of the throne assurances of the most profound devotion. Harassed with the convulsions of a long anarchy, the people now invoked the repose of servitude. The despotism of one man seemed to them a small evil compared with the tyranny of the factions. Of this disposition Napoleon took full advantage, and, accordingly, spent the remainder of the year in employing every means to get his new dignity confirmed and sanctioned both at home and abroad. The fact of his assumption of the imperial dignity was formally announced to all the states of Europe, Britain alone excepted, and negotiations were at the same time opened with a view to obtain its recognition. Austria was the first to acknowledge the new emperor of the Gauls; and the opportunity was even chosen by her sovereign for modifying his own title, to which he now added that of hereditary emperor of Austria. But the other powers either hesitated or delayed. The army, however, formed the true basis of Napoleon's power, and their sanction was essential to its stability. To obtain this with suitable eclat, he visited Boulogne in the course of the summer, and, soon after his arrival in the camp, ordered a grand review, during which he distributed to the military crosses of the Legion of Honour, which, created by the law of the 19th May 1802, had been solemnly inaugurated at Paris a short time before (14th July). Here, on the 16th of August, seated on a temporary throne in the midst of his numerous hosts, with the shores of England and its fleets before him, he received, as it were in presence of the enemy, the exulting acclamations with which the troops answered his claim to empire, and seemed, like another Clovis, raised on their bucklers, to be the founder of a new dynasty in France. From Boulogne Napoleon hurried to Aix-la-Chapelle, the ancient capital of Charlemagne, where the acknowledgment of his new dignity by the Emperor Francis II. awaited his arrival. Lastly, on the 1st of December, the Conservative Senate presented to him the plebiscitum, as it was called, which recognised the imperial dignity as hereditary in his family.

His coronation.

That nothing might be wanting, the church was required to give her formal sanction to the new dynasty. The Gallican clergy had already signalised their zeal by proclaiming Napoleon emperor, and in their discourses styling him

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[1] He who thus placed the crown on the head of an ambitious soldier was the same person who, in the night of the 19th January 1793, exclaimed, "Citoyens répresentans, en prononçant la mort du dernier Roi des Français, vous avez fait un acte dont la mémoire ne passera jamais, et qui sera gravé par le burin d'immortalité dans les fastes des nations...Qu'une expédition du décret de mort soit envoyée, à l'instant, au conseil exécutif pour le faire exécuter dans les vingt-quatre heures de la notification." In this cortège of senators was also the minister of justice who, on the 20th January, announced to Louis XVI. the sentence of death. "Jamais empéreur de Rome," says Montgaillard, "ne dut le diadème à de plus vils affranchis; posé par de telles mains, il eût souillé le front même de Titus." (*Hist. de France*, vi. 94.) In a word, these Conventionalists, who, in 1793, had shown themselves so eager to hasten the death of Louis XVI., were not less so, in 1804, to accelerate the enthronement of Napoleon Bonaparte.

[2] How well they verified the words of an Italian poet, the reader will judge:

Torna contento così
Schiavo, che uscì di pena,
Alla barbara catena
Che detestava un dì. (Metastasio.)

History. 1804.

Moses and Cyrus, not to mention other impious absurdities.[1] In success they discovered divine right as well as legitimacy, and proclaimed the finger of God as the agent of his elevation. Nor was the successor of St Peter, and the vicar of God upon earth, less accommodating than the members of the Gallican church. At the command of Napoleon, his holiness made a journey to Paris, in order to place the crown on the head of the new Charlemagne, who had despoiled the church of the very possessions which had been bestowed on her by the pious emperor of the Franks. The sovereign pontiff who thus obsequiously consented to consecrate military usurpation, was no other than that Bishop of Imola who, in December 1797, exhorted his flock to follow the traces of the democratic revolution of France; but if the hearts of men are in the hand of the Most High, infallibility is of course an attribute of the papal tiara. The ceremony of the coronation took place in the church of Nôtre Dame on the second of December; and no labour or expense had been spared to give splendour and magnificence to the spectacle. But notwithstanding all the pomp and luxury displayed, few acclamations greeted the emperor on his way to Nôtre Dame, and still fewer awaited him on his return. No man said God bless him. The people generally remained passive and silent. During the ceremonial, Napoleon, impatient of its slow march, seized the crown, which he placed on his own head, and next he also crowned the Empress Josephine. The holy father then performed the triple unction on the head and the two hands, after which he recited the following strange formula of consecration: "Almighty and eternal God, who hast established Hazaël to govern Syria, and Jehu king of the Jews, in manifesting to them thy will by the organ of the prophet Elias; who hast equally shed the holy unction of the kings on the head of Saul and of David by the ministry of the prophet Samuel; shed, by my hands, the treasures of thy grace and of thy benediction on thy servant Napoleon, whom, notwithstanding our personal unworthiness, we do this day consecrate emperor in thy name." This formula explicitly announces the doctrine of divine right, a doctrine borrowed from the constitution of the Hebrews, and introduced into Europe at a period of the grossest ignorance, under the feeble Carlovingians, when the priesthood established the absolute power of kings over their people, and the absolute power of the pope over kings.

Character of Napoleon.

The man who had thus gathered up out of the wrecks of the Revolution the fragments of the sovereignty which it had broken to pieces, and with these materials, aided by his own genius, constructed a new empire in France, was, considering his character in its various aspects, the most extraordinary personage that any age or country has ever produced. Gifted by nature with all the general and efficient elements of greatness, but possessing few or none of those peculiarities which sometimes mar and sometimes adorn it, his powers differed from those of ordinary men not so much in kind, perhaps, as in degree. Great good sense, intuitive quickness, unquenchable energy, severe judgment, untiring perseverance; such were the general attributes of his mind, to which circumstances afforded full opportunities of development. He was not one of those men born to struggle against events, or to create occasions for the display of his own powers, and for the gratification of an aspiring ambition. He never anticipated the course of events, nor ventured forward until every accessory had been prepared, until all was ripe for consummation. His mind was essentially practical, and his supreme excellence consisted in a just appreciation of the true character of events, united with unexampled promptitude in availing himself of the favours of fortune, and in turning every propitious circumstance to the utmost possible advantage. But his energy was active, not passive; with the current of events in his favour, his audacity was boundless; when the tide turned against him, he evinced but little fortitude; in prosperity he seemed like a god, governing all things at his pleasure; in adversity he pined like a southern exotic under a northern sky. He was not fitted by nature to play the part either of Cæsar or of Cromwell, and he would never have descended to that of Catiline. He was in truth but a bad conspirator; for, as we have already seen, the revolution of the 18th and 19th of Brumaire was effected, in spite of his blunders and hesitation, by the firmness and intrepidity of his brother Lucien. Further, Napoleon was endowed with great and commanding intellect, but not with strong passions; he neither loved nor sympathised with freedom; and even his ambition seems to have been after-thought begotten of events. A little before the 13th of Vendemiaire, when accident first brought him into notice, his views were limited to the purchase of a country-house and farm, but not of confiscated property, so unstable did he then consider the Revolution. But he had that restless spirit, that craving activity, and that innate consciousness of intellectual power, out of which ambition springs. He was not without enthusiasm of a certain kind; but it never approached the generous warmth of inspiration, or betrayed him into any sallies which his judgment condemned; and hence his compositions and addresses, though full of force and vigour, are deformed by exaggeration, and devoid of natural feeling, the essential element of true eloquence. But the absence of passion and enthusiasm implies selfishness in the highest degree; and this again naturally produces the most depreciatory judgments of mankind. The character of Napoleon was deformed by both these vices in an eminent degree. Himself, his greatness, and that of France through him, became, if not a passion, at least the substitute for one; and, mistrustful of all pretensions to public virtue or disinterestedness, he regarded mankind as all governed by their immediate interests, and as ready to serve any cause by which these might be advanced. From this nullity of feeling, and strength of intellect, flowed the virtues and vices of the man. He was neither imposed on by the cant of the Revolution, nor in the slightest degree tinged with its fanaticism. Indebted for his promotion to the democracy, he adopted that side which threw command open to talents; he espoused the cause of the Revolution, and rendered it triumphant; but he imbibed none of its passions or prejudices against either the aristocracy or the clergy, both of whom he spared and even protected. He was not by nature cruel or implacable; but the supreme command of armies, and the habitual spectacle of fields of battle, had inspired him with a contempt of human life, and a disregard for destroying it. He had no immoral tendencies; but as he had derived from education no principle of religion, or, at least, as the Revolution annihilated any he might have originally imbibed, he was left free to adopt those untempered maxims of expediency, according to which prudence becomes the only regulating principle of human actions. Nor does he seem to have cherished any nice sentiment of honour, or in general to have possessed those habits and manners which are characteristic of a gentleman. The one would have inspired him with a respect for truth, and prevented an imperial bulletin from becoming synonymous with falsehood; and the other would have preserved him from that habitual rudeness, which at length left around him, not devoted servants, but servile instruments, alike incapable of delaying a guilty order or of hastening a generous one. As to war, Napoleon always found it made to his hand; if his system provoked it, which it unquestionably did, this never entered into his calculation, and he could not imagine why Austria, Britain, or any other power, should affect to feel any alarm at his aggrandisement. He had come in place of the Revolution; he was at once the representative and the guardian of all the interests and changes which it had created or effected; and yet, though but a Jacobin enthroned, he resented as an indignity and an insult the mistrust evinced by those very powers which had previously combined to crush the Revolution of which he was the representative. This was no doubt the grand misfortune of his position. He could not stand still, much less recede. His system was essentially of a progressive and an encroaching character; his policy was from necessity arbitrary and menacing. Wars followed; coalition after coalition was formed and destroyed; and whilst France only assumed the offensive in order to anticipate enemies which were preparing to strike her, victory attended her standards. But the very fruits of success, which no man knew so well as Napoleon how to gather up, soon accumulated to such a degree, that a further extension of his authority became inevitable. The obstinate hostility of England, which he endeavoured to overcome by means of what he chose to denominate the continental system, involved him in the Russian expedition, in which he assumed a directly aggressive character; and the consequences were unheard-of disasters and defeats. The elements warred against him, and in the snows of Russia were buried those formidable legions which had so often marched to victory. The tide of events now turned; and in the violence of the reflux Napoleon was, after a brief struggle, overthrown. When he crossed the Niemen to invade Russia, he had reached the culminating point of his destiny; when he recrossed that stream, the nations of Europe were already freed from his grasp. But though unable to control events, Napoleon was eminently calculated to rule over masses of men. If he deprived them of liberty, he at least secured to them equality; in all departments a boundless field was opened by him to talent and enterprise; and in pursuing his own schemes of greatness, he conferred the most substantial and enduring benefits on the nation which he governed. His was essentially a popular despotism; one which rested not on the narrow basis of castes, but leaned on the general mass. Yet his power, though it extended widely over the land, did not strike downwards, but, spreading its roots horizontally and superficially through the soil, wanted that firm hold which alone could have enabled it to resist the fury of the adverse blasts to which it was exposed.

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[1] The language of impious adulation in which the clergy indulged on the occasion referred to reflects eternal disgrace, if not on their order, at least on themselves. The following are specimens of the pious incense with which they endeavoured to regale the nostrils of Napoleon: "Le Dieu des dieux," said Cardinal Cambacérès, "et des rois, avait donné, et il avait repris; il n'a pas rendu, mais il a donné de nouveau, comme il avait donné le trône de Clovis à Charlemagne, et le trône de celui-ci à Saint-Louis...L'homme de la religion trouvera nos maximes dans l'Evangile." "Un dieu et un monarque," said the Archbishop of Turin, "comme le Dieu des Chrétiens est le seul digne d'être adoré et obéi; vous (Napoleon) êtes le seul homme digne de commander aux Français. Par-là cesseront toutes abstractions philosophiques, tout dépècement du pouvoir." "Qu'elle est grande," cried another dignitary, "qu'elle est admirable, cette divine sagesse qui établit les empires. Napoléon, que Dieu appella des deserts d'Egypte, comme un autre Moïse...Donnons pour garant de notre fidélité à César, notre fidélité à Dieu...Ne cessons de le dire, le doigt de Dieu est ici... Nouveau Mathathias, Bonaparte parut dans l'assemblée du peuple, envoyé par le Seigneur...Un nouveau Cyrus a paru...Généreux comme le pieux Onias...L'écriture nous trace, dans le règne de Josaphat, ce prince chéri de Dieu et des hommes, l'image du gouvernement accompli de Napoléon...La soumission lui est due, comme dominant surtout; à ses ministres, comme envoyes par lui pour proteger le bien et punir le mal, parce que tel est l'ordre de la Providence." It would be at once curious and instructive to compare this with the language held after the events of 1814, by some of the very men who thus profaned holy writ in order to offer incense to the Jacobin emperor.

New coalition against France preparing.

The events of 1804 prepared the way for a new coalition against France. The breach with Russia, resulting ostensibly from the seizure and execution of the Duke d'Enghien, had accomplished the first wish of Great Britain, which was to find a continental ally. Menaced with invasion, the mere threat of which, independently of any danger to be apprehended, was an evil, because an insult, that power, acting upon the most obvious principles of policy, naturally sought to find employment on the Continent for the legions which frowned defiance on the opposite shores of the Channel; and a prospect of accomplishing this object was unexpectedly opened in consequence of the event to which we have alluded. But this prospect was for a time overclouded by an unjustifiable aggression on the part of Britain. Spain had for several years been in close alliance with France, which she secretly aided with subsidies; yet the English government, though fully aware of the circumstance, pretended not to observe it, and had hitherto respected Spain as a neutral power. This policy, however, which, in the circumstances, was not less wise than cautious, the English ministry suddenly abandoned, and, by a most unjustifiable act of aggression, threw Spain into the arms of France. Without any declaration of war, or the least indication of a change in the system which had hitherto been pursued by England, several Spanish vessels, returning laden with treasure, were attacked by a superior force, and after a sharp action captured. This proceeding, stamped with all the characters of violence and treachery, was immediately followed by a declaration of war on the part of the Spanish government; and from this time Britain had not only to contend with the fleets of France and Spain united, but, in consequence of the gigantic schemes of Napoleon, became seriously exposed to all the perils and miseries of an invasion.

Proposal for peace.

Meanwhile, as the clouds of hostility were gathering around him, Napoleon addressed a letter directly to the king of Great Britain (14th January), containing overtures of a peace. "I attach no dishonour," said he, "to making the first advance. I have, I think, sufficiently proved to the world that I do not dread any of the chances of war. Peace is the wish of my heart. I conjure your majesty not to deny yourself the satisfaction of giving it to the world. A coalition will never have any effect but to increase the continental preponderance and grandeur of France." In any view, this was a politic proceeding. It served to conciliate public opinion in France, to throw upon England the odium of persisting in embroiling the Continent, to mask his real designs, and at the same time to parade his dignity by treating on a footing of equality with the proudest and most powerful monarch in the world. The reply of the English ministry was cold and repulsive. "His majesty is persuaded," said they in their reply addressed to M. Talleyrand, "that the object of peace can only be obtained by engagements calculated to provide for the future safety and tranquillity of Europe, and to prevent the recurrence of the dangers and misfortunes in which it has been involved. His majesty, therefore, feels that it is impossible for him to reply more particularly to the overture which has been made to him, until he has had time to communicate with the powers of the Continent." Both parties were equally insincere. Britain desired to abide by the fortunes of a third coalition; Napoleon pursued his schemes of aggrandisement, and on the 18th of March announced to the senate that he had accepted the crown of Italy, in conformity, as he said, with the wishes manifested by the Italian Republic. At Milan, where he was received with enthusiasm, he had exchanged his title of president of the Cisalpine Republic for that of king of Italy, and placed upon his head the iron crown[1] of Charlemagne, amidst the acclamations of a people charmed with the idea of a kingdom of Italy. This was followed by an act of a still more unequivocal character, namely, the incorporation of Genoa, lately the Ligurian Republic, with the French empire; a measure certain to alarm Austria, and to furnish Great Britain and Russia with a new and powerful argument for inducing that power to join the coalition against France.[2]

Napoleon's plan of invasion.

Many persons have thought, and some gravely maintained, that Napoleon was not serious in his menace of invading England. But the contrary has been proved by the most incontrovertible evidence. He was well aware, however, that without obtaining at least a temporary superiority of naval force, such a project would be impracticable; and accordingly all his efforts had, for some time past, been directed towards the accomplishment of this preliminary object. His plan was to distract the attention of England, by sending a powerful fleet to the West Indies, which, after threatening her possessions in that quarter, should suddenly return to Europe, effect a junction with the Spanish fleet, then disengage the squadron blockaded in Brest, and having rallied under its flag ships from other ports, enter the Channel with an overwhelming force of nearly sixty sail of the line. This project was admirably conceived, and most skilfully combined; and if the execution had at all corresponded with the design, or if Villeneuve had obeyed his orders, or if, even after his indecisive action with Sir Robert Calder, he had made sail for Brest, instead of going into Cadiz in the face of reiterated instructions, enforced even with menaces, it would beyond all doubt have succeeded. In this splendid conception, almost every contingency had been taken into the calculation, except the obstinate and infatuated disobedience of the admiral, which allowed England time to collect her means, and enabled Nelson to annihilate, by one decisive blow, the navies of both France and Spain. On this occasion fortune was on the side of England, which was saved from imminent peril, perhaps from a great national calamity, by a degree of infatuation in the commander of the combined fleets, far beyond all ordinary experience or reasonable calculation. If, after his action with Sir Robert Calder, Villeneuve had proceeded to Brest, according to his peremptory instructions, his force would have at once been increased to forty-five sail of the line, which, with the Rochefort squadron, the junction of which he could then calculate on, would have enabled him to enter the Channel with at least fifty sail of the line; a force amply sufficient to secure to France for the time the naval superiority required. And, in such an event, what would most probably have followed? The troops were in hand, almost on the very beach; the flotilla was kept in readiness to put to sea at a moment's notice; and in ten hours a hundred and fifty thousand men, with material and ammunition, might have been on their way to the opposite coast.[3] But providence willed it otherwise.

Third coalition formed.

Whilst Napoleon was thus menacing England with invasion from the heights of Boulogne, his looks were at the same time anxiously directed towards the east and north of Europe. He was by no means ignorant of the coalition which was forming against him; but as the position which he at present occupied enabled him at once to threaten England and observe Austria, he waited for the development of events in order to judge whether he should attack the former upon her own soil, or strike a blow at her in Germany. Prepared for instant operations, his principal object was to suffer the continental powers to anticipate him in declaring war, and then in turn to anticipate them, by promptly assuming the offensive, dashing into the very heart of Germany, overpowering Austria before she had time to concentrate her means of resistance, and thus destroying the coalition by, as it were, cutting off its head. And this plan, based on the most accurate prescience of events, was that which he ultimately carried into execution with the most astounding success. On the 8th of April a treaty of alliance was concluded at St Petersburg, between Great Britain and Russia, in which the contracting powers engaged to employ the most prompt and effectual means to form in Europe a general league, capable of constraining the government of France to consent to the re-establishment of peace, and of the equilibrium of power; and to attain this object, the force to be employed was fixed at five hundred thousand effective men, exclusively of the succours to be furnished by England. The special objects of the league were, the evacuation of Hanover and of Germany; the independence of Holland and of Switzerland; the re-establishment of the king of Sardinia in Piedmont, with a considerable extension of territory; the security of the kingdom of Naples; and the entire evacuation of Italy by the French. Sweden, having already decided against France, acceded to these stipulations. Prussia approved of their spirit, but temporised; and finally resolved to persevere in that neutrality by which she had already profited so much. Austria, anxious to redeem her defeats, and regain her ascendency in Italy, formally acceded to the treaty of St Petersburg (on the 9th of August), notwithstanding the strenuous opposition of the Archduke Charles, who, foreseeing the peril, earnestly counselled peace. She engaged not to lay down arms except with the consent of her allies, and was to receive from England a subsidy of three millions sterling during the current year, 1805, and of four millions during each of the following years. These negotiations did not long remain a secret from Napoleon, who had anxiously watched the gathering storm; and scarcely had Austria acceded to the third continental coalition, when the French army, assembled upon the shores of the Channel, was in full march towards the Rhine. Bavaria had previously been secured by a promise of territorial aggrandisement; the Russians were still in Gallicia; and Austria, as the Archduke Charles had foreseen, was thus left to contend single-handed with the whole power of France. In these circumstances Austria pushed forward her troops, and peremptorily demanded that the elector of Bavaria should abandon the alliance of France, and unite with her in maintaining the independence of Germany. The elector temporised, pleaded his engagements, gained time, and succeeded in drawing off his army. The Austrians then occupied Munich, thereby committing the very act of aggression which Napoleon expected and required.

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[1] This crown is called *iron*, from a nail of the true cross, which, it seems, is attached to it.

[2] Napoleon's object in seizing Genoa is announced in one of his letters to Lebrun, who had been appointed governor, and endeavoured, as far as possible, to mitigate the rigour of his stern orders. "In uniting Genoa to the empire, I was induced neither by the revenue, nor by the land forces she might contribute. I had but one object in view, viz. fifteen thousand seamen. It is, then, going against the very spirit of my orders to be lenient or backward in levying and raising this force. You are too mild, too merciful. How can you govern people without discontenting them? What would you do if you were charged with forcing the conscripts of a couple of French departments to march to the army? I tell you that, in matters of government, justice means force as well as virtue. (*Vous savez bien qu'en fait de gouvernement justice veut dire force comme vertu.*) As to the discontent of the Genoese, I am not the man to listen to such remonstrances. Think you I am decrepid enough to fear them? My answer is, seamen, seamen, still seamen. Govern but to collect seamen; dream but of them. Say what you will from me, but say that I will have seamen." The reason of this extreme urgency will immediately appear. As to the detestable maxim, that justice means force, it might with truth be converted into a general motto for the history of Napoleon's reign. With him the amount of force was ever the measure of justice and virtue.

[3] Dumas, *Précis des Evénemens Militaires*, tome xvii. *pièces justificatives.* Bourrienne reports a conversation which he had with Napoleon on this subject, and in which the latter is made to say, "Those who believe in the seriousness of my menace of invasion are fools. They do not see the thing in its true light. I can without doubt disembark in England with a hundred thousand men, fight a great battle, win it; but I must reckon on thirty thousand killed, wounded, or prisoners. If I march upon London, a second battle awaits me; suppose me again successful, what am I to do in London, with an army diminished by three fourths, without hope of reinforcements? It would be madness. Without naval superiority, such a project is impracticable." This merely shows either that Bourrienne did not understand the nature of the communication made to him, or that it suited the views of Napoleon to conceal his real intentions from the inquisitive secretary. That the menace was "serious" as long as a hope remained of obtaining, by the means already described, a superiority of naval force in the Channel, is proved beyond all doubt by the documents which General Dumas has inserted in the Appendix to his seventeenth volume, above referred to; and it seems equally certain that, if Villeneuve had obeyed his orders, the experiment, with all its attendant hazards, would have been tried.

Selfish and blundering policy of England.

The great object which the English ministry had in view in forming a new coalition against France cannot be mistaken. But in thus precipitating Austria into hostilities before her allies had time to come to her assistance, in order to remove the French army from Boulogne, Pitt played into the hands of the very enemy whom he was so desirous to humble. From the cause already stated, namely, the failure of Napoleon's maritime combinations, through the incapacity of his naval commanders, a descent upon England had become impossible, and the danger, before so imminent, had by this time entirely ceased. It was already certain that France could not obtain even a temporary superiority of naval force in the Channel, without which such an attempt would have been worse than madness. To obviate a danger, therefore, which no longer existed, Pitt recklessly sacrificed the principal ally of England, contributed to extend and consolidate the colossal power of Napoleon, and enabled him to impose on Germany those fetters which it afterwards cost so much blood and treasure to shake off. The blunder of the English minister was indeed gigantic, and no wonder it cost him his life. He fell into the very snare which had been so skilfully laid for him; and by this fatal error placed Europe at the feet of the man for whom he may with truth be said to have paved the way to victory. Nor was the conduct of the campaign itself in any respect unworthy of the blind and infatuated policy which had hurried on the contest.

War commenced; surrender of Ulm.

The Archduke Charles, finding his pacific counsels disregarded, had resigned the presidency of the war department, and refused to assume the general direction of a war which, he foresaw, would be attended with ruin to his house. The command of the Austrian army, therefore, was in an evil hour intrusted to General Mack, who, it is said, had been recommended by the English government; a mere pedantic tactician, without genius or energy, who, a few years previous to this, had failed to defend Rome with a numerous army, against General Championnet with only a few thousand troops; and who, though a tolerable staff-officer, was wholly unequal to the difficult and responsible situation in which he had been placed. Of this total incapacity he gave early and lamentable proofs. Conceiving that Napoleon must necessarily advance by the same road which had formerly been made choice of by Moreau, he took post at Ulm, and there awaited the approach of the enemy. The French emperor, however, had very different views. His preparations had been made with such rare ability, and the plan of the campaign so well digested beforehand, that towards the end of September the French grand army had arrived on the right bank of the Rhine. It was divided into seven corps, with a grand reserve of cavalry. The first corps was commanded by Bernadotte, the second by Marmont, the third by Davoust, the fourth by Soult, the fifth by Lannes, the sixth by Ney, the seventh by Augereau, and the cavalry by Murat, who had under his orders Nansouty, D'Hautpoul, Klein, Beaumont, and Walcher. Napoleon entered Germany at the head of about a hundred and sixty thousand men, including his guard.[1] By the 6th of October Bernadotte and the Bavarians occupied Weissemburg, twelve leagues south of Nuremberg; Marmont was in the vicinity of Neuburg; Davoust was at Oettingen, eight leagues north of Donawerth; Soult was at Donawerth; Ney was at Kenssingen, three leagues west of Donawerth; Lannes was at Neeresheim, two leagues north-north-west of Donawerth; and Murat with his cavalry was on the borders of the Danube. In thus placing himself in rear of the enemy, Napoleon accomplished two grand objects; he avoided exposing his flank to the debouches of the Tyrol; and by the rapidity of his march he had completely disconcerted the plans of the Austrians, whilst, by turning towards the north, he might cut off the Russians who were advancing from Gallicia towards the Danube. But in order to operate a prompt re-union of all his columns, it was necessary that Bernadotte, setting out from Hanover, and Marmont from Holland, should traverse the country of Anspach, belonging to Prussia. Napoleon had secured the neutrality of that power by the corruption of the Prussian ministry. But this violation of its territory wounded the self-love of the sovereign, as well as the pride of several distinguished military men, who, desiring to see an end put to the humiliation of their country, loudly demanded war against France. The indignation inspired by this insult had more effect on the cabinet of Berlin than all the efforts of England and Russia; and Prussia, when it was too late, renounced the neutrality which she had observed ever since the peace of Bâle, 5th April 1795, to engage single-handed in a contest with France.

The contest in Germany now advanced, with singular rapidity, towards a crisis. On the 8th of October a combat took place at Wertengen, four leagues south-west of Donawerth, in which Murat, supported by Lannes, enveloped an Austrian division, making a great number of prisoners. On the 9th the Archduke Ferdinand was defeated by Ney at Guntburg, six leagues east of Ulm, with considerable loss; and the same day Soult occupied Augsburg. On the 12th Bernadotte occupied Munich; and on the 14th Memmingen, a considerable place on the Iller, surrendered by capitulation to Soult, when four thousand Austrians were made prisoners. The same day a combat took place at Elchingen, two leagues north-east of Ulm, in which Ney signalized himself by the most chivalrous bravery. Three thousand Austrians were made prisoners. It had become necessary to obtain possession of the bridge and position at Elchingen, in order to isolate on the left bank of the Danube the mass of the Austrian army confined in Ulm. The bridge and the position, defended by six thousand men with four pieces of artillery, were twice carried by the bayonet, and as often recovered; but a third onset, made with the greatest impetuosity under Ney in person, proved successful. On the 15th the head of the first Russian column arrived on the Inn. The corps of Bernadotte was then in position between that river and Munich. At the combat of Langenau, three leagues north east from Ulm, Murat, on the 16th, came up with the division of Werneck, which had escaped from Ulm, and made three thousand prisoners.

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[1] Massena, at the same time, assumed the command of sixty thousand men assembled in the north of Italy, and advanced towards the Adige, where, being reinforced by twenty thousand troops, who, under the conduct of Gouvion-Saint-Cyr, had evacuated the kingdom of Naples, he found himself in a condition to contend with the Archduke Charles, and prevent him from operating, through the debouches of the Tyrol, on the flank of the grand army. Three corps d'armée, intended as a reserve, were also assembled at Boulogne, Mayence, and Strasburg, and three flying camps of grenadiers were marked out at Rennes, in La Vendée, and at Marengo.

Thus, by the direction given to his army after the passage of the Rhine, and by the rapidity of his marches, Napoleon had, as it were, overwhelmed the Austrians, and reduced all their offensive plans to a defensive without method. Mack at Ulm was placed in nearly the same situation in which Melas had found himself before the battle of Marengo. Both had their retreat cut off; but Melas tried to break through the enemy in his rear, and had succeeded in his object, when an accident deprived him of the reward of his resolution; whilst Mack, closely invested in Ulm and its immediate vicinity, made no effort to force his way with his masses united, although continual rains favoured such an attempt, but preferred risking the escape of his divisions separately. Thus the Archduke Ferdinand, nominally general-in-chief, but placed under the tutelage of Mack, had left Ulm with part of the cavalry; whilst Mack, who had the title of quarter-master-general, still remained there. As already stated, he was the same person who, in the campaign of Naples, had lost his reputation as a tactician, without displaying any talents for execution; and who, on the 23d January 1799, had surrendered himself prisoner to General Championnet. His situation had now become desperate. The French occupied all the surrounding heights, and he had nothing left but to capitulate. General Segur, sent to demand his submission, found every thing in disorder, and the brain of Mack in a state entirely corresponding. This poor man had no clear idea of the state of things until the French themselves informed him; and he did not even know that Napoleon was his antagonist. He began by demanding eight days' truce, or death, and concluded by immediately capitulating. Ulm, with all its magazines and artillery, was surrendered to the French; and thirty thousand combatants became prisoners of war. The officers, including sixteen generals, were discharged on their parole; the sub-officers and soldiers were conducted into France. In less than fifteen days, the Austrians had lost above fifty thousand prisoners, two hundred pieces of cannon, many thousand horses, with about eighty colours and other trophies, and were now forced to shelter themselves behind the Inn. Never was triumph more rapid or more complete. The surrender of Ulm took place on the 20th October, and on the 21st was fought the battle of Trafalgar, in which Lord Nelson annihilated the combined fleets of France and Spain, and by the results of that glorious day counterbalanced to England the advantages which Napoleon had just reaped in Germany.

Prosecution of the campaign.

But the disasters which Austria had sustained at Ulm might have been repaired, and the fortune of the war changed, if Prussia, otherwise so well disposed towards the coalition, had even now struck in. By her hesitating and (as the result proved) ruinous policy, a heavy blow had fallen on Austria; but there was still time to check the advance of the French, and even to reduce them to the necessity of acting on the defensive. On the 25th of October an interview took place at Berlin, between the Emperor Alexander and Frederick-William III., and, at the tomb of Frederick II., these two sovereigns promised to unite their efforts to restrain the ambition of Napoleon. But this political and sentimental farce ended in nothing. The favourable moment thus allowed to escape could not be recalled; the king of Prussia was ere long at the feet of Napoleon; and the emperor of all the Russias became the friend of the man who had granted him his life upon the field of battle. Very different indeed was the course pursued by the French emperor. After reconducting his ally, the elector of Bavaria, to his capital, Napoleon advanced into the heart of the Austrian states, whilst his lieutenants continued to drive all before them. On the 1st of October he had crossed the Rhine; on the 20th Mack and his army were prisoners; and on the 15th of November he made his public entry into Vienna, which had capitulated on the 13th. The Austrian court and army had retired into Moravia; but in evacuating the capital they had neglected to break down the great bridge on the Danube, of which Lannes, by an act of unexampled audacity, now made himself master. The Emperor Francis had hoped that the Russians would arrive in time to act on the right bank of the Danube, and thus save his capital from occupation; but in this he was disappointed. The first Russian army under Kutusof having advanced higher up the Danube than Vienna, immediately fell back towards Brunn on receiving intelligence of the occupation of the capital. Justly apprehensive of having his communications with the second army intercepted, which in fact was the aim of Napoleon, the Russian commander felt himself compelled to execute this retrograde movement, which he did with all possible celerity. But being warmly pursued beyond Vienna, and attacked in the midst of his movement by Murat with the French cavalry, he proposed an armistice, with the sole view of gaining time to receive the reinforcements which were advancing from Upper Moravia, and to secure his retreat. Murat, who was already at Hollabrunn, fell into the snare, and accepted the artful propositions of the Russian commander, which, however, were immediately rejected by Napoleon. By means of this stratagem Kutusof saved his army from the imminent perils to which it was exposed, and on the 18th November effected a junction with the second Russian army under Buxhowden, at Wischau, six leagues from Brunn, the capital of Moravia, where he assumed the command in chief of the allied army. Kutusof's retreat was covered by Prince Bagration, who, with a corps of six thousand men, made a desperate stand at Juntersdorf against a greatly superior force under Murat, Soult, and Lannes, and, in spite of every effort that could be made to dislodge him, maintained his ground till night, when he withdrew with the remains of his corps. This encounter, which saved the army of Kutusof, raised the courage of the Russians; they were still the soldiers of Suwarof, and longed to measure swords, in an ampler field of battle, with an enemy whom that victorious chief had so often overthrown.

Situation of the French army.

The French now occupied Brunn, a strong place, well armed and supplied with munitions of war, which the Austrians had precipitately evacuated on the evening of the 18th November, and on the 19th Napoleon established his head-quarters at Wischau. Still the situation of the French army was one of imminent hazard. Hurried on by the ardour of success, it had arrived in the centre of Moravia, more than two hundred leagues from the frontiers of France; it had in its rear neither magazines nor strong places to serve as *points d'appui*; its line of operations was disproportionately long; and it was exposed in a space of about ninety leagues of hostile country. Bohemia was in a state of insurrection, and threatened the communications by the left. The warlike

Hungarians had risen in mass upon the right. The Archduke Charles, having escaped from Massena, whom the appearance of an Anglo-Russian fleet had retained in Italy, was within fifty leagues of Vienna, the numerous population of which was in a state of extreme fermentation. Prussia had secretly acceded to the coalition, and her minister Haugwitz brought to Napoleon an ultimatum, the rejection of which was to be immediately followed by an official declaration of war. In a word, all the probabilities were against the French army, which had no resource but in a prompt and decisive victory, and, without immediate prodigies of bravery and military science, could not hope to escape from the numerous enemies by whom it was about to be enveloped. What Napoleon most wanted, therefore, was a great battle; but, in proportion as this had become necessary to him, the clear interest of the allies recommended for the present a Fabian system of tactics, and at any sacrifice avoiding a decisive action, by the result of which alone could the French army be saved from destruction. But, in spite of the strong and urgent reasons for acting upon the defensive, it was nevertheless resolved at the head-quarters of the allied emperors to deliver battle.

Ba le of Au erlitz.

On the 2d of December the three emperors with their troops were near Austerlitz, a village about two leagues south of Brunn. The Russian army, reinforced by a second corps (18th November), reckoned about eighty thousand effective combatants; and that of Austria amounted to about twenty-five thousand. The French army did not exceed eighty thousand men on the field of battle. The artillery on both sides was formidable, but the allies had the advantage in the number of cavalry. The allies no doubt desired to gain time, in order to await the arrival of a third Russian corps, now only eight marches distant; but the manœuvres of Napoleon, and, we may add, his artifices, induced, if not compelled them to accept battle. The immense accumulation of troops around Olmutz, resulting from the extraordinary rapidity of events, occasioned such a scarcity of provisions, that the general-in-chief, Kutusof, felt himself constrained to precipitate offensive operations. This determination had, without his knowledge, entered into the plan of Napoleon, who, three days before, had withdrawn his advanced guard, in order to fight upon ground which he had reconnoitred, and all the accidents of which were consequently known to him. The hesitation of Kutusof allowed a precious opportunity, and circumstances extremely favourable, to escape him. But not having attacked when the French forces were scattered, he ought to have continued his retreat, in order to engage them still more in advance, either by moving upon Hungary to operate a junction with the Archduke Charles, or upon Bohemia to communicate with Prussia, whose army was assembled and in a condition to act; in short, he ought to have temporised until the simultaneous co-operation, now close at hand, of all the members of the coalition had been obtained, in which case the retreat of the French army towards the Rhine would have been rendered impossible. But instead of acting in this manner, by which eventual success would have been placed almost beyond the reach of accident or fortune, he decided to risk the chances of a general battle, when the respective forces of the combatants were nearly equal.

Marshal Lannes, having under him General Suchet, commanded the left; Marshal Soult directed the right; Marshal Bernadotte commanded the centre; Marshal Davoust kept himself in observation before the left of the allies; Marshal Murat, with his cavalry, and twenty-four pieces of light artillery, supported the right under Marshal Lannes; and the reserve consisted of ten battalions of grenadiers under General Oudinot, flanked by ten battalions of the guard under General Junot, the whole being provided with forty pieces of cannon. The action commenced at sun-rise, and continued until night. The sun rose with unclouded brilliancy, and was long remembered as the sun of Austerlitz. Its first rays discovered the Austrians and Russians disseminated on, around, and behind the village of Austerlitz, where the allied emperors had taken post to observe the first efforts of the attack. This was directed against the French right, and sustained by Soult and Davoust with their wonted activity and skill, aided greatly by their positions, which were amongst flooded and marshy ground, where the ice was still too weak to support the weight of men or horses. All that Napoleon required of these officers was to maintain their ground for a certain number of hours, whilst with his left and centre he simultaneously attacked that portion of the enemy's force in front, which he proposed to cut off from the wing engaged. This was the decisive movement; but he delayed long in giving the signal for the premeditated attack, so little anticipated by the enemy, fearing lest they might recall their troops from their left, by which they proposed to assail the French. But as soon as he heard the sound of battle fully engaged in that direction, he gave the word; his generals hurried to their respective posts; and Lannes, Bernadotte, Legrand, St Hilaire, each at the head of a division, advanced. At this moment the allied columns were descending from the heights, and filing off in the direction of their left, where they expected to find the main strength of the battle. But it was nearer them than they imagined, even in their front, where, owing to their ignorance of the true position of the French army, they had not looked for any serious opposition. Surprised, and attacked during an oblique movement, by columns of equal or superior force to their own, the Russian line was intersected; and the French having gained the heights, drove their adversaries down into the defiles behind. But between the village of Austerlitz and the heights thus carried were the Russian reserve, consisting of chosen troops, including the imperial guard, commanded by the Grand Duke Constantine. These, too, were marching towards the left, when, to their astonishment, the French light troops, supported by cavalry, broke in amongst them. A scene of surprise and confusion ensued. But the emperor, aided by Kutusof, rallied the troops; the Russian guards, assisted by some other regiments, charged with great fury; the French, victorious a few moments before, were now driven back; and some regiments which had formed squares were broken by the impetuosity of the Russians. Napoleon did not observe what was taking place, Austerlitz being hidden from his view by the intervening heights; but his ear having caught sounds betokening any thing but victory, he instantly ordered General Rapp, one of his aides-de-camp, to advance at the head of the grenadiers *à cheval* of the French imperial guard. Rapp galloped off at the head of these superb squadrons, rallied the stragglers as he advanced, and on approaching the immediate scene of conflict, found the victorious Russians sabring the French as they were driven from the broken squares. Without hesitating a moment, he sounded the charge, broke through a superb regiment of the Russian imperial guard, and made Prince Repnin, one of its colonels, prisoner. This afforded the French time to rally; and, with their usual promptitude and intelligence, they quickly regained their order. Rapp returned to the charge, and overpowered the regiment of the Grand Duke Constantine, who was indebted for his safety to the swiftness of his horse; whilst General Gardanne, charging with a division of dragoons, completed the discomfiture of the enemy. From the heights of Austerlitz, the Emperors Alexander and Francis witnessed the defeat of the Russian guard. The Emperor Napoleon then directed his efforts to the right, where the enemy still continued to oppose a vigorous resistance; and the Russian corps, being at length surrounded and driven from all the heights, were forced back to the margin of a lake, where the French artillery made a terrible carnage. From fifteen to eighteen thousand Russians, attempting to escape over the ice, were drowned; two columns, each four thousand strong, laid down their arms; the whole Russian artillery was taken, whilst forty standards, including those of the imperial guard, also fell into the hands of the French; and the remains of the Russian army, without artillery, without baggage, in a state of the most frightful disorganization, and surrounded on all sides, must have surrendered at discretion had they been vigorously pressed. Even the life of Alexander was at the mercy of Napoleon, who ordered his artillerymen not to fire on the emperor of all the Russias, and, from motives of generosity or policy, allowed him to escape.[1] Such was Austerlitz, one of the most remarkable battles fought in modern times. It consisted of a series of manœuvres, every one of them successful, by which the Russian army, surprised in an oblique march, was cut into as many portions as there were columns directed against it. The loss sustained by the Russians, in killed, drowned in attempting to cross the lake on the ice, wounded, and prisoners, has been estimated at thirty-five thousand men; fifteen generals were either killed or taken; the general-in-chief, Kutusof, received several wounds; and a hundred and fifty pieces of cannon were abandoned. The French appear to have lost about ten thousand men, including a general of division and two colonels, who died on the field of battle. At Austerlitz, masses of the French cuirassiers charged, for the first time, the enemy's batteries; a bold manœuvre, which, being rapidly executed and courageously sustained, during nine hours, by the corps of Marshal Soult, contributed powerfully to the success of the battle. Marshal Bernadotte also took an active part in this mighty conflict. At the moment when the Russian guard was defeated, he advanced at the head of the centre of the army, and by means of his cavalry vigorously charged the enemy; whilst Marshal Lannes, who commanded the left, charged at the same instant, with rare intrepidity, and thus threw them into the most frightful disorder.

Consequences of the battle.

On the evening of the battle the emperor of Germany sent to demand an interview with Napoleon. It was arranged for the 4th of December, and took place within a few leagues of Austerlitz, by the fire of a bivouac. "I receive you," said Napoleon, "in the only palace which I have inhabited for two months. "You made so good use of this kind of habitation," replied the emperor of Germany, smiling, "that it ought to content you." Francis took Napoleon by the hand, and saluted him by the name of brother. From this moment the judgment of Napoleon, usually so clear, seemed to be bewildered; he changed, so to speak, his nature; and, in his desire to become at any price a monarch allied to an old dynasty, he ceased in future to be any thing but an emperor. The sovereigns remained two hours in conversation, during which the terms of an agreement appear to have been arranged.[2] Napoleon showed great forbearance and moderation. The emperor of Russia, to whom he afterwards restored the portion of his guard who had been made prisoners, was permitted to retire unmolested to his dominions, under the protection of an armistice; but although the czar professed great admiration of the man who had so generously spared both himself and the wrecks of his army, he declined to enter into any treaty, or even to acknowledge Napoleon as emperor of the French. The king of Prussia had a more difficult part to perform. He had been ready openly to join the coalition, to which he had secretly acceded; and his minister, Count Haugwitz, had arrived, prepared to employ the language of menace. But fortune had embarrassed all the calculations of Prussian policy; and Haugwitz, finding Napoleon successful, changed his tone, and complimented him on the victory which he had just gained. "This is a congratulation," said Napoleon, in reply, "of which fortune has changed the address." In proportion as he had shown forbearance to Austria, he gave way to his indignation against the duplicity and perfidy of Prussia, and so terrified Count Haugwitz that the latter concluded a treaty, accepting Hanover in lieu of Anspach and Bareuth, which were to be given up to France. The object of Napoleon, no doubt, was to embroil Prussia with Britain, and he thought this would be most effectually accomplished by an arrangement which imposed on the former power the odious task of seizing upon Hanover. Nor was this all. At the very moment when the transfer in question was concluded by Haugwitz, Hardenberg had required the assistance of Britain, conjunctly with Russia, in case Prussia should be attacked; and these incompatible agreements were, to its no small embarrassment, soon laid before the cabinet of Berlin. The difficulties thus created were no doubt great; but it endeavoured to escape from them in the best way it could, by accepting Hanover as a deposit, and by yielding up Anspach, together with Cleves, Berg, and Neufchâtel, as had been agreed to by Haugwitz. On the 26th of December, a treaty of peace was concluded at Presburg, between France and Austria. The ancient states of Venice, including Dalmatia and Albania, were ceded to the kingdom of Italy. The principality of Eichstett, part of the archbishopric of Passau, the city of Augsburg, the Tyrol, and all the possessions of Austria in Suabia, the Brisgau, and the Ortenau, were transferred to the elector of Bavaria, the Duke of Wirtemberg, and the Duke of Baden; and the independence of the Helvetic Republic was also stipulated. The Germanic constitution, so much damaged by the treaty of Lunéville, was now virtually dissolved by two of its members, the elector of Bavaria and the Duke of Wirtemberg assuming the title of kings, under the auspices of France, without the consent either of that body or of its chief. By this treaty, Austria likewise sanctioned all the partitions previously effected both in Germany and Italy, and lost a territory of eleven hundred thousand square miles, with a population of two millions six hundred thousand souls.

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[1] "Cette générosité," says the Abbé de Montgaillard, "doit être considérée, politiquement, comme une très-grande faute; Alexandre tué sur le champ de bataille, et l'armée Russe anéantie ou prisonnière de guerre, un grand soulèvement devait avoir lieu à Saint-Pétersbourg; il est difficile de présumer l'étendue des consequences d'un tel ordre de choses; mais elles ne pouvaient qu'être favorables au système et aux intérêts Français. Napoléon, chargé de fers à Sainte-Hélène, et proie à toutes les barbaries qu'ordonnent les cabinets de Saint-Petersbourg, de Vienne, et de Berlin, barbaries dont le cabinet de Saint-James s'est rendu l'exécuteur, Napoléon aura dû vivement regretter la magnanimité dont il use envers les deux empéreurs vaincus à Austerlitz. Cette magnanimité, il n'est pas permis d'en douter, est produite par le brûlant désir qu'a Napoleon d'être reconnu empéreur et roi; d'entrer dans le catalogue officiel des monarques d'Europe, et de s'entendre appéler mon frère par les deux plus puissans de ces monarques. Mais une bonne et sage politique demandait que les deux empéreurs, Alexandre et François, fussent faits prisonniers et aménés en France; la paix, une véritable paix, et non une trêve de quelques mois, eût été, selon toute apparence, le prix de la rançon des deux captifs, et l'Angleterre n'eût pas refusé d'y adhérer, pour peu que Napoleon eût borné son ambition à maintenir, pour la France, l'état actuel de possession. Que ne peut donc l'amour d'une vaine gloire, que ne peut l'orgueil impérial et royal sur l'esprit d'un parvenu de la Révolution Française? (Montgaillard, *Hist. de France*, tome vi. p. 179, 180.)

[2] Whilst the proceeding adopted by the emperor of Germany shows the deep impression made upon his mind by the battle of Austerlitz, following as it did so rapidly after the disaster of Ulm, it is at the same time clear, that the check which he had just experienced, though infinitely grave, was not so decisive and irremediable as to destroy all hope, or to be incapable of being repaired in the course of another campaign. The Archdukes Charles and John were advancing at the head of eighty thousand fresh troops, and had already put themselves in communication with Hungary, where the insurrection was becoming general; the losses sustained by the Russians were on the eve of being effaced by a considerable corps (the third army) which had arrived in Silesia; the inhabitants of Bohemia had commenced their levy in mass; a hundred and sixty thousand Prussians, Saxons, and Hessians, were under arms, waiting the order to advance; numerous corps of Prussians and Swedes menaced the northern frontier of Holland; a formidable diversion was on the point of being operated in the south of Italy; and, lastly, the army of Napoleon, sensibly weakened by its rapid marches and successes, was more than three hundred leagues from its reinforcements, and in fact only occupied the long narrow line which it had followed in its advance from the Rhine to Olmutz. A little more tenacity on the part of Austria would therefore in all probability have brought about the ruin of Napoleon and his army. But the Emperor Francis, dejected by his last disaster, threw away a thousand chances which had become favourable to him; he wanted the courage necessary to support the struggle when the tide was about to turn, or to prolong hostilities on the eve of a general change of circumstances, which could scarcely have failed to produce a great amelioration in his position, political as well as military; and, without waiting to calculate or deliberate, he came humbly to solicit an armistice, as Darius would have done after a defeat, and as Sapor would not. By a strange and inconceivable destiny, the emperor of Austria, without intending it, twice saved Napoleon, in the heart of his states, namely, at Austerlitz and at Wagram; on both occasions, the French emperor, having committed great military faults, found himself, after gaining two battles, exposed to have his communications with France intercepted, and was saved from this danger by an almost immediate suspension of hostilities.

Proc'd- ngs f Na- oleo.

Napoleon declared to the French senate, as he had previously done to the emperor of Austria, that he had sought no aggrandizement for France. But this declaration was made in the true spirit of the Italian school of politics, which enjoins the observance of the letter of an obligation, but permits an infringement of its principle. If France was not aggrandized, all the states in dependence on her were so. Venice and Dalmatia were added to the kingdom of Italy. Naples, which an Anglo-Russian force had invaded, was occupied, and the reigning house expelled, as if by the mere word of command. Berthier and Murat were created German princes. The newly acquired provinces of Venice, Dalmatia, Istria, Friuli, Bellnno, Feltre, Bassano, Vicenza, and Rovigo, were declared duchies, and assigned to the generals and civilians of the imperial court. Bavaria and Wirtemberg had already been aggrandized out of the spoils of Austria, and their rulers raised to the rank of royalty. This was Napoleon's first performance as king-maker. But his elder brother Joseph was now declared king of Naples, and his younger brother Louis, a man of mild and amiable character, king of Holland; whilst various matches were made, all having for their object at once to aggrandize and unite the new imperial family. Lastly, having done so much for those of his own house, Napoleon consented to receive the homage of his subservient legislature, which, after lavishing on him the most fulsome expressions of adulation, ordered to be erected, in one of the principal places of the capital, a column surmounted with a statue of the emperor, and bearing the inscription, "A Napoléon le Grand, la patrie reconnoissante."

Stat of af- airs pros- ect f eac

The commencement of the year 1806 was brightened with a momentary prospect of peace. On the 23d of January, not two months after the battle of Austerlitz, where all his schemes had been overthrown, Pitt breathed his last. With the bitter exclamation, "Oh, my country," on his lips, he expired, leaving Europe in confusion, and England beset with difficulties. On the accession to power of Mr Fox and his friends, hopes of peace were entertained; and that statesman having opened a correspondence with the French emperor, by apprising him of an offer which had been made to assassinate him, negotiations followed. But serious obstacles unexpectedly arose, one of them relating to Sicily, which the French insisted should be conjoined with Naples. Talleyrand, however, pushed the conferences with great activity, and evinced the utmost anxiety to conclude a peace. With prophetic sagacity, he foresaw, that without a peace with England, every thing was problematical with the French emperor; that nothing short of a sequence of fortunate battles would consolidate his power; that this was a series of which the last term might perhaps be zero; that nothing could be safe where all was continually put to hazard; that one great reverse would overthrow the fabric which it had required many victories to rear up and establish; that, in short, the time had arrived to secure what had already been gained, and to realise, as it were, the glory which no disaster had as yet overclouded.[1] But all these efforts proved, unhappily, vain; nor in fact would any peace that might now have been concluded have proved lasting. Napoleon could not descend from the position to which victory had raised him; and England could not acquiesce in the continued exercise of an ascendant influence subversive of the general balance of power and the independence of states in Europe. Austria and southern Germany were under the dictation of the French emperor; Italy, from the Alps to the Gulf of Tarentum, was subject to his immediate sway; Spain had degenerated into a mere province of the French empire. The only independent power bordering on France was Prussia, and she was already marked out as the next object of attack. In such circumstances peace was unattainable, or, if nominally attained, would have only been a renewal of the truce of Amiens. Bonaparte was still in his ascending movement; and although wisdom would have counselled him to stop, and even to descend to a lower and safer level, ambition held different language, and urged him to go on.

Prussia.

Prussia, however, had acted a part equally imprudent and unworthy. We have already adverted to the two treaties, one concluded by Haugwitz with Napoleon, and the other by Hardenberg with England, in December 1805. Perplexed by the results of her own perfidy and double dealing, she derived advantage from neither. She naturally hesitated to accept of Hanover, and to shut her ports against England; but, on the other hand, as Anspach, Cleves, and Berg, ceded by Haugwitz, were already seized by the French, the desire of an equivalent prevailed over all sense of justice or regard even to decency, and this hesitation was overcome. On the 1st of April Hanover was annexed to the Prussian territory, in virtue of a proclamation which set forth that, since Hanover belonged to France by right of conquest, its legitimate possession had been transmitted to Prussia as an equivalent for the cession of three of her provinces to France. A more impudent and unblushing declaration was never made by any government, nor one more subversive of every principle of public law, justice, and morality. But the same cabinets which stigmatized Bonaparte as a usurper, recognised him as legitimate sovereign of France whenever they could profit by his political crimes, and when his spoliations suited their own interests and political arrangements. The conduct of Prussia, in this particular, met with loud and indignant reprobation in England. Mr Fox publicly denounced it as "every thing that was contemptible in servility, and all that was odious in rapacity." Nor was this all. Whilst Prussia had thus dishonoured herself for the sake of Hanover and the French alliance, she had the incredible mortification to learn, through the English papers, that Napoleon had offered to restore Hanover to Britain as the price of peace. She had sacrificed her character to obtain Hanover, and she had even dismissed her minister, Hardenberg, to please the French emperor; she had rendered herself an object of scorn to the government of England, and France now rewarded her abasement and humiliation with contempt. Never indeed was perfidy more severely and at the same time more justly punished. But Prussia had yet other and more severe mortifications to endure.

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[1] This proof of the profound sagacity of Talleyrand, whose political foresight has been so often exemplified in the course of the events of the last thirty years, is taken from the memoirs of his enemy the Duke of Rovigo. The words of Savary are, "M. de Talleyrand poussait les conférences avec activité; rien ne lui eût coûté pour faire conclure la paix avec Angleterre. Il disait, à qui voulait l'entendre, que, sans elle, tout était problème pour l'empéreur, qu'il n'y aurait qu'une suite de batailles heureuses qui le consolidérait, et que cela se réduisait à une série, dont le premier terme était A, et donc la dernier pouvait être Y ou zero."

Confederation of the Rhine.

A compact still more alarming to Prussia than any which had yet been formed was now entered into. This was the confederation of the states of the Rhine, which was concluded on the 12th of July, between the emperor Napoleon, and several princes of the south and west of Germany. These princes separated themselves, in perpetuity, from the territory of the Germanic empire, and united together in a new federation, of which the emperor of the French was declared the protector. The contingent to be furnished by each of the allies was determined; a great number of secularisations and annexations of territory in their favour were recognised and sanctioned; the old constitution of the Germanic body was dissolved; and Napoleon became, in fact, lord suzerain of a large portion of Germany. His object, indeed, seems to have been to make the confederation of the Rhine the centre and pivot of his future power. The notification of the treaty of the 12th July was made to the diet at Ratisbon on the 1st of August, when fourteen German princes declared their separation from the Germanic body, and their new confederation under the protectorate of Napoleon. The common interests of the confederate states were to be discussed in a diet which was to sit at Franckfort-on-the-Maine; and this diet was to be divided into two colleges. In the college of kings were to sit the representatives of the elector of Bavaria and the Duke of Wirtemberg, who had each assumed the title of king, together with those of the Grand Dukes of Baden, Berg, Darmstadt, and the prince primate; and in the college of princes were eight petty princes bearing inferior titles. The contingents were, for France two hundred thousand men; for Bavaria, thirty thousand; for Wirtemberg, twelve thousand; for Baden, eight thousand, &c.; making in all two hundred and sixty-three thousand men. Such was the confederation of the Rhine, which, in the course of six years, was augmented by all the sovereigns of Germany, old or new, with the exception of the emperor of Austria, the king of Prussia, the Dukes of Brunswick and Oldenburg, the king of Sweden as Duke of Pomerania, and the king of Denmark as Duke of Holstein.

Relations of France with Russia and Prussia.

On the 20th July preliminaries of peace between France and Russia were signed at Paris. This was before the treaty of the confederation of the Rhine had transpired. When that organic compact had become known, the cabinet of St Petersburg refused (15th August) to ratify the stipulations which had been agreed to with France, upon the pretence usual in such cases, that its envoy had exceeded his instructions. The negotiations on both sides had, in fact, been entered upon with equal duplicity, with the same perfidy. The ambitious designs of Napoleon against the north of Europe had already become sufficiently manifest not to leave any room for doubt as to his real intentions; whilst the czar, anxious to obliterate the humiliation of Austerlitz, and to re-establish his preponderance in the west of Europe, had recourse to those artifices which have at all times been familiar to Russian diplomacy. The object of the French emperor was to mature his schemes, and augment his means of future aggression; what the Russian autocrat desired, was to gain the time necessary to prepare for another struggle. Meanwhile the situation of Prussia was every day becoming more and more critical. If she had cause for mistrust on discovering that Napoleon had offered to restore Hanover to England, this was not lessened by the organization of a powerful, and, from its very constitution, hostile confederacy on her most defenceless frontier. Napoleon, however, attempted to assuage her just suspicions by inviting Frederick-William to form in the north of Germany a confederation similar to that which he had established in the south and west, and also to assume the imperial dignity. But, in the circumstances, these propositions were no better than sheer mockery. The court of Berlin had received too many proofs of the slighting conduct, if not hostile intentions, of France, to repose any confidence in her offers. Injury had been exasperated and envenomed by insult, and the cry of the nation was now for war. Still the most obvious maxims of prudence should have induced Prussia to temporize until her allies were in a condition to take the field. Russia having refused to ratify the stipulations of the 20th July, was preparing to renew the struggle; all hopes of an accommodation between Britain and France were completely at an end; and Prussia, single handed, was not in a situation to contend with a power which had so recently overthrown Austria, even when assisted by Russia. But, neglectful of all this, the court of Berlin, passing from the extreme of caution to the extreme of temerity, gave full intimation of its intentions as early as the month of August, by increasing the army and calling out its reserves. Prussia was now destined to reap the bitter fruits of her selfish and equivocating policy. Had she, during the last coalition, united cordially with Austria before that power had received a stunning blow, Napoleon might have been compelled to receive instead of dictating the law; Austria would at least have been saved; and the confederation of the Rhine would never have been heard of. But selfish timidity kept her arms tied when every motive urged, nay when the strongest obligations bound, her to strike in; and now, when Austria was humbled and France aggrandised, when all the favourable chances had disappeared, and when a mighty army, trained to combats and flushed with victory, was ready to pour its veteran legions across her frontier, Prussia stepped forth alone, in her own strength, to encounter the gigantic force before which her more powerful neighbour had fallen. Her councils became smitten with that infatuation which is the sure forerunner of calamity.

War between France and Prussia.

If it was the height of imprudence in Prussia to decide upon a war in which Austria was no longer in a condition to take part, it was sheer madness not to have both secured and waited for the co-operation of Great Britain and Russia. Instead of this, however, when Lord Morpeth, the British envoy, spoke of Hanover, he was answered that its fate depended on a battle; plainly intimating that, if victorious, Prussia meant to retain it. The same indifference was manifested as to the aid of Russia; and the army, which, indeed, it was difficult to restrain, pushed forward into Saxony to compel the elector to join his forces to those of Prussia, and to induce Hesse to espouse the cause of the north of Germany against France. For the sake of these secondary objects, the blunder of Mack at Ulm was repeated. The French troops were already assembled. Napoleon left Paris in the end of September, and proceeded by Mayence and Würtzburg to Bamberg, the rendezvous of his army, where he arrived on the 6th of October. Proclamations, the usual preludes of war, now followed. The king of Prussia required the French to quit Germany, the soil of which they had no right to tread. Napoleon returned the bravado by some sarcastic remarks on the Prussian queen and court. "The queen of Prussia," says a French bulletin, "is with the army clothed as an Amazon, wearing the uniform of her regiment of dragoons, and penning twenty letters a day, in order to kindle flames on every side. One might believe her to be Armida out of her senses, setting fire to her own palace. Near her is the young Prince Louis, overflowing with valour, and expecting vast renown from the vicissitudes of war. Echoing these two illustrious personages, the entire court cries out for war. But when war shall have come, with all its horrors, it is then that each will vainly endeavour to excuse himself of the guilt of having drawn down its thunders upon the peaceful countries of the north."

Ope ng of he c n- aig

The Prussian army, commanded by the king in person, and the old Duke of Brunswick, whom his campaigns against the French had not instructed in their new system of tactics, was scattered along the high road from Eisenach and Weimar. Having advanced so far, it should have assumed the initiative, and, by a great offensive effort, endeavoured to break through the enemy's line before his corps were in a condition to afford mutual support. But Brunswick was alike incapable of conceiving or executing such a plan of operation; he hesitated when he should have decided; marched and countermarched without object; and, worst of all, committed the fatal error of dividing his army when almost in presence of the enemy. The road by which the Prussians had advanced, and along which their magazines were established, from Weimar, in a north-easterly direction, to Leipsic, run obliquely to the line on which the French were now approaching from the south. Instead of attacking Weimar, where their main force was concentrated, Napoleon therefore resolved to throw himself on their communications, intersect their line of retreat, and cut them off from their principal magazines. And this he effected by one of those rapid and masterly movements which, executed by him, had so often decided the fate of armies. The only resistance which the French met with was at Saalfield, where, on the 10th of October, the division of Suchet, belonging to the corps of Lannes, was opposed by Prince Louis of Prussia, commanding the advanced guard of the corps of Hohenlohe. A fierce combat ensued; but the Prussians, being unsupported, were overpowered, the brave prince lost his life, and thirty pieces of cannon, with a thousand prisoners, fell into the hands of the French. The French now occupied the line of the Saale, with their backs towards Germany; whilst the Prussians, in order to face them, were obliged to turn theirs to France. The belligerents having thus, as it were, changed places, the main body of the French under Napoleon crossed the Saale at Iena; the interval between Iena and Naumberg was occupied by Bernadotte, who had orders to observe the Saale as far as Doernberg, by which he was to debouch, in order to cut off the enemy's masses from their reserves, and to fall upon their rear, in case they should move in force upon Naumberg or Iena; and Davoust, with three fine divisions of infantry thirty thousand strong, but weak in cavalry, was posted between Naumberg and Doernberg, on the right of the Saale, to guard the defiles of Koesen. To drive the French from these positions, and to restore the communications, was now the great object of the Prussians. Accordingly the king and the Duke of Brunswick, at the head of the main body of the Prussian army, marched to dislodge Davoust; whilst the remainder, under Prince Hohenlohe, advanced against the main body of the French army, commanded by Napoleon. In this way Davoust found himself in the presence of an enemy more than sixty thousand strong, one-fifth of whose force consisted of cavalry, in which arm he was disproportionately weak; whilst, on the other hand, Hohenlohe advanced to attack a force which outnumbered him in a still higher ratio, and was supported by the main body of the cavalry under Murat. Both parties appear to have had false notions of each other's movements; but Napoleon was evidently misled by the extraordinary proceeding of the Duke of Brunswick, in dividing his army on the eve of a great battle, an error which exceeded all ordinary calculation or experience.

Battles of Iena and Auerstadt.

The battles of Iena and Auerstadt were fought on the same day, the 14th of October, at the distance of six leagues, without contact or communication. That of Iena does not present any masterly or decisive manœuvre. It was decided by charges of the cavalry under Murat, who, supported by Augereau, completely routed the half of the Prussian force, and pursued the remains of it five leagues from the field of battle, indeed as far as Weimar. The action at Auerstadt was long and bravely disputed. Marshal Kalkreuth and General Blucher combated with vigour under the eye of their sovereign. But the invincible firmness of Davoust, supported by Generals Gudin, Friant, and Morand, triumphed over numbers, and this portion of the Prussian army was, notwithstanding its great superiority in numbers and in cavalry, also thrown into disorder, and driven from the field. The battle of Auerstadt, which was in fact the grand and decisive combat, reflects infinite honour upon Davoust. Surprised by the sudden apparition of the main body of the Prussian army, and denied all assistance by his colleague Bernadotte, who, from a narrow construction of his orders, and still more perhaps from an unwillingness to act a secondary part, withdrew his corps to continue a movement which had no longer an object, he was thrown upon his own resources, and, but for his great experience and inflexible tenacity, his corps, thus compromised, might have been overthrown and destroyed. Forming his battalions into squares, he received and repulsed the repeated charges of the Prussian cavalry led on by Blucher; and when the latter, disordered by the failure of their own efforts, were obliged to retreat, he attacked and broke through the centre of the enemy. The Duke of Brunswick and Prince William of Prussia again led the cavalry back to the charge; but in vain; nothing could shake the firmness of the French. A last effort to retrieve the fortune of the day was made by the king in person, with no better success. The centre being broken, the retreat of the wings became inevitable; and, as almost all the Prussian generals had been severely wounded, the troops, left in a great measure to themselves, fell into a state of the most frightful disorder. No rallying point had been fixed in the rear; no provision made for the contingency of a defeat. In fact, the idea of an eccentric retreat, that is, withdrawing on diverging lines, at this time possessed the Prussian tactitians; and the destruction which so rapidly overtook the remains of the Prussian army may in a great measure be ascribed to the circumstance of this absurdity being now reduced to practice. The extent of the disaster which had befallen the Prussian arms was only known when the troops defeated at Iena and Auerstadt mingled in their flight towards Weimar. In killed, wounded, and prisoners, the Prussians, including their Saxon auxiliaries, lost more than forty-five thousand men; whilst a hundred and sixty pieces of cannon, with immense magazines of provisions, fell into the hands of the conquerors. At Iena and Auerstadt the French had about twelve thousand men put *hors de combat*.

Consequences of these battles.

Frederick-William, in his flight, sent to demand an armistice, which was refused; and the following day, Erfurth, containing a hundred pieces of cannon, fourteen thousand men, and numerous magazines, was surrendered to Murat. The French now pushed on without intermission for Berlin, which Napoleon entered at the head of his guard on the 27th of October, amidst the silence and tears of the people. He had spent the 25th at Potsdam, in the apartments of Frederick II. for whose character and memory, both as a warrior and a sovereign, he professed the greatest veneration; but this feeling did not prevent him from taking away the sword and the order of the black eagle worn by Frederick, and sending them, with the colours of his guard, to the Hôtel des Invalides at Paris. Meanwhile the king of Prussia retired behind the Oder, in the hope of collecting the scattered remains of his army, and making a stand under cover of the strong places by which that line was defended. But fortress after fortress, though powerfully garrisoned and well supplied with ammunition and provisions, surrendered with a rapidity inexplicable on any supposition except that of treachery or infatuation. Spandau yielded almost without resistance; Magdeburg, the bulwark of the kingdom, capitulated after a short and irregular siege; Glogau, the strongest place on the Oder, likewise surrendered; and other places imitated their example. Blucher alone supported the national character amidst all these calamities. He executed a daring and masterly retreat amongst the French divisions, which pursued and frequently crossed his line of march; and, when at length obliged to take shelter in the free town of Lubeck, the desperate resistance which he opposed to the overwhelming masses of the enemy made them pay dear for the advantage they gained in storming the place. Thus, by two simultaneous battles, in which both parties fought on wrong principles and erroneous information, was the Prussian monarchy not only shaken, but destroyed. Napoleon had not only avenged the defeat of the French at Rosbach, but also the peril in which he had himself been placed by Prussia during the campaign of Austerlitz, and he now wreaked his vengeance with unsparing severity.

Proceedings of Napoleon; Berlin decree.

At Berlin Napoleon had once more to enter upon the task of organizing a new empire. The smaller states of Germany were compelled to join the confederation of the Rhine; Saxony was treated with politic leniency; Hesse-Cassel and Brunswick were doomed to expiate their loyalty by rigorous contributions; and the electorate of Hanover was seized in the name of France. The occupation of the free city of Hamburg, against which the emperor Napoleon had no assignable cause of war, immediately followed. On the 19th of November, Mortier took possession of the town in name of the French government, and the same day issued an order, enjoining the inhabitants to make known all funds and merchandise belonging to the English. This was part of his system. To strike a free commercial port with nullity, and thus to ruin a great city, gave him no concern, provided it was closed against England. A measure of a still more extraordinary character followed. On the 21st of November was issued an imperial decree, dated at Berlin, in which the British islands were declared in a state of blockade. By this decree all commerce and correspondence were interdicted; every subject of England, of whatever state or condition, who should be found in the countries occupied by the French or their allies, was to be made prisoner of war; the commerce in English merchandise was prohibited, and all merchandise, of whatsoever kind, proceeding from England, was declared lawful prize; lastly, all vessels coming directly from England or from English colonies, or having been there since the publication of the decree, were not to be received into any port. Such was the decree by which Bonaparte endeavoured to exclude England from the Continent at the expense of neutral and independent nations, and which he intended to enforce in all the harbours of Europe, from St Petersburg to Constantinople. But this scheme, although it no doubt occasioned, in the first instance, much mischief to British commerce, and tended to throw the principal carrying trade of Europe into the hands of the Americans, yet, like all prohibitory systems, it eventually recoiled on its author. For, in the first place, nothing tended so much as the severities of the continental system to alienate from Bonaparte the affections both of his subjects and his allies. Even the exhausting demands of the conscription were borne with less impatience than the rigours of a code which crippled one great branch of industry, and deprived all persons possessing only moderate fortunes of the customary luxuries of life. But, on the other hand, whilst the price of sugar, coffee, and other articles, rose to an exorbitant height, the contraband trade flourished; and whilst the vexations of the excise excited that state of chronic war between the government and the people which is the fruitful sources of disaffection, the object aimed at was in a great measure defeated. In spite of all restrictions, enforced by armies of douaniers, English merchandise found its way into the Continent; the smugglers were enriched, the regular traders ruined, and the people forced to pay many prices for articles which habit had rendered indispensable.

Towards the close of November, Russia declared war against France. About the same time the king of Prussia, who had retired to Konigsberg, made an attempt to negotiate; but as Napoleon demanded the cession of the whole country between the Rhine and the Elbe, Frederick-William, hoping that the power of Russia might yet give a check to that of France, refused to accept terms less severe than those which he was afterwards under the necessity of submitting to. But, unfortunately for this hope, war broke out at the same moment between Russia and Turkey. In a few days of successful intrigue, Sebastiani, whom Napoleon had sent to Constantinople, succeeded in putting an end to the amicable relations subsisting not only between Russia and Turkey, but also between England and the Porte; the invasion of Egypt by France, and its deliverance by England, were forgotten; French officers were seen directing works for strengthening the batteries of the Dardanelles, as well as training the Turks to serve the guns with which they were armed; and a war followed on the Danube, which occasioned a powerful diversion in favour of Napoleon, and crippled the exertions of Russia in the approaching struggle.

Napoleon now advanced in pursuit of the Prussian monarch, and at Posen, the capital of that part of Poland acquired by Prussia, he, on the 11th of December, concluded a treaty of peace and alliance with the elector of Saxony, who acceded to the confederation of the Rhine, and assumed the title of king. From Posen he proceeded to Warsaw, which was evacuated on his approach. At the sight of the Russian and Prussian eagles retiring from the capital of their country, the Poles were in exultation. Their patriotism and national spirit revived; the youth crowded into the Polish regiments which were now formed to act in concert with the French; and the throne of Sobieski seemed already re-established. But Napoleon, though resolved to make use of their zeal, had no intention to reward it with that independence which they so ardently desired. "Quoique Napoléon, que sa méfiance et les dispositions de l'Autriche rendraient très circonspect, ne leur eût fait aucune promesse," says General Dumas; "il les avait pourtant excités à s'avancer pour reconquérer leur liberté et leur indépendance. Il leur avait donné un gouvernement provisoire créé des autorités civiles et militaires prises dans leur sein. Les Polonnais se flattaient avec raison que la restauration de la nation serait le juste prix du sang qu'elle avait versé pour la cause de la France, depuis les premières campagnes d'Italie jusqu'aux dernières batailles, dans lesquelles ils avaient vaillamment combattu. Devaient-ils croire que maître de reparer le scandale des démembremens de leur patrie, de venger la plus manifeste violation du droit des gens, le vainqueur laisserait

flétrir dans ses mains le plus beau fruit de sa victoire?"[1] With Napoleon these just expectations went for nothing. In his view all interests and all wills were to yield to his, as all resistance had yielded to his arms; but he lived to repent of his injustice to Poland, and discovered in adversity the extent of the error as well as of the wrong he had committed.

Rad progre of the Frech.

By the first of December all northern Germany, excepting Königsberg, with the fortresses of Stralsund and Colberg, was either under the direct domination or under the immediate influence of Napoleon. Hesse, Brunswick, Hanover, the duchies of Oldenburg and Mecklenburg, and the Hanseatic Towns, were in his power. Prussia, which for half a century had been gradually rising to the highest rank amongst military powers, was overturned at the first shock. Hostilities commenced on the 9th of October, and on the 14th she received a mortal blow. In seventeen days, the French soldiers, having traversed the forests and defiles of Franconia, the Saale, and the Elbe, reached Berlin; and by the end of November they were beyond the Vistula. The overthrow of the Prussian monarchy in a campaign of six weeks, is one of those events the reality of which will hardly be credited by posterity. But the season of combats having reached its term, an able and prudent general, Frederick II. for example, would have stopped on the Oder, at least until spring, and employed the winter in establishing himself in a solid manner in Germany; in securing the immobility of Austria; in making himself master of the strong places in Silesia; in taking possession of Dantzick and Colberg before the arrival of the Russians; in reducing Stralsund, and recruiting, clothing, and re-arming his troops at the expense of the conquered countries; in forming a German army, which would have been an useful auxiliary; in negotiating with his enemies, in order to divide, deceive, or intimidate them; and, above all, in masking his ulterior projects. The history of the following years shows that the independence of Europe would have been destroyed, if Napoleon, yielding to the most obvious suggestions of prudence, had retarded a little his precipitate advance, in order to attain his grand object, the subjugation of Europe. But he did nothing which he could and ought to have done in order to consolidate his power, and he was ultimately ruined even by his own successes.

Re-m-mene-men of osties.

Hostilities recommenced at Czarnovo, near the confluence of the Bug and the Wrka, on the 23d of December; but the Russians, though numerous and advantageously posted, were dislodged by the division of Morand of the corps of Marshal Davoust. A more important combat took place at Mohrungen, sixteen leagues south of Elbing, on the 25th. The Russian generals, observing that the French army had suspended its march, and was preparing to go into cantonments on the Vistula, came to the determination of attempting to cut off the left wing; and their design would probably have succeeded if Bernadotte had servilely executed the orders he had received the evening before to retire to Little Strasburg, seven or eight miles from Thorn. But having received information of the movement of the Russian columns, and foreseeing the disasters which would result from the execution of the orders he had received, he suspended his march; assembled his corps on the plains of Mohrungen, where the Russian column of attack arrived about noon; checked its advance, and, after a severe action, forced it to retire with considerable loss behind the Passarge. The determination of Bernadotte saved the head-quarters of Napoleon and the division of Ney, perhaps the French army itself, which, if the Russians had succeeded in their attack, would have been completely compromised. Alarmed at this bold movement, Napoleon, who intended to pass the winter on the Vistula, pressing the siege of Dantzick, and awaiting the arrival of eighty thousand conscripts of the year 1807, judged it necessary to clear his front, and, if possible, so to intimidate the Russians as to prevent a repetition of such enterprises. With this view Lannes, reinforced by a division of the corps of Davoust, attacked Beningsen at Pultusk, near the confluence of the Narew and the Orzye, on the 26th of December. A murderous conflict ensued, but the action remained undecided. The slaughter of the French was great, Beningsen having manœuvred so as to expose them throughout the day to a destructive fire of artillery. The Russians retired unmolested during the night. On the same day another action took place at Golymin, eight leagues north of Warsaw, between the corps of Augereau, supported by part of that of Davoust, with the cavalry of Murat, and a strong Russian division under General Buxhowden. This combat was maintained with equal tenacity; but the French, though dreadfully maltreated, ultimately succeeded in forcing their adversaries to retire. The extreme rigour of the season now determined the belligerent armies on the Vistula to take some repose, which both so much required. But this was destined to be of short duration.

Battle of Eylau.

Beningsen having leisurely retired from the field of battle at Pultusk, followed but not harassed by the French, moved northward, determined, after a short interval of rest, and concentrating all his disposable means, to resume offensive operations. Accordingly, having mustered his forces, and rallied the remains of the Prussian army under Lestocq, he formed the project of penetrating between the main body of the French and their left wing, which bordered on the Baltic, raising the siege of Dantzick, and thus turning all the positions of the enemy. In the end of January, Napoleon, having become aware of this design, assembled his army and marched northward, in the hope of anticipating Beningsen, and attacking him in the midst of his movement. But an intercepted letter addressed to Bernadotte apprised Beningsen of his danger, and he immediately fell back. Both projects thus failed; but nevertheless the French had the advantage of obtaining the lead. Napoleon, therefore, continuing his movement northward, came up with Beningsen at Willenberg, whence the two armies, the one retiring and the other advancing, traversed rapidly the country between the Alle and the Passarge. Irritated by the close pursuit, and the privations to which his soldiers were exposed, Beningsen resolved to turn on the enemy, and make a stand at the little town of Preussisch-Eylau, twelve leagues south of Königsberg. He first endeavoured to defend the place, and, during the evening of the 7th of February, Prince Bagration and General Barclay de Tolly made the most gallant efforts to keep back the enemy; nor were they dislodged from a cemetery in which they had intrenched themselves until late at night, and after a most sanguinary combat. On the morning of the 8th, the Russians, under cover of a tremendous fire of artillery, attacked with the greatest fury the French in Eylau and its vicinity. Divisions belonging to the corps of Davoust, Soult, and Ney, and the entire corps of Augereau, withstood the efforts, equally impetuous and unexpected, of the Russians, whose force was estimated at between sixty and seventy thousand men. The approaches to and the interior of the village of Eylau exhibited a terrible scene of carnage. The aim of each general was the same, namely, to overthrow his adversary's left. But Bonaparte having, in addition, sent strong columns against the Russian centre, these, during a heavy fall of snow, missed the proper direction, and penetrating between the centre and right of the enemy, were attacked on both flanks, whilst the Russian reserve charged them with great impetuosity in front. A dreadful scene of confusion and slaughter ensued; several generals were killed or wounded; and the twenty-fourth regiment of the line, three thousand six hundred strong, was annihilated. To extricate the troops thus compromised, Napoleon was obliged to order the cavalry, supported by his reserves, to charge; which increased the fury and indecision of the battle. Davoust having made a considerable detour, now arrived on the left flank of the Russians, which was refused as he advanced, and about to fall back in good order, when the Prussians under Lestocq came up, and this terrible battle was renewed. Davoust retreated in his turn; but Ney having by this time arrived with his division at the other extremity of the Russian line, the fury of the conflict was transported thither, where mutual charges were executed with headlong impetuosity. Order there was no longer any; masses alone, impelled by the instinct of combat, continued the desperate struggle. The Russians, though huddled together in a small space, determinedly maintained their ground; whilst the French, in equal confusion, were unable to bring up a force sufficient to decide the fate of the battle. The loss on both sides was enormous. That of the Russians was, by their own account, seven thousand nine hundred men killed and twelve thousand wounded; but Napoleon only acknowledged a loss of one thousand nine hundred men killed on the field of battle, and five thousand seven hundred wounded; an admission evidently as far below the truth as that of Ruschel, who stated the French loss at thirty thousand killed and twelve thousand wounded, was above it. The Russians remained on the field of battle; but as they had been dreadfully cut up, and as Bernadotte was advancing with his corps to reinforce Napoleon, Beningsen withdrew next morning, and retired behind the Pregel. Had he remained a little longer, the French would have left him indisputed master of the field. Napoleon had also contemplated a retreat; but, on the disappearance of the Russians, he kept his ground, remained an entire week at Eylau, and then retired to occupy the line of the Passarge, establishing his head-quarters at Osterode. This was the only circumstance which gave him a pretence for claiming a victory which most certainly he had not won.[1]

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[1] *Précis des Evenemens Militaires*, tome xix. p. 78.

Results of the battle; renewal of the campaign.

The tidings of a drawn battle, fought at the northern extremity of Prussia, filled the Parisians with apprehension and alarm. The good fortune of Napoleon had hitherto been so constant that people looked on the battle of Eylau as the breaking of the spell, and began to consider reverses as probable. Nor was this feeling confined to Paris, where it occasioned a considerable fall in the funds, and even shook public confidence. It prevailed also in the army, where more than one general officer counselled a retreat behind the Vistula. But Napoleon persisted in remaining on the Passarge, where he continued until the month of May, when Dantzick surrendered after a gallant defence. Reinforcements had in the meanwhile reached both armies, which were consequently soon in a condition to take the field. Napoleon, however, determined to leave as little as possible to chance, had opened negotiations, evidently with no other object than to gain time, and retard the commencement of operations until his utmost available means were collected for the decisive struggle. Accordingly, when all was ready, the negotiations were broken off; and, on the 5th of June, two Russian columns attempted to force the passage of the Passarge at Spanden, three leagues north-east of Guttstadt; but, after an obstinate combat, in which Bernadotte was severely wounded, they were repulsed. Another encounter took place at Heilsberg on the 10th, between the principal mass of the Russian army and the corps of Soult and Lannes, supported by the cavalry under Murat. The Russians disputed the ground inch by inch, whilst their artillery tore up the ranks of the French, who had several generals killed or wounded, and maintained themselves in close columns in their intrenchments, which they did not evacuate until the 12th. Both armies now moved northward, the Russians on the east, and the French on the west, of the Alle. But as Beningsen's object was to cover Königsberg, it became necessary to pass the river by the bridge at Friedland, on the road leading to the ancient capital of Prussia, and sixteen leagues distant therefrom.

Battle of Friedland.

As the French had but one division (that of Ney) immediately opposite Friedland, Beningsen brought up forces to attack it. Bonaparte was at Eylau, eight leagues distant, whence he hurried with the rest of his army to Friedland, where he found Ney making what resistance he could. It was the 14th of June, the anniversary of the battle of Marengo, and welcomed by the French emperor as betokening good fortune. Forming his columns in the woods, he allowed Beningsen to cross the bridge with the greater part of his army. When the Russian general thus heedlessly advanced, he little suspected that the whole French army were lying in wait for him; but dense columns issuing from the woods, and getting their cannon into position for the attack, soon convinced him that he would have to fight at a disadvantage, and without even the possibility of retreating in the event of sustaining a reverse. He drew out his line, however, with his left resting on the bridge, and prepared to receive the shock which was now inevitable. A considerable time passed in manœuvres, skirmishes, and partial combats; and it was not until five in the evening that the battle became general along the whole line. The principal attack, led by Ney, was of course directed against the bridge of Friedland, by which alone the Russians could retreat; but in his ardour to carry it he was repulsed, and the head of his column was broken. Supported by Dupont, however, he rallied his troops, and was preparing to renew the attack, when Napoleon, who had acquired some experience of Russian firmness and tenacity, judged it best to achieve the victory by means of his artillery. A battery of thirty pieces, commanded by General Senarmont, advancing four hundred yards a head of the columns, opened a destructive fire of grape on the Russian masses, huddled up as it were in a corner; heavy charges of cavalry filled up the intervals of the cannonade, breaking many of their squares; and towards evening the French infantry again advanced to complete the victory. The Russians had suffered much; retreat was inevitable; and as the bridge was swept by the enfilading fire of the enemy's artillery, they threw themselves into the river, where thousands perished in addition to those who had fallen in the field of battle. Such was the decisive victory of Friedland, which re-established the superiority of the French arms, which the battle of Eylau had brought into question, and which Napoleon had long desired, as the means of disposing Alexander to an accommodation. In this battle the Russians lost seventeen thousand men killed, drowned, or wounded, nearly as many prisoners, and seventy pieces of cannon. The loss sustained by the French was also great, and included a number of generals killed as well as wounded.

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[1] This horrible massacre, represented by Napoleon as a victory won by Murat, whose cavalry did not appear until towards the close of the engagement, produced great discontentment amongst some of the marshals, particularly Augereau and Lannes, who were disgraced for denying to Murat the credit which Napoleon had chosen to give him on this occasion. They disputed not Napoleon's title to order matters as he pleased on the field of battle, but they contended that he had no right to treat truth with the same contempt which he showed for mankind, or to dictate his sovereign orders to fame. Besides, they were sick of prosecuting war in such distant and inhospitable regions. Lannes, when asked by his chief if, with such soldiers as those who fought at Eylau, the conquest of Poland could be doubtful, replied, “All this country is not worth the loss of the humblest corporal in the army.” In the sixty-fourth bulletin Napoleon thus describes the scene presented by the field of battle: “Qu'on se figure, sur un espace d'une lieue carrée, neuf ou dix mille cadavres, quatre ou cinq mille chevaux tués. *Tout cela avait plus de relief sur un fond de neige.*” What a picture is presented in these few words? “Ce spectacle (the bulletin continues) est fait pour inspirer aux princes l'amour de la paix et l'horreur de la guerre;” a natural reflection, certainly, however hypocritical and disgusting, as emanating from one who “commanded the bloody fray to rise,” and who seems even to have contemplated, with something approaching to pleasure, the horribly picturesque spectacle presented by the blood-stained snow of this field of carnage. Napoleon's tactics made no account of human life. If the battle was gained, however dearly purchased, he felt no regret, provided enough of men remained for future consumption. He was, to use Kléber's expression, “a general of six thousand men a day.”

But the results were eminently decisive. Königsberg surrendered to Soult. The last hope of Prussia was annihilated. Beningsen retired beyond the Niemen,[1] on the banks of which the French soon afterwards arrived. At Friedland was terminated the series of operations commenced at Spanden on the 5th; and in this campaign of ten days the Russian army had experienced enormous losses, and been forced to retreat within its own frontiers. The Emperor Alexander having now joined the army, an armistice was demanded and agreed to on the 21st of June; and, on the 25th, an interview took place between the emperors, in a tent raised on a raft in the Niemen, at Tilsitt, an open place of small importance on the left bank of the river. The meeting had as much apparent cordiality as if not a drop of blood had been shed or a life lost in their quarrel. One of the first words of Alexander expressed his resentment against England. This was politic, and eminently calculated to conciliate the conqueror, who in fact is said to have replied that, such being his sentiments, the terms of accommodation would be easily arranged. Besides, England had departed from the Pitt system of subsidizing largely, and the autocrat no doubt thought it hard that he should not be liberally paid for defending himself. At the second interview, which took place the following day, the king of Prussia was admitted, on the urgent entreaty of Alexander; and the half of the town of Tilsitt being neutralized, the two emperors established themselves there, and were soon upon terms of the greatest familiarity, if not friendship. Not so the unfortunate king of Prussia, who, having arrived as a suppliant, was treated with disrespect and severity. Even the czar, won by the attentions of Napoleon, or overawed by the ascendency of his genius and fortune, soon evinced a diminished sympathy for his unfortunate ally; nor could the presence of the beautiful queen of Prussia, with all her fascinations, overcome this influence, or soften the premeditated rigour of the French emperor. The latter had many grounds of resentment against Prussia. At Austerlitz she had held his destiny in her hands, and acted with perfidy, without, however, reaping the reward of her bad faith. She had besides deranged his favourite system of policy, which required the alliance of one of the three great powers of the north and east, especially of Prussia, whose central position gave to her peculiar advantages in this respect. He felt it as a great political evil that he had been reduced to the necessity of destroying a power which it was his interest to support, nay even to aggrandize; and as he knew that reconcilement could never grow up where wounds of deadly hate had pierced so deep, he resolved to avail himself to the fullest extent of the advantages which victory had given him, and to prevent Prussia from ever having the power to decide the fate of any future coalition.

Treaties of Tilsitt.

The terms granted to the king of Prussia were equally severe and humiliating, and were made to appear as concessions to Alexander rather than stipulations with Frederick-William. He was deprived of all his territories between the Rhine and the Elbe, and forced to abandon to Saxony almost the whole of Prussian Poland, which was erected into the duchy of Warsaw, as well as the circle of Cotbus, in Lusatia. Several military roads were also to be opened through the Prussian state, to form communications between the kingdom of Saxony and the duchy of Warsaw; all the countries which remained to Prussia were to be shut against the navigation and commerce of England; and these provinces were to be evacuated before the first of October 1807, provided the war contributions were discharged, which they were to be held to be whenever the intendant of the French army should have certified the validity of the securities offered. Under cover of this last provision, the fortresses of Custrin, Stettin, and Glogau were retained by the French long after the period stipulated for their restoration. The totality of the contributions imposed upon Prussia was fixed at 513,744,410 francs, or L.20,551,776, and of this enormous amount there had been collected, by the end of 1808, "tant en espèces qu'en fournitures," the sum of 474,352,650 francs, or L.19,174,106, leaving to be recovered even then a balance of rather more than L.1,500,000. These numbers show the frightful severity with which the law of the conqueror was applied to Prussia.[2] By the present treaty, that power lost more than the half of her territory, and nearly the half of her population; instead of ten millions and a half, which she possessed before the disastrous day of Iena, only six millions remained to her; whilst her territory, dismantled and laid open on all its frontiers, formed a long parallelogram, extending about a hundred and eighty leagues from west to east, but reduced to a breadth not exceeding forty. Modern history presents no other example of a power descending to such a degree of abasement and humiliation by means of a conquest so rapidly executed.[3]

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[1] The Russians showed much more firmness at Friedland than they had done at Austerlitz (2d December 1805); and their retrograde march, though performed under every disadvantage, can in no respect be assimilated to the *déroute* of the Prussians after the battles of Iena and Auerstadt (14th October 1806), to which, in fact, there is nothing in the annals of modern tactics that can be compared in point of ignominy. Beningsen was no mean adept in his art; and if he had been cordially seconded, instead of being thwarted, as he often was, by the native Russian generals (he was a Hanoverian), the result of the campaign might have been different. At all events, Napoleon had yet met with no antagonist who made him pay so terrible a price for victory.

[2] Dumas, *Précis des Evenemens Militaires*, tome xix. p. 85.

[3] The queen of Prussia begged hard for Magdeburg, but in vain. Napoleon, on one occasion, condescended to present her with a rose; she accepted it, saying with a winning smile, "at least with Magdeburg." "Madame," said Napoleon, assuming a look of great severity, "it is for me to give; you have only the trouble of accepting." Nor even when the sacrifice was consummated did he relax in his sarcasms and severities against the Prussian court; and whenever a deputation of Prussians presented themselves, he recurred to the painful theme of their monarch's imbecility and ingratitude. For all this, however, there is the apology either of resentment or policy. But none whatever can be imagined for the scandalous statements to which he gave currency at the time, and afterwards repeated to many persons at St Helena, respecting certain alleged improprieties in the conduct of the queen of Prussia. If true, it was undignified and unmanly to blazon such frailties; if false, detestable. It is but just to add, that, as far as we have been able to discover, the character of this beautiful and unfortunate woman was impeached by none except the deadly foe of her family; his statements and insinuations are unsupported by any other authority that we can find, and hence the fair presumption is that they are false and slanderous.

But the primary stipulations at Tilsitt were between Napoleon and Alexander, lords of the old world, the one from the Atlantic to the Niemen, the other from the Niemen to the Pacific. If the half of his dominions was restored to the king of Prussia, it was from regard to the Emperor Alexander; and the latter, equally complaisant, consented that the greater part of the ancient Polish territories should pass under the sovereignty of Saxony, and that Dantzick, with a radius of two leagues, should be declared independent, but with a garrison of French troops. Napoleon accepted, for form's sake, the mediation of Alexander with England; whilst Alexander, in return, recognised the confederation of the Rhine, and the three brothers of his conqueror, Joseph, Louis, and Jerome, as the kings of Naples, Holland, and Westphalia. The Russian troops were also to evacuate the principalities of Moldavia and Wallachia. The old barriers of Europe were thus broken down, and all the other powers plunged into a state of humiliating vassalage and uncertainty. In the policy of Napoleon we always find something gigantic, hazardous, incoherent, and unfinished; vast but ill-defined conceptions, bold experiments, and wildly capricious assortments. On this occasion, for instance, the Polish nation was most ungenerously sacrificed; whereas, by re-establishing the throne of Sobieski, with a better system of monarchy, he would have formed a stronger barrier against the ambition of Russia, and more effectually preserved Germany from the influence of Austria and Prussia, than by creating two feebles states under the denominations of the kingdoms of Westphalia and Saxony. But the grand object at present was spoliation. In the treaty of Tilsitt continental Europe was sacrificed to the ambition of the two emperors, who parcelled it out at their pleasure; the one adjudging to himself the south and the west, the other the east and the north. It appears, also, that, by a secret article, the expulsion of the Turks beyond the Bosphorus had been determined on. But if such a convention was actually agreed to, the Emperor Napoleon could not have seen far before him in politics, whatever may have been the extent of his genius in military and administrative affairs. For, to permit Russia to dismember the Ottoman empire, that is, to establish herself in a given time at Constantinople, was, in effect, to deliver up to her in a given time Italy and the Mediterranean, and, by a necessary consequence, to abandon Europe, before the lapse of a century, to the barbarians of the north. But the two emperors were mutually endeavouring to deceive each other; and although soon after the peace of Tilsitt Alexander prided himself on the friendship of Napoleon, as a gift of the gods, the latter repaid the compliment by observing of his imperial brother, "He is as fair and false as a Greek," thereby showing that he understood his man.

Attack on Copenhagen.

Be this as it may, however, the stipulations, whether avowed or secret, of the treaty of Tilsitt, were nothing less than a league to enchain the world. Prussia was annihilated; Spain and Sweden were directly menaced; Austria and Turkey were prospectively endangered; England was of course devoted to ruin. Denmark preserved a nominal neutrality; but, irritated by the violent and arbitrary nautical maxims of Britain, particularly in regard to the right of search claimed by her, and, moreover, placed in nearly the same relative situation to France as Holland had formerly been, that northern power was, by the force of circumstances, induced to adopt a line of policy adverse to the interests of England. But latterly her position had changed for the worse. The exigencies of Napoleon's continental system required that Denmark should be obliged to shut her ports against the commerce of Britain, and Holstein was already menaced by the French troops which occupied Hamburg and Lubeck; whilst, on the other hand, information received by the British government of what had secretly passed at Tilsitt gave them reason to suspect that an attempt would be made on the part of the French to occupy Denmark, and to appropriate its fleet. To prevent such a contingency, an expedition which had been fitted out for a different purpose was dispatched to the Sound, and, on the refusal of the Danish government to discontinue its relations with France, Copenhagen was attacked on the 7th of September. After a bombardment of three days, and the burning of six hundred houses, a capitulation was entered into, and the Danish fleet seized as a deposit, to be restored at the conclusion of the war. This proceeding upon the part of England was strongly censured at the time, and still merits severe reprobation. In point of injustice, it equalled the worst deeds with which Napoleon was reproached; and, in point of impolicy, it was not surpassed by the most stupid act of violence ever before committed. Denmark immediately closed her ports against England, declared war against that country, and soon afterwards (16th October) concluded a treaty of alliance with France. Russia, also, availed herself of the favourable opportunity thus afforded to announce publicly her adoption of the continental system, to which she had already secretly acceded, to break off all intercourse with England, to annul the convention of the 17th June, and to proclaim of new the principles of the armed neutrality.

Relative situations of France and England.

Napoleon was now in the zenith of his glory, victorious on every side, and possessed of a power by land which nothing seemed capable of withstanding. Against Britain, on the other hand, the whole civilized world was now arrayed in hostility. Russia, Austria, Prussia, France, Italy, Spain, were all in arms against her; even Turkey, her ancient ally, had proved ungrateful; and, excepting Sweden, which was misruled by a madman, and Portugal, which was governed by a fool, all Europe was forbidden ground. Even the new world was hostile from north to south; and, what was worst of all, a deep shade had been cast on the justice of her cause by the ill-timed attack on Copenhagen. At this time, too, the character of Napoleon stood fair; he had not misused victory beyond what the morality of the world indulges to a conqueror; and if he had abstained from aggression on the Peninsula, his power might, in a very few years, have acquired a stability which would at length have compelled England, however reluctantly, to sue for peace. His decline may be dated from the moment when he intermeddled with the affairs of Spain and Portugal, and endeavoured to convert these ancient and independent kingdoms into dependencies of France. The unjustifiable nature of the aggression, and the unexampled perfidy and profligacy with which it was prefaced and accompanied, destroyed him in the opinion of Europe; whilst the contest in which he soon became involved in the Peninsula preyed like an inveterate and daily spreading gangrene on the very vitals of his power.

Attack on Portugal.

The first object of attack was Portugal. On the 17th October, an army of about twenty-seven thousand men, under the orders of Junot, marched from Bayonne for Portugal. The professed object of this invasion was to enforce in that country the adoption of the continental system. But, on the 27th of the same month, a secret treaty was concluded at Fontainebleau, between the Emperor Napoleon and the minister of Spain, by which Portugal was to be conquered, and the province of Entre-Minho-e-Douro given to the king of Etruria in exchange for Tuscany; whilst the Algarves and the Alemtejo were to be bestowed in sovereignty upon Godoy, prince of the Peace, and favourite of the queen of Spain, and the remainder, including Lisbon, was to be retained in reserve until a general peace. This rapacious and unprincipled scheme, however, formed but a small part of Napoleon's design, which was to seize and occupy the entire Peninsula. Accordingly, another corps of forty thousand men was ordered to assemble at Bayonne, at latest by the 30th of November, to be in readiness to support Junot in case the English should send assistance to Portugal, or even menace an attack. Meanwhile that general continued his march to Lisbon, which he entered with his advanced guard on the 30th of November. After much irresolution, the court had at length determined to shut its ports against the English, in the hope that this concession would stop the march of Junot; but, as might have been expected, it proved wholly unavailing. Conquest, not concession, was the object aimed at; the *Moniteur* announced that the house of Braganza had ceased to reign; and the royal family hastened to fulfil the declaration, by abandoning the country which they were incapable of defending. The invaders had advanced with such rapidity along difficult roads, and were in consequence so greatly harassed and disorganized, that a few thousand resolute troops would have knocked them all on the head; but the court thought only of flight, not resistance, and the country was meanly surrendered to a parcel of toil-worn conscripts, without a single blow being struck in its defence. The escape of the family of Braganza, however, may nevertheless be considered as the first check which the fortune of Napoleon received on the Continent. The odious nature of this enterprise exceeded even the iniquity of the invasions of Switzerland and Egypt; two acts of aggression executed without any previous declaration, and directly contrary to the faith of treaties.

Mi n de- cree

We have already noticed Napoleon's Berlin decree. Another dated from Milan, the 17th of December, contained new measures against the commerce and maritime system of Great Britain. After reference to certain orders in council, issued by the British government, in virtue of which the vessels of neutral powers were not only subjected to search by the English cruisers, but also made liable to detention and to an arbitrary impost, it decreed, first, that every vessel, of whatsoever nation, which should have undergone search by any English cruiser, or performed a voyage to England, or paid a duty to the English government, became thereby denationalised, in other words, lost the protection of its flag, and became English property; secondly, that all such vessels were good and lawful prize of war; and, thirdly, that the British islands were in a state of blockade by sea as well as by land, and that every vessel, of whatsoever nation, which had cleared out from ports in England, or entered into any of these, might be lawfully captured. It was added, that the dispositions contained in this decree would become null whenever England adopted as the rule of her conduct the principles of the law of nations, which were also those of justice and humanity. It must be confessed that this decree embodied a measure of retaliation which, in the circumstances, was allowable. In discarding the maxim that neutral bottoms make neutral goods, England could appeal to no other sanction but that of force. In the law of nations, the maritime sovereignty, which she seems to have considered as an acquired and incontestible right, found no support; and the code which she adopted was viewed by other countries as a system of organized piracy, differing but little in principle from that exercised by the buccaneers and the Algerines. It was never before maintained that the law of war, and the right of conquest thence derived, extended to peaceable and unarmed citizens, to private habitations and properties, to merchandise of commerce and the warehouses which contained or the vehicles which transported it, to unarmed vessels which plied upon the rivers or navigated the seas; in a word, to the persons and properties of private individuals. But in giving it this unprecedented and unjust extension, Great Britain necessarily exposed herself to retaliation, and the avowed principles of her maritime policy left her without the smallest right to complain of such measures as those embodied in the Berlin and Milan decrees.

Invasion of Spain.

Napoleon had now realised one part of his scheme respecting the Peninsula. Portugal was occupied by his troops, and it now remained to complete his design by seizing on Spain. With this view a second army, under Dupont, crossed the Pyrenees about the same time that Junot entered Portugal, and a third followed on the first days of 1808. In fact, all the disposable troops of France were secretly pouring into Spain. In a short time San Sebastian, Pampeluna, Figueras, and even the forts of Barcelona, were in the hands of the French; who, by a mixture of artifice and audacity, easily contrived to dispossess the imbecile governors and invalid garrisons to whom these fortresses had been confided. As if by magic, the whole line of defence which covered the Pyrenean frontier fell into the hands of the French. The imbecility, not to say profligacy, of the rulers of Spain, had afforded not only a pretext, but an occasion for this unexampled aggression. The prince of Asturias, indignant at the influence possessed by Godoy, had secretly addressed himself to Napoleon, and, as a pledge of his sincerity, solicited a wife of the Bonaparte family; whilst, on the other hand, Charles IV., on discovering the machinations of his son, complained to the French imperial court of his undutiful conduct. Napoleon, thus constituted a sort of umpire in the quarrel, gave promises to both parties, sent a splendid present to the king, and at the same time issued orders to his generals to seize the principal fortresses in the north of Spain. This last proceeding opened the eyes of Charles, and even of Godoy; but it was already too late. The keys of the kingdom were in the hands of the French; and those worthless personages who, only a few months before, had plotted with Napoleon the dethronement of the house of Braganza, were now, by a righteous retribution, reduced to seek safety in flight. Preparations were accordingly made for retiring to Cadiz, and the royal party were ready to commence the journey to that port, when the population of Aranjuez, raised by the partisans of Ferdinand, stopped the carriages, and prevented the flight. But matters did not rest here. The tumult thus excited swelled into an insurrection; Godoy's house was attacked, in the hope of sacrificing the hated favourite as a victim to popular vengeance; and Charles was compelled to abdicate in favour of his son, who was proclaimed king by the style and title of Ferdinand VII. Charles, however, protested against the act as void, because compulsory, and sent his protest to Napoleon, accompanied by a letter from the queen; but as this letter passed through the hands of Murat, who, with a body of troops, had advanced as far as Burgos, that officer immediately marched upon Madrid. The affair now became complicated. Ferdinand reckoned on the support of the French; the abdicated monarch did the same; whilst the people, delighted with the fall of Godoy, hailed the new king as the deliverer of his country, and as a sovereign destined to revive its ancient splendour. Raised to the throne by an insurrection, the popularity of Ferdinand was unbounded. Nothing, in fact, could exceed the favour and enthusiasm with which he was regarded by the nation, except the innate worthlessness of the object on which it was lavished. But, in every view, Ferdinand was not a monarch suited to the purposes of Napoleon, or calculated, even as a tributary, to advance his views. It became necessary, therefore, to remove him from Madrid, where the loyal frenzy of the population gave him force, and then to decide according to circumstances in what way he and the other members of his family should be disposed of. With this view Savary was sent to entice him to Bayonne; and Ferdinand, more willing to rely on the French emperor than on the Spanish nation, resolved to propitiate Napoleon by giving him the meeting, which, he was led to believe, would take place within the Spanish territory. In this, however, he was deceived. Filled with hopes of meeting Napoleon at every post, he was enticed on until he had crossed the Bidassoa, when his eyes were at last opened. Napoleon did not receive him as king of Spain. But he was now in the snare, and escape impossible. Charles and his queen also arrived at Bayonne, where Napoleon was about to decide the quarrel of the Spanish royal family in his own favour. Their mutual recriminations were alike disgusting and disgraceful; the queen impeached the legitimacy of her son in the presence of her husband; and Ferdinand retorted by applying to his mother epithets which her unblushing immoralities but too well merited. All this had probably been foreseen and calculated on. At all events, pretending to identify the nation with its rulers, Napoleon, taking advantage of the degrading exhibition made by the latter, resolved to set aside the reigning house, and to substitute a new one of his own in its stead. But in the mean while the news of the insurrection of Madrid, on the 2d of May, had reached Bayonne, and the French emperor saw that no time was to be lost. Through the influence of Godoy, Charles was induced to resign his crown in favour of Napoleon; threats overcame the stubbornness of Ferdinand; and the Spanish royal family having played the part required of them, were sent off, the old king and queen to Fontainebleau, and the princes to Valençay. A hundred and fifty Spanish nobles, who had been mostly gained over to the French interest, were then summoned to assemble at Bayonne, where they met in June, assumed the name of the Spanish Cortes, and submissively received Joseph Bonaparte as king of Spain and the Indies. The events which followed the consummation of this detestable juggle belong partly to the history of Spain and partly to that of Britain, to which heads, accordingly, the reader is referred. The nation had been no party to these infamous transactions, by which its honour was insulted, and its independence assailed, if not destroyed. A patriotic spirit burst forth; the insurrection of Madrid produced similar movements all over the country; the nation roused itself from the lethargy in which it had been long sunk; the aid of Britain was solicited and obtained; and in a little time that contest commenced, which was destined to terminate in the deliverance of the Peninsula, and the overthrow of Napoleon himself. See the articles BRITAIN and SPAIN.

Character and progress of the insurrection.

The invasion of Spain, wild and desperate as it at first appeared,[1] soon assumed a shape which left no doubt that it would operate as a serious drain upon France. The proclamation of the intrusive King Joseph was the signal for the general outbreaking of the spirit of resistance, which, as in almost all popular commotions, displayed itself in acts of sanguinary vengeance. The French were assailed and massacred in most of the towns; the soldiers made common cause with the people; and those commanders who sought to resist the general will were mercilessly sacrificed. The flower of the Spanish army had been marched to the north of Europe; but the void was soon filled up, and in a few weeks insurgent armies made their appearance in all parts of the Peninsula. In the first encounters, indeed in most general actions, the French, as might have been expected, were successful; and the defeat of Blake and Cuesta at Rio Seco seemed the battle of Almanza to the new dynasty. But Lefebvre, though successful in the field, was repulsed from Zaragoza; and Dupont, after an unsuccessful attempt to reach Cadiz, was intercepted in his retreat across the Sierra Morena, and obliged to surrender at Baylen. These successes kept alive the national spirit, and encouraged the Spaniards to hope that their efforts would ultimately be crowned with success. Meanwhile the flame of insurrection had spread to Portugal, where the inhabitants rose against Junot, and united with the Spaniards in asserting their independence. The British government availed themselves of the opportunity thus offered. In the end of July 1808, Sir Arthur Wellesley landed at the mouth of the Mondego, to the north of Lisbon, with about fifteen thousand men; and, after a short but brilliant campaign, terminating in the battle and victory of Vimiero (21st August), Portugal was, in virtue of the convention of Cintra, cleared of the enemy.

Austria.

The court of Vienna now began to show signs of returning spirit, and, encouraged by the events in Spain and Portugal, armed, increased the regular force, and organized a landwehr. At a public levee held in August, Napoleon took the opportunity to reproach Metternich, the Austrian envoy, with these preparations; but the intelligence received from the Peninsula, together with certain appearances of the commencement of a re-action, gave hardihood to German independence. Resolved openly to insult, if not to menace Austria, Napoleon, in September, held a meeting with the emperor of Russia at Erfurth, where, as at Tilsitt, great European interests were discussed, and Austria was again excluded as a secondary power. On the part of the French emperor this was the consummation of that foolish insolence which is begotten of success. Being thus insulted, trampled on, and despised, Austria determined, though alone, and opposed instead of being supported by Russia, to renew the struggle with France; but her effort was reserved for the year 1809. Napoleon foresaw the storm which was gathering, and, that he might be prepared to meet it with undivided means, made preparations to extinguish by one grand effort the insurrection in Spain, and to settle the government of that country. From Erfurth he issued orders to his veterans to march to the Pyrenees, and by the beginning of November he had himself crossed these mountains, and established himself at Vittoria. Napoleon was now in the midst of the Spanish armies, with a greatly superior force; and as they were disseminated on a lengthened and irregular line, so as to be incapable of acting in concert or affording mutual support, his plan was to crush them one after another, by means of rapid movements executed with overwhelming masses. Accordingly, from the central position of Vittoria, he attacked and defeated Blake at Espinosa, overthrew Belvedere near Burgos, and totally routed Castaños at Tudela; so that whilst the English were slowly advancing into Spain, one column by a circuitous route, the armies with which they had expected to co-operate were completely swept from the field. Napoleon now pushed forward to Madrid, which, after a vain stand made in the passes of the Somosierra, and a show of resistance when he approached the walls, he entered in the beginning of December. Here, however, he remained but a short time. Having passed some decrees intended to conciliate the liberal Spaniards, having abolished the Inquisition, suppressed the convents, and made a variety of judicious and salutary regulations, he turned his arms against the English, whose principal force was assembled in the neighbourhood of Salamanca; crossed the Guadarama range in the depth of winter at the head of eighty thousand men; and advanced with incredible velocity upon Astorga, the strategic point, in order to cut off their retreat. But his skilful combinations and rapid execution were defeated by the masterly retreat of the English general Sir John Moore; and Napoleon, finding that the enemy had escaped him, left Soult to continue the pursuit, galloped back to Burgos, and thence hurried to Paris. The preparations of Austria, of which he had received fresh intelligence whilst proceeding against the British, required his immediate presence in the capital to watch the movements of that power.

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[1] The spirit of a people is often shown in their pasquils. Soon after the affair of the 2d of May, the following epigram was attached to a proclamation affixed by the French to the walls of Madrid, and addressed to the Spaniards:

En la plaza hai un cartel,
Que nos dice en Castellano,
Que Joseph, rey Italiano,
Muda a Madrid su dosel.
Y a leer esa cartel,
Dice un maja a su majo,
Manolo ponlo mas abajo
Que me cago en en esa ley
Que no sabe decir carajo.

It is not necessary to subjoin any translation of this national epigram; but, to give our readers some idea of the means employed to stimulate and perpetuate a hatred of the French, we shall give in English an excerpt from a catechism generally circulated in Spain about this time, and which parents were enjoined to teach their children. "Tell me, my dear child, who are you? A Spaniard, by the grace of God. What do you mean by that? A person of respectability. Who is the enemy of our happiness? The emperor of the French. Who is he? A wicked man, the source of all that is evil, the destroyer of all that is good, and the centre of every vice. How many natures has he? Two, the human and the diabolical. How many emperors of the French are there? One Veritable, in three deceitful persons. What are the names of these persons? Napoleon, Murat, and Manuel Godoy. Which of the three is the most wicked? They are all equally so. Of whom is Napoleon derived? Of Sin. Murat? Of Napoleon. And Godoy? Of the fornication of the other two. What is the spirit of the first? Pride and despotism. Of the second? Rapine and cruelty. Of the third? Cupidity, treachery, and ignorance. Who are the French? Men once Christians, who have become heretics. What punishment does the Spaniard deserve who fails in performing his duty? The death and infamy of traitors. How ought the Spaniards to conduct themselves? According to the maxims of our Lord Jesus Christ. Who will deliver us from our enemies? Mutual confidence and arms. Is it a sin to put a Frenchman to death? No, father; he will gain heaven who shall kill one of these dogs of heretics." A people who would teach their children such a manual of doctrine as this might easily be expected to begin by exemplifying in their own actions the precepts which are here inculcated.

A fifth continental coalition had already been formed. Availing herself of the diversion occasioned by the events in the Peninsula, Austria had armed; whilst in France new conscriptions were ordered, and the imperial guard, hastily recalled from the pursuit of the British, marched against the Austrians on the Danube. The war seemed interminable; and Talleyrand's prediction was in course of being realised. The court of Vienna had made incredible exertions, and an army of nearly two hundred thousand men, commanded by the Archduke Charles, menaced France and Italy; whilst another, in Gallicia, was intended to oppose whatever forces Russia might bring into the field to support her new ally. On the 9th of April the Austrians crossed the Inn at Brunnau and at Scharding, and the Salza at Burghausen; the Archduke Charles declaring to the commandant of the French troops stationed in Bavaria that he was about to advance, and would treat as enemies all who should resist him. On the 15th hostilities also commenced in Italy, and the following day the French under Eugene Beauharnais were completely defeated at Pordenone, on the Tagliamento. Napoleon, on receiving the first tidings of the advance of the Austrians, hurried from Paris, and at Dillingen met the king of Bavaria, who had been forced to abandon his capital. The French, in fact, were quite unprepared for the adoption of such a vigorous offensive on the part of the Austrians; and the corps of Davoust, which Berthier had stationed at Ratisbon, was so much in advance as to be seriously compromised. But Davoust took upon himself the responsibility of executing a flank march from that city upon Abensberg; checked the advance of the Austrian army at Tann; gave his hand (as the military phrase is) to the Bavarians; and thus prepared for Napoleon, who was on the point of arriving, the means of penetrating the enemy's line, and beating in succession the two great Austrian corps under the Archdukes Louis and Charles. Upon the 20th Napoleon defeated, at Abensberg, the corps under the orders of the Archduke Louis and General Hiller, after an engagement of only an hour and a half. Great advantages resulted from this success, which, upon the following day, forced the Austrians to abandon nine thousand prisoners, thirty pieces of cannon, six hundred ammunition waggons, three thousand vehicles of various sorts, and three pontoon trains. On the 22d, the archduke directed his efforts against Davoust, who was in position at Eckmuhl; but the portion of the army under Napoleon, which had followed to Landshut the corps defeated at Abensberg, rapidly countermarched, and having appeared on the left flank of the Austrians, compelled the archduke to abandon his position and cross the Danube. Thus, after a campaign of a week, on almost every day of which a victory had been gained, the French emperor was enabled to send forth one of his astounding proclamations, announcing the capture of a hundred pieces of cannon, fifty thousand prisoners, and forty stand of colours. Davoust, to whom the last success had been mainly owing, was created Prince of Eckmuhl on the field of battle.

Affair of Ebersberg; occupation of Vienna.

The archduke having crossed the Danube at Ratisbon, retreated into Bohemia, no doubt in the hope of drawing the French after him in pursuit; but Napoleon preferred marching along the right bank towards Vienna. This, however, was not effected without opposition. At Ebersberg, a large town situated upon the right bank of the Traun, three leagues from Lintz, there occurred, on the 4th of May, one of the most sanguinary combats on record. The French generals, acting under the eye of their chief, attempted to carry this strong position at the first onset, and without hesitation sacrificed five thousand men, who were either drowned in the torrent, destroyed by the musketry, overwhelmed amidst the rubbish, or consumed by the flames of the houses, to which the enemy set fire on beating a retreat;[1] a carnage as useless as it was horrible, seeing that Marshal Lannes had already turned the position, and rendered the retreat of the enemy inevitable. On the 13th of May, exactly a month after the Austrians had commenced the war, Vienna was occupied for the second time by the French army, though not until it had stood a bombardment of thirty-six hours. The resources in munitions of war found in the Austrian capital were sufficient for a campaign. The imperial family and the court had, as before, abandoned the city to its fate. Meanwhile the Archduke Charles had, by a circuitous march through Bohemia, reached the left bank of the Danube opposite Vienna. More prudent than in 1805, the Austrians had destroyed every bridge on the river; and, on the other hand, it became necessary to the French to cross the stream and put an end to the war by victory, ere insurrections could be organized in their rear, or the want of subsistence should compel them to retreat. But how was this to be effected in presence of an active and vigilant enemy?

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[1] "Figure to yourself," says an eye-witness of this horrid spectacle, "all these dead, baked by the fire, trodden under the feet of the cavalry and the wheels of the artillery, all forming a mass of mud, which, as it was removed by shovels, emitted an undescribable odour of burned human flesh, and caused a sensation horrible even amongst the every-day horrors of war." In passing Cohorn's Corsican regiment, which had headed the attack, Napoleon inquired respecting its loss. "We have just one more charge left," replied the officer, pointing to the surviving half of the regiment. "A ce jour," says the Abbé Montgaillard, "l'espoir d'un grade, d'une dotation, fait dépasser toutes les bornes de l'audace guerrière, et méconnaître aussi les inspirations de l'humanité." (*Hist. de France*, tome vi. p. 391.)

Battle of Essling.

The river Danube, which now separated the hostile armies, is divided below Vienna into three unequal arms or branches. From the right bank to the first island, which is about a mile in circumference, the distance is two hundred and forty toises; and from this to the great island, where is the principal current, the canal is in width about eighty toises. The great island, called In-der-Lobau, is about seven miles in circumference, and the canal which separates it from the left bank is nearly eighty toises in breadth. Napoleon having thrown bridges, by means of which his troops were enabled to pass from the right bank into the islands, and thence to the left bank, attacked the Archduke Charles in position behind the villages of Gross-Aspern and Essling, about three leagues north of Vienna. After several murderous attempts in a confined space, where the French maintained an obstinate struggle against superior forces and a formidable artillery, the assailants were repulsed; and about the same moment the bridges were carried away by a sudden rise of the river, thus leaving them without ammunition, or the means of sheltering themselves from the fire of the enemy, which now plunged incessantly into their disordered ranks. But the tenacity of Massena saved the wrecks of the French army, which in the night operated its retreat into the island of Lobau, the bridge between which and the left bank had been temporarily repaired. This terrible battle, which lasted during the greater part of two days, was fought on the 21st and 22d of May. The loss of the French was enormous. Lannes was mortally wounded; three generals fell, a hundred and twenty-eight officers and six thousand soldiers were killed; thirteen generals, seven hundred officers, and eighteen thousand soldiers, were wounded; fourteen officers and three thousand soldiers were made prisoners. The loss sustained by the Austrians was by no means so great.

Results.

After the battle of Essling the reputation of Napoleon as a general and a man of resolution was much diminished; for he had not taken any adequate precaution against the contingency of retreat, and at the moment when the danger was most imminent he quitted the left bank of the Danube in a miserable barque, accompanied by Berthier, and Czernicheff, aide-de-camp to the emperor of Russia, in order to get under cover on the right bank. The news of his defeat also spread the flames of insurrection, and gave the first impulse to that spirit of resistance by which he was a few years afterwards overthrown. The Tyrolese rose against the Bavarians; associations, under the denomination of the Tugenbund, were formed for working out the independence of Germany; and the adventurous enterprises of the young Duke of Brunswick and of Major Schill afforded abundant evidence of the hostile disposition by which the people of the north and east were animated towards their oppressors; although the climate of Germany, and the character of its inhabitants, as well as the force and centralization of government, rendered the Spanish system of resistance impracticable in that country.

Battle of Wagram.

The French, forced back to the right bank of the Danube by their defeat at Essling, established themselves in the great island of Lobau; and both armies, separated only by the northern branch of the Danube, sixty yards wide, remained in observation during six weeks, carefully retrenching their respective positions. At length, on the night between the 4th and 5th of July, the French having constructed bridges lower down the stream, crossed to the left bank, where a warm combat ensued with the left wing of the Austrian army, posted near the small town of Enzersdorff, which was reduced to ashes. The archduke had fortified his position and made preparations to oppose the French, on the supposition that they would attempt to cross by the original bridge opposite Essling, which Napoleon had ordered to be repaired. But these repairs had only been made by Napoleon to deceive his antagonist; and by crossing lower down the river he rendered all the preparations and batteries of the archduke unavailing; for, instead of fronting the Danube, the latter was now obliged to extend his line perpendicularly to the river, from Aspern to Wagram, a village situated five leagues north-north-east of Vienna, and thence to a small river on his extreme left. The 5th was spent in manœuvring, and in fruitless attempts to dislodge the French from the village of Enzersdorff. Both armies slept on the field, and on the 6th at day-break commenced the famous battle of Wagram. The Austrian centre was posted on the high ground near the village, which the archduke believed to be too strong to be forced; and accordingly he threw the greater part of his force into his wings. This error lost him the battle. The Austrian right attacked and overthrew Massena, who commanded the French left, driving him back with such fury that his four divisions were crowded into one. Davoust opposed a firmer resistance to the Austrian left; but still he had great difficulty in maintaining his ground. In this situation Napoleon resolved to allow his wings to resist as they might, and to bring the whole of his disposable force to dear upon the Austrian centre at Wagram. Lauriston accordingly advanced against it with a hundred pieces of cannon; Macdonald followed Lauriston with the infantry; and Bessières supported the attack with the cavalry of the imperial guard. This combined effort succeeded. The artillery made breaches in the Austrian line; the French, aided by a diversion on the extreme right, rushed into the openings; the centre was forced; and the corps victorious over Massena, being now taken in flank, was also obliged to retire. The different portions of the Austrian army being thus separated from one another, the archduke withdrew from the field; but the French had suffered far too much to follow him. In fact, the battle of Essling had damped the courage of the French; and at Wagram they fought faintly, except when urged on by some bold and determined leader. The loss on both sides was enormous; that of the French exceeding thirty-five thousand men killed and wounded. Wagram was therefore a victory, but not such a victory as that of Marengo or Austerlitz. The hostile army was defeated, but neither destroyed nor intercepted; and the Archduke Charles, still formidable in force, withdrew into Moravia to await the arrival of his brother's army, repair his losses, and prolong the campaign.

Peace.

Napoleon therefore deemed it prudent to make peace. His power was in fact shaken. Most of the veterans of the Italian wars had perished; the army of Essling and Wagram was no longer that of Austerlitz; and this alarming truth had been spoken out even at the imperial head-quarters. Accordingly an armistice was concluded about the middle of July, and conferences with a view to peace having soon afterwards commenced at the palace of Schönbrunn, near Vienna, were continued until the 14th of October, when a treaty was signed, by which Austriȧ ceded, in favour of the sovereigns of the confederation of the Rhine, Saltzburg, Bergtolsgaden, and part of Upper Austria; to the French, Gorice, Montefalcone, Trieste, the circle of Villach in Carinthia, and all the countries situated on the right of the Saave, as far as the frontier of Turkish Croatia; to the grand duchy of Warsaw, all western Gallicia, with Cracow, as well as the circle of Zamosc in eastern Gallicia; and to Russia, a small territory in the most eastern part of Gallicia, containing a population of four hundred souls. The emperor of Austria also recognised all the changes which had already been made or might subsequently take place in Spain and Portugal; he adhered to the prohibitive system adopted by France and Russia against England; and he engaged to discontinue all commercial relations with "the enemy of the Continent." The memoir writers of the day are pleased to imagine that Napoleon was terrified into making peace by the discovery of a design upon the part of a fanatical young German to assassinate him. But his views were at once more manly and more profound. Even in his proudest day of power he had acknowledged the necessity of having one great ally attached to his interests; and this was what he now sought to obtain. Prussia had played him false, and forced him to destroy her; Russia was evidently not to be depended upon; Austria yet remained to be tried, and this trial was now made. Napoleon had no heir of his body; an adopted son of his brother Louis had died; and his proposal to a Russian princess had been received with a coldness amounting to disdain, which proved to him the insincerity of Russian alliance. At Schönbrunn the same idea was now suggested with respect to Austria; and the Emperor Francis, appreciating the advantage of such a connection, acceded to the proposal. Accordingly Josephine was divorced to make way for a bride of the house of Hapsburg, and, on the 10th of March 1810, the Archduchess Maria Louisa became the new empress of the French.

ven of
810.

In what remains of the history of France we must confine ourselves to a mere abridgment of events which are not of very great importance, this branch of the general article having already exceeded its due proportion; but what is omitted here will be found under the other heads to which reference is made. The occurrences of 1810 and 1811 are chiefly important with reference to an approaching struggle with Russia. On the 6th of January 1810 a treaty of peace between France and Sweden was signed at Paris. On the 7th of February the convention of marriage between the Emperor Napoleon and the Archduchess Maria Louisa, daughter of Francis I., emperor of Austria, was concluded. On the 17th the Roman states were, by a decree of the senate, incorporated with the French empire. On the 19th April the provinces of Caraccas, Cumana, Barinas, Margarita, Barcelona, Merida, and Truxillo, in Spanish South America, formed a federative government under the name of the American Confederation of Venezuela, but without separating themselves from the mother country, although this first step necessarily led eventually to such a result. Early in July, Napoleon, having made a declaration against the government of Holland, which he accused of having converted the Dutch ports into entrepôts of English commerce, recalled his brother Louis, and, by an imperial decree, ordained the incorporation of Holland with France. On the 21st of August, Bernadotte, prince of Ponte Corvo, was named hereditary prince royal of Sweden, by the states-general of the kingdom, convoked in an extraordinary diet for the election of a successor to the throne, to which, upon the abdication or rather expulsion of Gustavus IV. the Duke of Sudermania had been raised by the title of Charles XIII. Towards the latter end of September Sicily was threatened with invasion by a force under the orders of Murat, the new king of Naples; but the threat ended in a mere demonstration, having for its alleged object to draw English troops into the island. On the 13th of December a hundred and sixty thousand men of the conscription of 1811 were placed at the disposal of the government. The relations of France with Russia had, in the opinion of Napoleon, rendered this measure necessary. On the 29th of December the state renounced the successions of the emigrants which had devolved to it during so many years; and thus the revolutionary laws of the 28th March 1793 and the 28th April 1795 were abrogated. For the events which occurred in Spain during the years 1809, 1810, 1811, and the following years, the reader is referred to the articles BRITAIN and SPAIN.

Events of
1811.

Napoleon, when in St Helena, asserted that the origin of his quarrel with Alexander, which led to the invasion of Russia in 1812, was his opposition to the czar's views upon Turkey; views, it may be added, which the autocrat of all the Russias had been led to entertain at Tilsitt; and Bignon confirms the statement of Napoleon. "From the conferences of 1807," says that historian, "sprung the germ that was to be fatal to Napoleon. To force England to make peace conformably to the alliance of Tilsitt, Russia was to act against Sweden, and France against Portugal; or, to translate more freely the ideas of the two emperors, Russia left to Napoleon full liberty of action over the south of Europe, France abandoning to Alexander similar liberty in the north with respect to Sweden, and moreover allowing him a certain measure of tolerance on the side of Turkey. In consequence of these reciprocal concessions, France found herself engaged in the horrible Spanish war; Russia in one of which the dangers were insignificant, the acquisition being Finland. Napoleon then imagined that Finland might content Alexander; but he was deceived. For a moment Napoleon had admitted the possibility of partitioning the Ottoman empire. This contingency Alexander assumed as a certainty; and his constant demands were on the subject of this partition. But Napoleon constantly refused, and from a double motive; the first political, because the lot of France, magnificent as it appeared, was but a source of peril and embarrassment, whilst that of Russia had proved all substantial and positive value; the second military, because he looked on the Turkish empire as a morass which prevented Russia attacking him on his right." And hence, it is said, arose the gradual coolness between the two emperors. But there were other sources of grievance. In the campaign of Wagram, Napoleon had perceived the lukewarmness of Russia; whilst the aggrandisement of the duchy of Warsaw, which might swell out into an independent kingdom of Poland, made Alexander tremble for Lithuania. The occupation of the duchy of Oldenburg, belonging to a prince nearly allied to the emperor of Russia, formed another cause of complaint and recrimination. On the other hand, Alexander, who had already relaxed in his observance of the continental system, which had destroyed the trade of his subjects, abrogated it in part towards the close of 1810, and thereby snapt asunder the last remaining tie between France and Russia.

Preparations of Napoleon.

The seeds of war being thus freely sown, preparations were made on both sides for the struggle which had now become inevitable. Those of Napoleon were immense. From France he drew every soldier the utmost rigour of the conscription laws would supply; Italy on the one side, and Holland on the other, were required to contribute their legions; the contingents of the confederated states of the Rhine were ordered to be in readiness; Austria consented to furnish forty thousand men; and Prussia, however willing to throw her remaining strength into the scale of Russia, was forced by dire necessity to yield up the remains of her army, her fortresses, and even her very capital, to the French forces. All continental Europe in arms seemed about to pour upon Russia; whilst Poland, expecting her independence, was calling upon Lithuania, the spoil of Catharine, to welcome the host of invaders. On the other hand, by the mismanagement of Napoleon, Sweden, though smarting under the loss of her fairest province, Finland, was thrown into the arms of Russia; and, through his neglect, British influence so far prevailed at Constantinople, that the sultan was induced to abandon the tempting opportunity, of which he might have taken advantage, when Russia was hard pressed by a powerful antagonist, and even to conclude a peace with the ancient and inveterate foe of the Ottoman name. The fact is, that about this time Napoleon began to be very ill served in the civil and diplomatic branches of affairs. Talleyrand and Fouché were both in disgrace, and he in vain endeavoured to supply their places with statesmen of his own creation. Men of their approved talents and experience, with clear heads, penetrating discernment, and cool sagacity, were not every-day productions. In diplomacy, where the essential requisites are knowledge of mankind and of courts, together with superiority of address, and an almost intuitive insight into affairs, Napoleon felt and lamented this deficiency; and he himself owned, that had he retained Talleyrand in his service, the Russian (he might have also added the Spanish) war would have been avoided. In high views of policy, and conceptions worthy the head of a great state, Napoleon was alike eminent; he also foresaw the perils of an insurrection in the Peninsula, should it become general, and the unseasonableness as well as necessity, circumstanced as he was, of a war with Russia; but want of tact in his subordinate agents hurried on both these calamities. The rashness and precipitation of Murat, whilst at Madrid, embroiled Spain; and negotiations carried on through generals and aides-de-camp marred all hopes of reconciliation with Russia. Sensible of this, Napoleon made choice of the Count de Narbonne, a noble and a liberal emigrant, to proceed on a mission to Russia; and with the same feeling, probably, he selected and sent to Warsaw the Abbé de Pradt, archbishop of Malines. But men qualified for such high and responsible diplomatic situations cannot be produced even by an imperial improvisation; and it would be difficult to say which proved the more unsatisfactory envoy, the archbishop or the aide-de-camp.

Declaration of war.

After two years of preparation, the rupture became imminent. On the 24th of March 1812, a treaty of alliance was concluded between Russia and Sweden, by which Norway was promised to the latter, and the prince-royal, Bernadotte, agreed to take the field with a Russian corps under his orders; and to this treaty Great Britain acceded in the beginning of May. On the 24th of April the emperor of Russia left St Petersburg to join his army, then in position upon the western frontier of Lithuania; and on the 9th of May Napoleon set out from Paris for Dresden, which had been fixed upon as the rendezvous of his allies. Professions of peace, as usual, preceded the commencement of hostilities; and at the same time that Napoleon quitted Paris for Germany, the Count de Narbonne was sent to the head-quarters of the Emperor Alexander. Meanwhile, the court assembled at Dresden was such as Europe had never before witnessed. The emperor of Austria and the king of Prussia were amongst those who, on this occasion, waited upon Napoleon; whilst kings and princes of inferior rank crowded the antechambers, and jostled one another in the saloons of the conqueror. Here the representative of the French Revolution found in attendance at his levees those sovereigns who had combined to crush it; and the new Charlemagne, whose title to the imperial purple had been consecrated by victory, seemed in a fair way of realizing his own prediction, that his family would soon be the oldest of Europe. It appears as if fortune, before abandoning him, had indulged her spoiled favourite with this parting pageant. Napoleon awaited at Dresden the return of the Count de Narbonne, who arrived on the 28th of May. The latter had seen the Emperor Alexander, and had found him inflexible, but neither elated nor despondent. The czar considered the cause as that of the independence of his nation, and conceived that in maintaining it defeat would not be inglorious. On receiving these tidings, Napoleon quitted Dresden, proceeded to join the army, and, on the 22d of June, declared war against Russia, from his head-quarters at Wilkowiski, near Gumbinen, in Eastern Prussia. "Soldiers," said he, "the second war of Poland has commenced. The first terminated at Tilsitt. At Tilsitt Russia swore eternal alliance with France, and eternal war against England. She has now violated her oaths. Russia is hurried on by a fatality; her destiny must be accomplished. Does she suppose us degenerated? Let us advance, cross the Niemen, and carry the war into her own territory. The second war of Poland will be as glorious to the French arms as the first."

Forces of France and Russia respectively.

The army of Napoleon, at once the finest and most formidable which France had ever sent beyond her own territory, amounted to nearly five hundred thousand combatants, with about twelve hundred pieces of artillery. This army was divided into ten corps. The first corps, composed of five fine divisions of infantry and one of cavalry, was under Marshal Davoust; the second was commanded by Marshal Oudinot; the third was under the orders of Marshal Ney; the fourth, known under the name of the army of Italy, was commanded by Eugene Beauharnais; the fifth consisted of the Poles, under Prince Poniatowski; the sixth was composed of the Bavarians, under General Gouvion-Saint-Cyr; the Saxons formed the seventh, under General Reynier; the eight consisted of the Westphalians, effectively commanded by Junot, who had been placed as the Mentor of Jerome Bonaparte, a young man without talents and consideration; the ninth, not yet completed, but with a division twenty thousand strong, was allotted to Marshal Victor; and the tenth, composed of the auxiliary contingent Prussians, with a reserve of a division and some companies of artillery, was under the orders of Marshal Macdonald. The old guard was commanded by Marshal Lefebvre, and the young guard by Marshal Mortier. The reserve of cavalry, under the orders of the king of Naples, Murat, formed four corps under Generals Nansouty, Montbrun, Grouchy, and Latour-Maubourg. The cavalry of the guard acted apart, and an Austrian corps under Schwartzenberg marched separately. The grand total did not therefore fall short of four hundred and fifty thousand combatants, of whom twenty thousand were Italians, eighty thousand belonged to the confederation of the Rhine, thirty thousand were Poles, thirty thousand Austrians, and twenty thousand Prussians; so that the French alone formed an effective force of about two hundred and seventy thousand bayonets or sabres. On the other hand, the Russian troops were divided into the first and second armies of the West, under Generals Barclay de Tolly and Bagration, and the army of reserve under Tormasof; making altogether, including different detached corps of irregular cavalry, about three hundred and sixty thousand combatants. But two other corps were formed; one in Lithuania, from Mozyr to Bobenisk on the Berezina; and the other at Riga and at Dwinaburg; whilst reserves were established on the

Willia, and between Wilna and Swentziany; and a vast intrenched camp was formed before Drissa, in a sinuosity of the Dwina.

vasion of Russ

On the 24th of June the French army crossed the Niemen, and on the 25th the emperor of Russia issued a proclamation announcing the commencement of hostilities, invoking the name of God, the protector of the Greek faith, in whom dwells truth, and calling upon his serfs to defend liberty and their country. In crossing the Niemen, the French met with no opposition; a solitary officer of Cossacks being the only enemy who appeared to challenge them. The plan of the Russians was to retreat within their own territory, to avoid a decisive battle, to draw on the French as far as possible from their resources, and at last to fall on them when famine, fatigue, and the rigours of a northern climate, had abated their enthusiasm and exhausted their strength; a plan devised by Barclay de Tolly, the commander-in-chief, and executed with an ability and determination which eventually proved the salvation of the Russian empire. On the 28th of June the French troops made their entry into Wilna, the ancient capital of Lithuania. The Russians fell back at all points. After having exchanged some cannon shots, they repassed the Willia, burned the wooden bridge at Wilna, and set fire to the immense magazines of provision, clothing, arms, and munitions of war, which had been collected at that place. On the same day the diet which had assembled at Warsaw proclaimed the re-establishment of the kingdom of Poland. This generous nation ardently desired and invoked the recomposition of its dismembered provinces; it implored the assistance of France; and, for twenty years, its warriors had shed their blood for the interests of that country in Italy, in Germany, in Spain, wherever, in short, their services were needed or required. Since the peace of Tilsitt, which had consummated the humiliation of Prussia, the policy of France required the reconstitution of the monarchy of Sigismond and Sobieski; and powerful considerations should have determined Napoleon to sanction a measure which, independently altogether of its political justice, would have raised up a formidable barrier between Russia and Germany, attached to his interests a brave and generous nation, strengthened his hands in the actual contest with Russia, and, in the event of reverses, rallied a whole people to cover his retreat. But, either from an apprehension of exciting the jealousy of Austria, who would no doubt have readily accepted an indemnity for Gallicia on the side of Italy, or, which is more probable, from a desire to keep the door open for an accommodation with Russia, Napoleon evaded the recognition which was so earnestly solicited of him by a deputation from the diet, and thus lost an opportunity of strengthening his power which could never be recalled.[1]

vance of Frech.

When Napoleon advanced upon Wilna with the main body of the army, Macdonald with a strong corps moved along the Baltic, and formed the left; whilst the Austrians, under Schwartzenberg, entered Volhynia, and protected the right flank of the French. Immediately before Napoleon, the Russians, as already stated, composed two armies; the principal of which, under General Barclay de Tolly, had retired from Wilna, to Drissa on the Dwina, where an intrenched camp defended the road leading to St Petersburg; whilst the other, under Prince Bagration, remained at Grodno, and was consequently separated, by the advance of the French, from the main army under Barclay. This was a great, and might have proved a fatal blunder. But, happily for the Russians, Napoleon, who saw the full extent of the error, and did every thing in his power to take advantage of it, was, on the present occasion, ill served by his lieutenants. Some were tardy, others inapt; Junot was incapacitated for command by the effects of former wounds; Davoust was paralysed by the obstinacy and stupidity of King Jerome; jealousies and misunderstandings prevailed among others. Precious time was thus lost; Bagration made good his retreat; and Barclay, warned by the peril which he had just escaped, took good care to afford the enemy no second opportunity of beating him in detail. From Wilna Napoleon advanced to Witepsk, which he entered on the 28th of July, being still in hopes of preventing the junction of the two Russian armies, which, by a masterly movement, he had disunited. Lithuania was now conquered, and the end of the war seemed already attained; but in the estimation of Napoleon, whom ordinary advantages did not satisfy, it had scarcely commenced. His eye was fixed upon Moscow, and, calculating on the faults of the Russians, he was eager to strike a blow commensurate in magnitude with the enterprise in which he had embarked. In vain, therefore, did Berthier, Lobau, Caulaincourt, Duroc, and Daru, demonstrate the necessity of stopping at Witepsk, more especially as henceforward the favourable dispositions of the inhabitants could not be reckoned on. Murat and Davoust gave opposite counsel, and Napoleon resolved to advance.

Smolensk.

Whilst Napoleon remained at Witepsk, where he spent the first two weeks of August, the Russian armies had united at Smolensk, a large town situated on the Dnieper, surrounded with ancient and massive constructions, to which had recently been added works fortified with extreme care, and forming the bulwark of Russia upon the frontier of Poland. In this strong position Barclay resolved to make a stand. It had formed part of the plan of Napoleon to get to Smolensk before the enemy, intercept their retreat, and thus force them to accept battle at a disadvantage; but, owing to innumerable faults of execution, and the unaccountable though perhaps necessary delay at Witepsk, this project had failed. It now only remained, therefore, to carry the place by main force; and for this purpose the French, with Napoleon himself at their head, advanced to the attack, which was made at all points and with unimaginable fury. The Russians, protected by the ramparts, held out during the day; but on the approach of night they abandoned all their positions, after having set fire to the town, which contained immense magazines. They retired in solid squares, with such admirable steadiness and order, that the utmost efforts of Murat, at the head of his fine cavalry, proved unavailing against the stability of their formation; in fact, each square seemed a blazing ball of fire. The Russians lost about twelve thousand men in killed, wounded, and prisoners; the French somewhat less than half that number. But the system of defence adopted by the Russians had deprived the French of nearly all the advantages which they might otherwise have derived from their victory; and where they expected to meet with good quarters and the sight of human habitations, they found only a heap of smoking ruins. Still, even amidst these ruins Napoleon might have halted, brought up provisions and reinforcements, reorganized his army, and waited to complete the subjugation of Russia in another campaign. This was what almost all his generals counselled, including even Murat; and the results of the campaign completely vindicated the prudence of this advice. But to stop short in the month of August within eighty leagues of Moscow, the term of his enterprise, and without having achieved any thing calculated to maintain the illusion in favour of his invincible and overwhelming power, was too much for Napoleon. The principles of his strategy were fully developed in this campaign. He was not insensible to the difficulties and even dangers attending an advance, or of the advantages which would result from placing his army in cantonments at Smolensk, and there preparing for another and decisive campaign; with him every thing, even audacity itself, was matter of calculation; but, having estimated all the chances, he concluded that as the Russians would certainly risk a battle to save the ancient capital of their empire, he would gain the battle, penetrate to Moscow, and thus conclude the war in Russia as he had twice before done in Germany. For these, and other reasons which appeared to him equally cogent, Napoleon determined to advance.

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[1] The deputation, which appeared at the head-quarters of Napoleon at Wilna, said to him, "the general diet has constituted itself into a confederation of Poland. Say, sire, that the kingdom of Poland exists, and this decree will to the world be equivalent to the reality." But, persisting in the idea of not sacrificing Austrian Gallicia, in order not to be under the necessity of giving up Illyria, which the cabinet of Vienna anxiously desired to recover, Napoleon replied, "Poles, I would have thought like you in the assembly of Warsaw; the love of one's country is the first duty of civilized man. In my situation I have many interests to conciliate, many duties to fulfil. If I had reigned during the first, the second, and the third dismemberment of Poland, I would have armed my people to defend that country. I love your nation. I authorize the efforts which you desire to make. It is only in the unanimity of the population that you can hope for success. I ought to add, that I have guaranteed to the emperor of Austria the integrity of his dominions." This language was not misunderstood. But if the hopes of the Poles were blasted, their disappointment was speedily avenged.

Further advance.

Nor was he wrong in two main points of his calculation. Although the Fabian tactics of Barclay had unquestionably saved the Russian army, and with it the empire, all voices, amongst which that of Prince Bagration was loudest, clamoured for battle; and, in obedience to this cry, the able tactician was superseded by the old Muscovite general Kutusof, the same who lost the battle of Austerlitz. Before quitting the command, however, Barclay signalized himself by a brilliant feat of arms. Resolving to leave no trophies to the enemy, he made a stand at Valoutina, to preserve some baggage and cannon; and as Junot, who should have taken the Russians in flank, hesitated at the critical moment, he succeeded in repulsing Ney with considerable loss. It was not thus that Napoleon had been served in Italy and Germany; but, mindful of former times, and unwilling to disgrace his earliest protegé in the face of the army, he still continued Junot in the command of his division. The vanguard, commanded by Murat and Davoust, was continually in contact with the enemy; but as the overboiling and impetuous valour of the former assorted ill with the stern methodical genius of Davoust, who blamed his colleague severely for sacrificing the cavalry in encounters which led to no result, these officers were at open variance, and their quarrel contributed in no slight degree to increase the difficulties and embarrassments of Napoleon. The accession of Kutusof to the command of the Russian army, in the room of Barclay, was equivalent to an announcement of a determination to fight. This was known to the French, who, accordingly, on the 6th of September, came in sight of the Russian army posted upon a series of eminences extending southward from the village of Borodino, on the Moskwa; the position selected by Kutusof whereon to fight a battle in defence of the capital, which he had solemnly promised to cover, and at the same time to annihilate the French army. This position was covered by redoubts and intrenchments, announced in the official reports as inexpugnable; and the Russians were animated by the predictions of their priests, and by the sight of a miraculous image of the Virgin, which was carried through their ranks. Kutusof also prophecied victory. "God," said he, "is about to combat the enemy with the sword of St Michael, and before the sun of to-morrow shall have descended below the horizon, you will have written your faith and your fidelity, in the fields of your country, with the blood of the aggressor and his legions." On reaching the ground, Napoleon drove the Russians from an advanced redoubt, established his line opposite to theirs, and made the necessary preparations for the conflict of the morrow. But he refused to manœuvre on the enemy's flank, or make any movement to intercept them, lest such an operation should induce them to withdraw, and thus put off the long-wished-for battle.

Battle of Borodino.

The sun of the 7th September rose in peaceful splendour on the mighty hosts arrayed for conflict, and was hailed by the French as the sun of Austerlitz, an omen of victory. Before daybreak Napoleon was on horseback, and with the first light of day the following address was read at the head of each regiment in the French army. "Soldiers, here is the battle you have so much desired. Victory must now depend upon you. It will secure you abundance, good quarters, and a speedy return to your native country. Conduct yourselves as at Austerlitz, at Friedland, and at Smolensk. Let people say of each of you with pride, 'He was at the great battle fought on the plains of Moscow.'" The corps present were, besides the old and new guard, those of Marshals Davoust and Ney, of the viceroy of Italy, Eugene Beauharnais, and of Prince Poniatowski; and the four large corps of cavalry, commanded respectively by Generals Nansouty, Montbrun, Grouchy, and Latour-Maubourg, were all under the superior direction of the king of Naples. In the Russian army, Barclay de Tolly, dispossessed of his functions as general-in-chief, commanded the right, Beningsen held the centre, and Bagration commanded the left. Redoubts strongly armed, and numerous batteries, covered the front and the wings. The respective numerical force of the hostile armies has not been satisfactorily ascertained. It appears, however, that the French army exceeded one hundred and thirty thousand combatants of all arms, and that the Russians were even more numerous. The latter had also the advantage of position, and were animated both by religious and patriotic feelings; but they were about to contend with soldiers equally intelligent and brave, led on by consummate generals, and all under the direction of the greatest master in the art of war whom modern times had produced. At six in the morning the fire of a French battery gave the signal of battle; and General Compans, belonging to the corps of Marshal Davoust, commenced the attack. The intention of Napoleon was to carry the first batteries on the Russian left, and then to take in flank and reverse a great redoubt in the centre. Hence, although the action commenced along the whole line, the weight of the attack was directed against the batteries just mentioned. But, as might have been anticipated, the assailants were met by a gallant and determined resistance. Compans, who commanded the leading division, was wounded; Rapp, who succeeded him, was also wounded; and Davoust himself received a hurt from the fall of his horse, which was killed under him. For a moment the attack faltered; but victory came from a quarter where it was least expected. Instead of holding back, according to his orders, the viceroy of Italy, perceiving the relaxation in the attack, pushed forward to the village of Borodino, which he carried in the most gallant manner; and improving his advantage, he dashed across the river to attack the great redoubt. The corps of Davoust now redoubled its efforts, drove Bagration from his batteries, and before midday, after more than four hours close combat maintained with extraordinary tenacity, three redoubts had been carried by Prince Eugene and Marshals Davoust and Ney, whose corps formed the right wing, and were prolonged towards the centre. The road to victory being thus opened, it was necessary to follow it up; but Murat, Ney, and Davoust, exhausted by their exertions, stopped, rallied their troops, and sent to Napoleon to demand reinforcements. Segur, who describes this celebrated battle in a pompous and affected style, gives long details respecting the alleged hesitation and uncertainty of Napoleon, as well as the orders and counter orders which he is said to have issued to his generals. It is certain, however, that he retained the young guard in a state of inaction, not thinking it necessary to order it to advance, notwithstanding the urgent solicitations of Murat to that effect. To those who pressed him to accede to the instances of the king of Naples, he replied, that he wished to see better how matters stood; that his battle was not yet commenced; that it was necessary to wait; that time entered into every thing; that it was the element of which all things were composed; that nothing had as yet been sufficiently cleared up. Then he asked the hour, and being told it, added, "That of the battle has not yet come. In two hours hence it will commence." The event proved that Napoleon judged more wisely than his impetuous lieutenant. To have ordered up his guard and brought forward his reserves whilst the state of the battle remained uncertain, would have been to risk all upon one throw of the die. Accordingly, in the afternoon, a second, or, as Baron Fain calls it, a third battle commenced; all the Russian batteries were successively attacked and taken; the most formidable of their redoubts, that in the centre, was carried by a charge of cuirassiers; and the Russians, defeated at all points, were forced to abandon the field. The result of this day was such as might have been expected from an army like that commanded by Napoleon. Notwithstanding the boasting of the Russian generals, their army, with all its advantages of position, had been totally defeated; and the shades of night, which descended too late for the vanquished, but too soon for the victors, in this bloody field, concealed the retrograde movements of Kutusof, who now took the direction of Moscow.

Occupa-ion and urning of Moscow.

At the same time this battle was, without contradiction, one of the most obstinate and bloody recorded in military annals. The loss of the Russians exceeded thirty thousand men killed, wounded, or prisoners; that of the French was considerably above twenty thousand. On the side of the Russians, Prince Bagration fell in the battle, and fifty general officers were either killed or wounded; on that of the French, two generals of division and six generals of brigade were killed, whilst Compans, Nansouty, Crouchy, Latour-Maubourg, Rapp, Morand, Friand, and La Houssaye, were more or less severely wounded. But although the victory remained with Napoleon, his prospects were still sufficiently gloomy; and in the bivouacs of the army discouragement prevailed. Seven or eight hundred prisoners, and about a score of broken cannon, were all the trophies he had won. Subsistence also began to fail, and to the torments of hunger were joined the rigours of a cold and rainy night. But with the return of day the natural vivacity of the French revived; preparations were made for pursuing the enemy, who had been suffered to retire unmolested from the field of battle; and on the 14th the inhabitants of Moscow, whom Kutusof had taught to believe that he had just gained a great victory, beheld the Russian columns in full retreat, and the French advancing to occupy their city. But the governor, Rostopschin, had taken measures for rendering the possession of Moscow useless to the French. When the latter entered, on the 14th of September, the ancient capital of Russia remained in all its original splendour; and Napoleon took up his abode in the Kremlin, anciently the residence of the czars. But a new and unlooked-for enemy suddenly appeared. On the very day of occupation fires appeared in different quarters of the city; but, in the bustle and confusion incident to the arrival of a great army, they were neglected. On the 15th and 16th vigorous measures were taken to arrest the progress of the flames, which, however, were incessantly renewed; on the 17th the conflagration, fanned by a high wind, spread rapidly; on the 18th the city presented the sublime and appalling spectacle of a vast ocean of flame; and by the evening of the 20th nine tenths of Moscow had been reduced to ashes. The Russians, with their habitual duplicity, endeavoured to cast on the French the odium of an act unexampled in history, and one too which the latter had every imaginable interest, if possible, to prevent; but there no longer remains a vestige of doubt that the burning of Moscow was the result of a premeditated plan, and that it was effected by incendiaries, employed for the purpose by the Russian authorities, acting, no doubt, under the sanction of the Emperor Alexander himself. Of this the proof is abundant and conclusive. Inflammable materials, deposited in a great number of deserted houses, were fired at the same instant; to all the public establishments, nay even to the hospitals, the torch of the incendiary was likewise applied; the flames broke out in many different places at once; and, independently of all testimony to the fact, every circumstance connected with the conflagration showed design and premeditation. On the other hand, it must be equally evident that no officer in the empire, however elevated in rank, would, without positive orders, have taken on himself the responsibility of such an act; that, in short, the terrible resolution to destroy the ancient capital of the empire must have formed part of the defensive policy of the philanthropic autocrat of all the Russias, and that Rostopschin was merely an executive instrument in carrying this resolution into effect. We may add, as illustrative of this desperate and unwarrantable sacrifice, that no provision whatever had been made for sheltering the miserable population, who were driven to seek an asylum in the neighbouring woods, and that more than twenty thousand sick and wounded perished in the flames.

Position and plans of Napoleon.

The grand object of the mighty expedition against Russia had been attained; the country had been overrun; a great battle had been fought and gained; and Moscow, or rather its ashes, had been occupied by the French. But yet no messenger of peace came to the head-quarters of Napoleon; no sign of submission appeared; no sinking of confidence showed itself. The Russians were evidently prepared to sacrifice all that is most esteemed or valued by a nation; and when the campaign was considered as terminated, peace had yet to be conquered. By the destruction of Moscow, Napoleon had been deprived of the fruits of the victory which he had so dearly purchased, namely, winter quarters for his army, and a position where he might at once collect means for further aggression, and assume the language of a conqueror. His situation had become eminently critical. What course ought he to have followed? His instant conception was to march to St Petersburg, cut off Wittgenstein, and then effect a junction with Macdonald. The project was a magnificent one; and though it would have required gigantic efforts to carry it into execution, success would, in all probability, have crowned the daring enterprise. There was, in reality, no time for hesitation. Prudence counselled immediate retreat, which, however, had many disadvantages, particularly from the influence it would exert upon public opinion. Genius suggested a bolder scheme, which, if successful, would have ensured, not only safety, but victory; and, in extreme peril, the excess of audacity often becomes a dictate of wisdom. But without the concurrence of the chiefs such an enterprise was impossible; what Napoleon might plan, they alone could execute. These men, however, were no longer the devoted and enthusiastic soldiers of the Republic. War had enriched them; and from the enjoyment of riches they had become tired of campaigns. Throughout the whole of the expedition they had been churlish, discontented, and quarrelsome; and hence, instead of seconding the bold proposition of the emperor, they counselled retreat by a new and circuitous route to the south. Napoleon could not persist in a project which his officers refused to execute; their plan was equally obnoxious to him; and between these conflicting opinions precious time was irrecoverably lost. This was the fatality which ruined all. Instead of deciding either on immediate retreat, or on following out the emperor's splendid project, they loitered in a state of indecision at Moscow, as if waiting to be devoured by a Russian winter. In these circumstances, Napoleon had recourse to the only expedient left him; he sent Lauriston with proposals of peace, and vainly waited in the Kremlin, which the conflagration had spared, an answer never to return. The course of events had so far changed as to justify Alexander in declining to negotiate with an enemy in the heart of his dominions. The destruction of Moscow, and the inactivity of the French, had rendered their retreat matter of absolute certainty; whilst the re-establishment of peace with the Ottoman Porte having enabled the army of the Danube to quit Moldavia, and effect a junction at Lutsk in Volhynia with the army of reserve under General Tormasof, a powerful force was thus accumulated upon their only line of retreat. In consequence of the treaty with Sweden, the troops employed in Finland had also been withdrawn, and disembarked at Riga to join the force destined to act against Macdonald. In a word, every day was improving the situation of the Russians; every hour was adding to the embarrassments which beset the invaders. At length the affair of Winkowo decided Napoleon. On the 18th October, Kutusof, desirous to prevent the junction of Marshal Victor, who had set out from Smolensk, attacked the king of Naples, who covered Moscow with the advanced guard of the army, and completely defeated him.

Retreat from Moscow.

On the 19th of October, after an occupation of forty days, Napoleon evacuated Moscow with the main body of his army, leaving Marshal Mortier, with the rear-guard, to blow up the arsenal, the magazines, and the Kremlin. In ordinary seasons the frost did not set in until after the middle of November, and hence a month of open weather might still be reckoned on. Sufficient time, therefore, remained to enable the French army to arrive at Smolensk, and there establish itself in winter-quarters; further retreat was not contemplated. But instead of choosing the direct road, Napoleon now adopted the plan originally proposed by his officers, and retired by the southern or old Kalouga road. His reasons were, that a retrograde movement along this route had not the appearance of retreat; that it led through provinces which had been wasted neither by the Russian system of defence nor by the actual presence of war; and that this circuit would afford time to the rear-guard to evacuate Moscow. He therefore manœuvred, in the hope of concealing his design from Kutusof, and then suddenly advanced in order to anticipate the enemy, and occupy the important town of Kalouga. But the Russians somehow received information of his intention, and reached Malojaroslawitz, thirty leagues south of Moscow and fourteen north of Kalouga, in time to oppose the march of the French. A sanguinary engagement now ensued (20th October) between the advanced guard, seventeen thousand strong, under Prince Eugene Beauharnais, and the Russians, about four times that number, under Kutusof; but the success of the French was decided and confirmed by the arrival of Generals Gérard and Compans, belonging to the corps of Marshal Davoust. The Russian general, in his official report of the battle, admits that he was repulsed, but states that the town was taken and retaken eight times. The action, which lasted from five o'clock in the morning until ten at night, cost the Russians from eight to ten thousand, and the French more than five thousand men *hors de combat*. This unexpected rencontre, and the violent efforts made by the enemy, convinced Napoleon that his enemies were far from being enfeebled or discouraged; he therefore abandoned his project of retiring on Smolensk by the old Kalouga road, and fell back on the direct route leading through a ravaged and deserted country. It is not a little singular that Kutusof, afraid of a renewed attack, had also at nearly the same moment issued orders for a retreat. At Wiasma, fifty-six leagues west of Moscow, the French rear-guard, on the 3d of November, repulsed the enemy after an obstinate and bloody action, supported by Prince Eugene, Marshals Davoust and Ney, and General Compans. The French ranks were thinned to the extent of four thousand killed and wounded, and, in continuing their retreat, they were obliged to abandon several broken cannon, and nearly all their baggage. On the 7th of November the French army, which had been fifteen days in full retreat, and continually harassed on its flanks by parties of Russians, reached Smolensk.

Retreat from Smolensk.

The cold had already set in with excessive severity. The fluid in the thermometer of Reaumur, which during the first days of November had stood at eight or ten degrees below zero, now descended to eighteen; sombre vapours obscured the sun; and violent tempests of wind drifted the snow which, covering the soil, filled up all the inequalities of its surface, and thus added new dangers to the horrors of this dreadful winter. The horses, perishing by thousands in the bivouacs, were no longer sufficient to drag the artillery. Nor was the condition of the troops in any respect less disastrous. After the affair of Malojaroslawitz, the strength of the men utterly failed. Their privations, painful at Moscow, became every day more cruel. Destitute of biscuit, and provisions of every kind, the army had traversed about a hundred leagues of country entirely ruined, in which it had never fought except by the light of conflagrations; the horrors of devastation extended six leagues on either side; and it was incessantly assailed by clouds of Cossacks. Its disasters augmented at each step, and in frightful progression; and all were attributable to its head, who, by an inconceivable blindness, had foreseen nothing, calculated nothing, employed none of the most ordinary precautions which a general is bound to take for the support of his troops, and whose improvidence devoted them to still more deplorable calamities. The magazines nearest Moscow were at Smolensk; but these afforded only a momentary relief, and all transport had become impossible. Nor was this all. Wittgenstein, reinforced by new levies, had defeated Saint-Cyr on the Dwina, and taken Witepsk, thus cutting off the retreat to Wilna; whilst Tschitchagof, commanding the army of the Danube, had orders to advance from the south, seize upon Minsk, and thus bar the only other practicable road to the westward. To remain at Smolensk was therefore out of the question. The least retardation of the retreat would inevitably have led to a general battle, which the army was not in a condition to risk, owing to the impossibility of connecting the centre with the wings. The excessive cold which set in on the 6th had disabled and destroyed a great number of men and horses. The army could neither procure information nor defend itself; its only resource, therefore, consisted in marching without intermission in order to reach Minsk (the great depôt of munitions and provisions), or at least the Berezina, before the enemy, who, being master of the country, was now advancing in the opposite direction, and extending his corps on the flanks. Yet in these frightful circumstances, when the French were simultaneously assailed by famine, disease, winter, and hostile armies, Napoleon tarried seven days at Smolensk, which was only evacuated on the 14th November. Nevertheless he took one good measure, in rallying under a single officer the wrecks of the cavalry. Of thirty-seven thousand horsemen present at the passage of the Niemen, there now remained little more than eight hundred mounted, the command of whom was given to Latour-Maubourg. The old and young guard had no more than ten thousand bayonets, with two thousand horses mounted; Davoust had under his orders nine thousand men, Ney five thousand, Prince Eugene five hundred, Poniatowski from eight to nine hundred, Junot seven hundred, Latour-Maubourg (including the remains of the cavalry) fifteen hundred, with about a thousand light horse, and five hundred dismounted dragoons; in all thirty-six thousand men, the miserable remnant of about four hundred thousand combatants, French, Poles, Italians, and Germans, who had crossed the Niemen at Kowno.

Affair at Krasnoi.

With the retreat from Smolensk commenced a new series of disasters. On the 16th November, Minsk, with all its magazines, having been uncovered by Schwartzenberg, who suddenly retired behind the Bug, fell into the hands of General Lambert, commanding the advanced guard of the army from Moldavia; and the only refuge of the French was thus cut off. Upon the same day Kutusof attempted at Krasnoi, ten leagues west of Smolensk, to intersect the French columns on the great road leading from Smolensk to the Berezina. He advanced with seventy thousand infantry and thirty thousand cavalry; the French mustered only twenty-five thousand effective combatants, who had lost many of their cannon, and three-fourths of their horses. But Prince Eugene and Marshal Davoust stood their ground with admirable firmness; whilst General Roguet, commanding a division of the young guard, charged the Russians with such fury that he drove them back at the point of the bayonet into their camp, which he entered pell-mell along with them, scarcely allowing them time to throw their arms into a neighbouring lake, and set fire to their huts. This shock suspended the movement of the Russian army for twenty-four hours. On the 19th, Marshal Ney, left in command of the extreme rear-guard, with six thousand combatants, found himself attacked by enormous masses of the enemy, which intercepted his march. Finding himself unable to break through, he retired before them, surprised the passage of the Dnieper, forced his way amidst clouds of Cossacks, and rejoined the main body of the army, from which he had been two days separated. On the 21st the Russian generals Lambert and Langeron took possession of Borisow on the Berezina, and by the occupation of this point cut off the body of the French army, which was still five or six marches to the eastward. But on the 23d Marshal Oudinot, who, since the abandonment of the positions upon the Dwina, immediately preceded the army in retreat, retook this important post, and maintained it in spite of every effort that could be made to dislodge him.

Passage of the Berezina.

At Borisow, which had thus been regained by Oudinot, the passage of the Berezina, the principal difficulty in the march of the French towards the Niemen, could alone be effected. But their situation was perilous, not to say desperate. The line of the Dwina had been forced; Schwartzenberg, whose defection was no longer disguised, had retired behind the Bug; no difficulty of position arrested the enemy in his decisive operations; the whole country was in his hands, whilst the French had only the narrow line upon which they retreated. The former lived in abundance, the latter suffered almost every privation. The teams of the Russian artillery were in good condition; the horses of the French were dying of cold and hunger, or, from being unfrosted, could not support themselves on a soil entirely congealed. In a word, the remains of the French army seemed about to find a grave in the marshes of the Berezina, the ice of which had suddenly thawed, as if to swallow them up. Kutusof pursued them with a fury augmented by each humiliation inflicted on his unskilful pursuit. Pressed on their right flank by Wittgenstein, and on their left by Tschitchagof, who also took them in reverse; with an artillery and a cavalry greatly reduced; extenuated by hunger and fatigue, as well as benumbed by cold; they held out only in the hope of at length reaching the term of so much evil and suffering. A last effort of their courage was therefore their last resource. The different corps of the French army which assembled at Borisow from the 26th to the 28th of November still presented a mass of about eighty thousand men, with a tolerably numerous artillery. They were not yet disorganized. The soldiery, at least that part which came from Moscow, though exhausted by the fatigues of forty days' march over a devastated country, assailed by swarms of Cossacks, overwhelmed with privations, and suffering half-naked the excessive rigours of the climate, recovered their ardour at the sight of the enemy, who now awaited them in the presumption of victory. The corps coming from Moscow also saw themselves supported by those of Marshals Victor and Oudinot, and by the Polish division, which had suffered but little from want of provisions and the rigour of the cold. But it was necessary, first of all, to overthrow sixteen thousand Russians advantageously posted in the debouché of Borisow, on the right bank, and belonging to the army of Tschitchagof, before the junction of Wittgenstein, who closely followed the rear-guard of Victor upon the left bank above Borisow; and also before Kutusof, who marched with the main body of the Russians upon the left flank of the French head-quarters, had time to recover three marches which had been gained on him. Two bridges were accordingly thrown at Weselowo, a village four leagues and a half above Borisow, whilst dispositions were made which seemed to indicate that the passage was to be effected by the bridge of Borisow. The rapid construction of these two bridges, in such terrible circumstances, presents a marvellous instance of what may be effected by the union of bravery and science. At Weselowo, the Berezina, at this time covered with ice, is two hundred and fifty toises broad, and the opposite side extends into marshes, which are traversed by a long and narrow jetty; but, on the other hand, the Weselowo bank is elevated; and hence the difficulty of throwing bridges across such a river would, under any circumstances, have been very great.

On the 28th the intrepid Oudinot, who commanded the rear-guard, having been wounded in repulsing Tschitchagof, whose forces were grouped on the right bank, Marshal Ney assumed the command in the midst of the action, and, at the head of the second, third, and fifth corps, compelled Tschitchagof to renounce the combat. On this occasion, so important for the general safety, Ney, already surnamed the bravest of the brave, displayed a courage which astonished even the most valiant soldiers; and all acknowledged that their safety was due to his invincible tenacity, as well as to the extreme promptitude of his dispositions. Upon the same day, Marshal Victor, who had been left with the rear-guard on the left bank, supported with great firmness the attack of the army of Wittgenstein, and maintained a prolonged resistance, notwithstanding the extreme disproportion of numbers; for, after the capture of the division of Parthouneaux, which on the preceding day had been surrounded and taken, the French had only twelve thousand men, whilst the Russians had upwards of forty thousand. The ninth corps was then obliged to repass the bridges, which were immediately blown up; the artillery, the baggage, and a great number of unfortunates, almost all non-combatants, who had not been able to pass, being abandoned on the other bank. The plain before Weselowo, which is one of considerable extent, presented in the evening a spectacle the horrors of which exceed all description. It was covered with carriages, the greater part overturned and broken, and thickly strewed with the dead bodies of non-military individuals, amongst which were those of many women and children, who having followed the army to Moscow, had also accompanied it in its retreat, and now met with death in different ways. The fate of these unfortunate creatures, in the midst of the mêlée of the two armies, was either to be crushed under the wheels of the carriages or the feet of the horses; struck by the balls and bullets of both parties; drowned in attempting to pass the bridges with the troops; or stripped by the Russian soldiers, and thrown naked on the snow, where the cold soon terminated their sufferings. Besides, the Russians made nearly twenty thousand prisoners, took a hundred and fifty pieces of cannon, being all the artillery that remained except a few pieces, and captured the baggage, amongst which were found the riches and the trophies carried away from Moscow.

Retreat continued.

From the Berezina the country is a wooded plateau, converted by the waters into a vast marsh, which the army now traversed on three consecutive bridges three hundred toises in length, astonished that the enemy had not destroyed them, constructed as they were of resinous pines. By accelerated marches the troops reached Malodetchno on the 3d of December, and on the 5th arrived at Smorgoni, twelve leagues west of Willika, where Napoleon conferred on the king of Naples the command of the remains of the army, and set out furtively for Paris, accompanied by Caulaincourt, duke of Vicenza. His apparition at Warsaw is related in lively terms by the Abbe de Pradt. In this capital his conversation was a sort of lengthened discourse, in which he represented his reverses as still capable of being repaired; but by often repeating the maxim, "From the sublime to the ridiculous there is only a step," he showed how deeply sensible he was of the magnitude of his fall. On the 18th of December Napoleon arrived in Paris, where, for many reasons, his presence had become indispensably necessary.

Immediately after his departure from the army the disorder became general; the flight of the chief proved the signal for dispersion; and the greater part of the corps, which had hitherto maintained an appearance of organization, now altogether disbanded themselves. Meanwhile, as the cold continued about twenty-five degrees below the zero of Reaumur's thermometer, a great number of soldiers had their hands and feet frost-bitten; and the horses of the artillery having perished in their harness, the pieces were abandoned. Sixty thousand men had crossed the Berezina, and twenty thousand recruits had since joined; but of these eighty thousand men, nearly the half perished in the four days between Malodetchno and Wilna. The immense magazines collected at Wilna were abandoned for want of means of transport, and the deplorable situation to which the cold had reduced the army prevented it from there taking up a position. The retreat was therefore continued on the 16th, Marshal Ney as usual being the last to retire; indeed, his conduct throughout, in the command of the rear-guard, where he continually exposed himself to protect the life and cover the retreat of the last soldier in a condition to march, displayed an heroic fortitude and generous self-devotion, which, considering all the circumstances, has no parallel either in ancient or modern times. We shall not, however, prolong these painful details, but content ourselves with simply observing, what indeed must be sufficiently obvious, that the disasters sustained by the French in this retreat were mainly caused by the climate, not by the Russians, who have nevertheless taken credit for results in producing which their talents and bravery had no share. The elements did almost everything; and, as is vulgarly said, even in Russia, "It was not General Kutusof who killed or dispersed the French; it was General Morosow (Frost)."

Aspect of affairs.

The aspect which affairs presented to Napoleon on his return to Paris was not altogether discouraging. Wellington, victorious at Salamanca, had failed before Burgos, and Madrid remained in the hands of the French. The army, which he had left at Smorgoni, might rally on the Niemen, and, supplied from the unexhausted resources of East Prussia, check the advance of its pursuers. At home a daring conspiracy, which had nearly succeeded when the emperor was believed to have perished in Russia, fell to the ground of itself as soon as the falsehood of the report was discovered. The senate, the court, and the capital, though dismayed by the reverses sustained in the Russian campaign, still appeared loyal and obsequious. The conscription of 1813 had been called out; the powerful artillery of the marine was placed at his disposal; and he calculated on speedily taking the field at the head of a formidable army, sufficient at least to check the advance of the Russians. But this was only a momentary and delusive brightening; a faint gleam of sunshine in winter, which was quickly absorbed in the dark clouds that suddenly collected in all parts of the political horizon. Tidings of evil came crowding in thick and fast. Macdonald having been deserted in presence of the enemy by the Prussian auxiliary corps under Yorck, which constituted his principal force, had with great difficulty, and after a most painful retreat, reached Dantzic, where his troops were left with the governor General Rapp. To think of maintaining the line of the Niemen was therefore out of the question; and even the position upon the Vistula, occupied by the corps composing the grand army, or rather the wrecks of these, confusedly distributed, was menaced by the defection of the Prussians, and also by the conduct, so perfidiously equivocal, of the Austrians under Schwartzenberg, who, having retreated as soon as he received intelligence that the French army had reached the Berezina, had re-entered Gallicia, where his doubtful attitude excited the distrust and apprehensions of the French. Murat, commanding in chief, was little capable of remedying so great disasters, or of warding off so imminent dangers; his military merit consisted in a chivalrous bravery worthy the ages of romance; in the talents and moral tenacity of purpose requisite in situations of extreme difficulty he was entirely deficient. Poland was evacuated, and Germany destined to become the theatre of war. Abandoning the line of the Vistula, as they had previously done that of the Niemen, the French now fell back as far as the Warta and the Oder. Instantly the tocsin of insurrection resounded from the Oder to the Rhine, and from the Baltic to the Julian Alps; and the whole tribe of secondary sovereigns, awakened from their lethargy by the patriotism of their subjects, and dispossessed of the royal delirium generated by their own cupidity and the poisoned gifts of Napoleon, now crowded to join its standards, and to have each a bite at the sick lion. By a proclamation dated from Warsaw, 10th February 1813, the Emperor Alexander invited the Germans, particularly the members of the confederation of the Rhine, to throw off the yoke of France; and, by another dated the 22d February, he called upon the people of Germany to rise *en masse* against Napoleon. In the uncalculating enthusiasm of the hour, when despotism had the art or the good fortune to rally on its side the feelings of nationality and patriotism, the call was obeyed, and the defection became universal. Austria, indeed, still preserved an equivocal and suspicious neutrality, waiting merely until events had more fully declared themselves. But Prussia, taking a more decided part, signalized her defection by the flight of Frederick-William from Pottsdam to meet the Emperor Alexander at Breslau, and still more by concluding at Kalisch (on the 1st of March) a treaty of alliance with Russia, the initial act of a sixth continental coalition against France. The line of the Oder having thus become indefensible, was abandoned by the French for that of the Elbe, where, by great exertions, they still hoped to maintain themselves against all their enemies. Amongst these must now be included Bernadotte, who, by a treaty concluded with England at Stockholm, on the 3d of March, engaged to raise his banner against the country of his birth, and to take the field against his former chief with a corps of national troops at least thirty thousand strong.

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The efforts of Napoleon were commensurate to the crisis which had arrived. A decree of the senate, dated the 3d of April, placed at the disposal of the government a hundred and eighty thousand combatants, viz. ten thousand horse-guards of honour, equipped and mounted at their own expense; eighty thousand men, called from the first ban of the national guards of the years 1807, 1808, 1809, 1810, 1811, and 1812, and destined to reinforce the hundred cohorts levied in execution of the decree of the senate of 13th March 1812; and eighty thousand conscripts of 1814, exclusive of the hundred and fifty thousand granted to government by the decree of the 11th of January, and destined for the defence of the frontiers and the coasts. An imperial decree of the 5th April also instituted thirty-seven urban cohorts for the particular defence of maritime places. Decrees, however, though they called forth men, could not create soldiers, who are only formed by discipline and experience.

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On the 15th of April Napoleon left the capital to join the army in Germany, and on the 28th removed his head-quarters from Erfurth to Ekhartsberg. His army, more formidable from the mass than the quality of troops composing it, exhibited an incomplete organization. On the 29th the two French armies formed a junction between Naumburg and Merseburg; that under Napoleon amounting to a hundred and twenty thousand men, including the imperial guard; whilst Prince Eugene Beauharnais had under his orders about forty thousand combatants. It was on the banks of the Saale, where the French eagles had triumphed in 1806, that the veterans of Moscow gave their hands to the young conscripts who had been sent to defend their country in Germany; and on the very day when the junction was effected, Napoleon assumed the offensive. At Weissenfels, five leagues south-west of Leipsic, some Prussian corps were attacked by the divisions of Souham, Gérard, and Marchand, under the orders of Marshal Ney, supported by the emperor in person. Twelve pieces of the guard were placed in line, and, under the orders of General Drouot, opened a close fire of grape, which soon thinned the ranks of the enemy, and forced them to retire; thus rendering unnecessary the reinforcements detached from the army of Prince Eugene as soon as the noise of the cannonade was heard. To prevent Napoleon following up this advantage, and occupying Leipsic, the allies advanced, on the 1st of May, with the intention of giving him battle, and on the 2d the hostile armies met at Gross-Goerschen, near Lutzen, the scene of the last victory and of the death of Gustavus Adolphus.

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Napoleon did not wait to be attacked in the position which he occupied, but advanced from Lutzen to Gross-Goerschen, where the conflict actually took place. The general dispositions made at the commencement of the action were bad; but their defects were speedily repaired by the promptitude, intrepidity, and experience of Prince Eugene, Marshals Ney, Mortier, Macdonald, Marmont, and Generals Compans, Ricard, Souham, Drouot, and Latour-Maubourg. In checking the impetuosity of the Prussians, and, as it were, compelling fortune to declare in his favour, Napoleon performed prodigies. His unexpected appearance on the field of battle produced an effect equally rapid and extraordinary upon the troops. In an instant the enthusiasm of glory animated the features of the young conscripts, who had been somewhat astonished by their first interview with the enemy; the action recommenced with the greatest fury; and for more than four hours the troops on both sides fought under the eyes of their respective sovereigns. Marshal Macdonald and General Bertrand now arrived with their corps, which, having formed a junction, entered into line. Perceiving that the crisis of the battle had arrived, Napoleon advanced sixteen battalions of the young guard, ranged in a second line six battalions of the old guard, and established a battery of eighty pieces of cannon. The infantry immediately attacked; the artillery thundered on the formidable position of Kaya, on which depended the fortune of the day; and victory, which had long hovered with doubtful pinions over this field of carnage, at length settled on the standards of her ancient favourite. The battle of Lutzen was gained principally by artillery, in which arm the French had a great superiority; but success was dearly purchased, the victors having, by their own account, lost in killed and wounded about ten thousand men. Nor was the victory productive of any brilliant or important results. The want of cavalry prevented Napoleon from pursuing the enemy while in disorder, and the fruits of success were therefore confined to the possession of that part of Saxony which is situated on the left of the Elbe. Still the battle of Lutzen deserves to be considered as one of the greatest achievements of Napoleon. With a mass of raw and scarcely half-disciplined conscripts, the greater part of them mere boys, aided by a few thousand experienced troops, he had defeated the whole Prussian army, assisted by a corps of Russians, and protected by a numerous and greatly superior cavalry.

Battle of Bautzen.

Instead of confining his views to Leipsic, Napoleon now occupied Dresden, and prepared to pursue the allies across the Elbe. Having thrown a bridge across that river, he accordingly marched to attack the Austrians and Prussians at Bautzen, where they were drawn up in a position of great strength, upon the range of hills forming the natural boundary of Silesia. Napoleon forced the passage of the Spree in their front, and occupied Bautzen. The whole of the 20th May was spent in manœuvres and partial combats, the object of which was to enable him to get within reach of the enemy. On the 21st the battle was fought. It commenced by simultaneous attacks directed against both flanks of the enemy; but, owing to the great development of their line, which extended along many leagues, and was intersected by hills, Napoleon found it alike impossible to watch these movements, or, until assured of their success, to order the troops under his own immediate command to advance. He therefore held back the centre, in the midst of which he remained during the cannonade, and being overcome by fatigue, fell fast asleep. At length, upon hearing fresh sounds of artillery in the distance, his attendants awoke him. By the direction of the sound he knew that his wings were victorious, and instantly ordered forward his centre, supported by the imperial guard. This attack proved decisive of the fate of the battle. The allies were beaten, and obliged to abandon their line of defence, which covered Silesia, and to retire into Bohemia. But, as at Lutzen, they retreated without precipitation or disorder, leaving neither cannon nor prisoners in the hands of the conquerors. This negative advantage they owed partly to their superiority in cavalry, and partly also to their position. At Bautzen the Prussians fought well, the Russians indifferently. With the former the quarrel had long become national; the latter were far from their homes, and careless whether they advanced or retreated. The victory of Bautzen uncovered Silesia, and opened to the French a passage to the Oder. Glogau was relieved, Breslau occupied, and Berlin itself menaced. The Russian and Prussian armies were obviously unable to cope with the young soldiers of France; and hence, in retiring into Bohemia, the allies renewed their instances with Austria, to induce her to join the coalition. Accordingly, on the day after the battle of Bautzen, a message reached the French head-quarters, proposing an armistice. We shall immediately see how Napoleon was first deceived, and then insulted, by a power on whose neutrality he had too hastily calculated.

Subsequent operations.

At Goerlitz, in Lusatia, the French were severely handled, and lost several cannon. This affair took place on the 22d of May. The enemy, however, continued their retreat towards the Oder, followed by Napoleon, who had astonished Europe by the spontaneous creation of a new army, and whose late success had re-established his renown. On the 30th Hamburg was retaken by Marshal Davoust and General Vandamme, who thus recovered the territory situated on the right bank of the Lower Elbe, which had been annexed to the French empire by a decree of the senate dated the 13th December 1810. On the 4th of June an armistice was concluded at Plesswitz in Silesia, between Napoleon and his enemies. The French were only to occupy a small part, and that the least fertile, of Silesia; their line was not to extend to the Oder, except in a space extremely confined; and Breslau was to remain free between the two armies; so that the French were, in some sort, pressed into a country devastated, burned, exhausted, and menaced with famine. In subscribing conditions so extremely disadvantageous, Napoleon was no doubt influenced by the hope of seducing his enemies, or disuniting their formidable coalition, and also by the desire to gain time in order to repair his losses by means of very considerable reinforcements which he expected from France, and by means of which he would be enabled to act with larger masses. Victory had again returned to his standards, and he confided in the power of his genius for repairing every disaster, and obtaining new triumphs. The enemy were also guided by the same desire of augmenting their forces, without wishing, however, that the armistice should be followed by a peace. They reckoned on a general rising in Germany; on the defection of the confederation of the Rhine; on popular movements in Holland, Switzerland, the Tyrol, Italy, Dalmatia; on the progress of Wellington in the south of France, since the departure for Germany of part of the troops who had been opposed to him. They also calculated upon disturbances in France; and, above all, they hoped to see Austria, already under arms, take an active part in this war, which, even from the geographical position of the theatre of operations, could scarcely fail, if she took part in the contest, to become fatal to the French.

Negotiations; Austrian perfidy.

Napoleon, therefore, could not disguise from himself that the politics of all the continental powers seemed on the eve of experiencing great alterations; but still he endeavoured to persuade himself of the contrary. On the 14th of June a treaty was concluded at Reichenbach, twelve leagues from Breslau, by which England agreed to grant Prussia a subsidy of L.666,666 sterling, to enable her to continue the war; and, by the same treaty, a subsidy of L.1,333,334 sterling was also granted to Russia for the same purpose. Austria now offered her mediation, which, by a convention signed at Dresden upon the 30th June, was accepted by Napoleon. The professed object of this mediation was the accomplishment of a general peace, or, if that could not be effected, a continental pacification. With this view a congress was to be opened at Prague on the 5th of July; and, in the mean time, the armistice of Plesswitz was prolonged until the 10th of August. In signing this preliminary act, Metternich commenced that course of duplicity for which he has since become so deservedly famous in Europe, and Austria remained faithful to her oblique system of policy, even more so indeed than to that of temporising, which she has at all times followed. At this moment her only aim was to profit by all the chances; in transporting, or rather hawking, her alliance from camp to camp, she had but one view, namely, to be always on the side which should obtain the division of the spoil. As Russia desired Poland, and Prussia Saxony, so Austria had her eye continually fixed on Italy. Her mediation, therefore, was neither more nor less than a manœuvre to gain time and enable her to watch events. The peace was altogether a pretext of the allied cabinets, to mask their real views. The opening of the congress of Prague on the 12th of July, to which day it had been postponed, clearly indicated the objects which were aimed at. In the absence of one of the two French envoys, the ministers of Austria, Prussia, and Russia, commenced the conferences, and promptly decided that Germany should remain independent; they, however, consented to leave Napoleon in possession of the French empire, with the boundaries of the Rhine and the Alps. This was not negotiation, but dictation; not an attempt to conciliate or adjust interests, but to give the law. Italy was disposed of by an implication, in the absence of the principal French negotiator; the confederation of the Rhine was annihilated; and Napoleon, though victorious, was called upon to accept of terms which would have been sufficiently harsh and humiliating after defeat. But this was merely insulting. Perfidy followed. The armistice expired upon the 10th of August; and it was not until the 7th of that month that the Austrian minister at Prague brought forward the conditions definitively fixed by his court as necessary to the pacification of the Continent. He demanded, first, the dissolution of the duchy of Warsaw, and its partition between Russia, Austria, and Prussia; secondly, the re-establishment of the towns of Hamburg, Lubeck, &c. in their independence; thirdly, the re-construction of Prussia, with a frontier on the Elbe; fourthly, the cession to Austria of all the Illyrian provinces, including Trieste; fifthly, a guarantee that the state of the powers, great and small, such as it might be fixed by the peace, should not be altered except by common consent. The question of the independence of Holland and Spain was at the same time brought forward; but the plenipotentiaries of the allied powers seemed inclined to consent that it should be adjourned until a general peace. The answer of Napoleon, containing certain proposed modifications, was promptly returned, and, by incredible expedition, it reached Prague in the night between the 10th and 11th; but the confederate powers, impatient to appeal to arms, broke up the congress on the very hour when the armistice expired on the 10th, and absolutely refused to receive or consider the answer which had been returned. On the 12th of August Austria declared war against France, and notified officially her adhesion to the alliance of Russia and Prussia.

Resumption of hostilities.

The allies had derived great advantages from the armistice. By maintaining themselves in Silesia, they had secured time for the arrival of the Swedish army under Bernadotte, and the Russian corps under Sacken, as well as for the organization of the Prussian troops, and the formation of the army of Beningsen in Poland. The armistice had covered Berlin; it had also been of great use to Austria, in enabling her to complete her armaments, as well as to render more active her negotiations with the states of the confederation; whilst Napoleon derived from it no real advantage except that of fortifying his line of operations on the Elbe, which it was his object to maintain. Placed *à cheval* on that river, with the head of his army at Dresden, and the rear at Hamburg, he supported himself on all the fortified points which secure the possession of that large and beautiful valley, namely, Konigstein, Dresden, Torgau, Wittenberg, Magdeburg, and Hamburg, with its dependencies on the Elbe, and Merseburg, Erfurth, and Wurtzburg, which connect the Rhine with the Elbe. But he lost upon the Oder the garrisons of Kustrin, Stettin, and Glogau, and upon the Vistula those of Modlin, Thorn, and Dantzick; garrisons which absorbed more than sixty thousand men. The grand French army, divided into fourteen corps, in which the Italian, German, and Polish auxiliaries were incorporated, was inferior to that of the allies with which it was now about to contend, in the proportion of two to five. These corps were generally weaker than during the preceding campaigns, and, united, they did not exceed two hundred and eighty thousand effective combatants, of whom the half were recruits who had never been in fire. The allies, on the other hand, had under arms five hundred and twenty thousand men, of whom about four hundred and fifty thousand were on the principal theatre of operations, viz. Austria, a hundred and twenty thousand men, including the forces sent to Italy, and the reserves; Russia, a hundred and thirty thousand; Prussia, a hundred and eighty thousand, exclusive of the *landsturm* or levy *en masse;* and Sweden, thirty thousand, including the Mecklenburg and Hanseatic troops; making the total as above mentioned. The French army was therefore inferior to that of the allies by two hundred and twenty thousand men; yet, notwithstanding this inferiority of force, Napoleon resolved to maintain his position at Dresden, and to try the fortune of arms upon the Elbe. On the 11th the Austrians effected a junction with the Prussians, in the hope of anticipating Napoleon; but, as we shall immediately see, they were themselves anticipated.

Having divined the plan of the allies, which was to direct their forces from three points upon Dresden (viz. from Berlin on the north, Silesia on the east, and Prague on the south), and there concentrate them to make a combined attack on that position, Napoleon calculated that before their grand army, debouching from Bohemia, could arrive under the fire of the redoubts constructed around Dresden, he would have time to execute a combined operation by simultaneously attacking Berlin on the north, and projecting his army of Silesia towards Breslau on the east. With this design, he first executed a military march in Lusatia on the 16th of August; on the 18th he advanced as far as Görlitz, near the frontier of Silesia, threatening to throw himself upon Blucher, who commanded a powerful army; then, abruptly changing his direction, he turned towards Bohemia, in order to ascertain if it might still be possible to prevent the junction of the forces in Silesia with the Austrians. But, although Napoleon was still ignorant of the fact, neither of them had waited till the 16th to commence the development of their hostile manœuvres. He however marched with the second and eighth corps under Victor and Poniatowski, supported by the first and fourth corps of cavalry under Lefebvre-Desnouettes and Kellerman. Debouching from the environs of Zittau, these troops passed the frontier, advanced by the defiles, and occupied Reichemberg on the Neisse, and Friedland on the Willich. But having received information that the enemy, apprised of his departure from Dresden, were pouring their masses in that direction, Napoleon, calculating that they would require eight days to assemble under the walls of that place, countermarched, and, like an arrow shot from a bow, flew to attack Blucher, and drive him beyond the Bober. On the 21st of August he crossed the Bober, on the 22d he repulsed the enemy on the bank opposite to Katzbach, and again defeated them on the 24th. Three days had sufficed to inflict two defeats on the enemy, and to re-establish his eagles in advance in Silesia. But as it was now time to return to Saxony, into which the great mass of the allied army had, on the 20th, descended from the mountains of Bohemia, he faced about, and leaving seventy-five thousand men under Macdonald to keep Blucher in check, he arrived at Dresden on the 26th. But the effect produced by this bold and brilliant operation was in a great measure lost by the failure of Oudinot, who was charged with the execution of one of the three great parts of the campaign, namely, the attack upon Berlin. Brave in the advanced guard, Oudinot was deficient in the strategic ability necessary for conducting great operations. Instead of advancing promptly, he hesitated, lost precious time, and allowed the enemy to penetrate his design, and also deprive him of the lead. He was beaten at Gross-Beeren; Berlin was saved; and the combined armies had now the facility of advancing into the heart of Germany, and operating their junction in the plains of Leipsic.

History.
1813.

Ascendency of Napoleon's genius; reverses.

Wherever Napoleon appeared personally, his ascendency was instantly manifest. But his lieutenants had neither his genius nor his foresight, and were as inferior to him in activity and energy as in talent and capacity. Near the Bober, a tributary of the Oder, and the Queiss, a tributary of the Bober, Marshal Macdonald, in full retreat from Silesia after his defeat on the Katzbach (26th of August), was again, from the 27th to the 29th, discomfited in a series of actions at the passage of these two rivers, which the rains had swollen and converted into rapid torrents. By the results of this isolated and accessory campaign of a few days, the French army lost fifteen thousand men, and a hundred pieces of cannon. The defeat and surrender of Vandamme followed. Wishing to drive the allied army which had fled from Dresden into the defiles of Bohemia, Napoleon sent eastward, by circuitous roads, the first, sixth, and fourteenth corps, with a numerous cavalry, to threaten their flank, and force them back into the mountains. Vandamme commanded the column on the left, Saint-Cyr and Marmont that of the centre, whilst the king of Naples, with the cavalry, formed the right. On the evening of the 28th the imperial head-quarters had scarcely been established at Pirna, when Napoleon was suddenly seized with violent shivering, followed by vomiting. The persons around him were seriously alarmed, but he himself felt more disquieted by the consequences which might result from an accident so unexpected, than even by his illness, which was the effect of exposure to cold and rain during the late battle. Profuse perspiration, induced during the night, afforded him immediate relief, and in the morning he found himself almost entirely recovered; but, unable from weakness to continue with the troops, he returned to Dresden. This accident detained the guard at Pirna; whilst the two corps forming the columns of the centre, having experienced great difficulties in ascending the mountains and penetrating the defiles, made little progress during three days. But Vandamme having on the 28th dislodged an enemy's corps from the position of Peterswalde, descended next day as far as Kulm, and advanced into that deep valley, in the hope of seizing Töplitz, the rendezvous of all the enemy's columns scattered in the mountains. His advanced guard had approached within half a league of Töplitz, and he only waited for his reserves to force the last obstacles, when all of a sudden the enemy, ceasing to give way before him, stood firm, and made the most determined resistance. The enterprise being thus checked, Vandamme, instead of persisting, ought to have renounced it, and, profiting by the night, regained the position of Peterswalde. He did the contrary; and the enemy being powerfully reinforced, he was soon attacked both in front and flank, by at least sixty thousand Austrians and Russians. For several hours, however, he resisted all their efforts, retrograded without being broken, evacuated Kulm, and prepared to ascend to Peterswalde; but Kleist and his Prussians having escaped from Saint-Cyr, and found the position evacuated, had just occupied it. In vain did the French, by the most gallant efforts, endeavour to break through the enemy, which now cut off their retreat; in vain did the cavalry, clearing their way with their swords to the very crest of the escarpment, seize the whole artillery of Kleist; the cannon were promptly abandoned, and, overwhelmed by hosts of enemies before and behind, the greater part were either taken or dispersed in the mountains. Vandamme, severely wounded, was made prisoner, dragged in triumph to Prague, and subjected to every species of insult, in retaliation of certain acts alleged to have been committed by him in the countries conquered by the French. Nor did the misfortunes of Napoleon's lieutenants stop here. On the 6th of September, Ney, who had been sent against Berlin, with his own corps and those of Oudinot, Reynier, and Bertrand, was defeated at Dennewitz by Bernadotte, and lost two thirds of his artillery, his ammunition, his baggage, and more than twelve thousand men. This disaster was occasioned by the misconduct of two Saxon divisions, whose fidelity had already been shaken.

Position and views of Napoleon.

Although the victory of Dresden had disconcerted the first plan of offensive operations adopted by the allies, it no longer exercised any influence on the campaign. The anterior defeat of Oudinot at Gross-Beeren on the 23d of August, that of Vandamme at Kulm on the 30th, and the grave checks received by Macdonald on the Katzbach and the Bober from the 26th to the 29th, enabled the allies to pour three hundred thousand men into Saxony. The route of Ney rendered the position of the French army still more critical, inasmuch as the right wing of the enemy, arriving on the Elbe, was in a situation to intersect its communications with Leipsic and Franconia. Immediately after the battle of the 27th, Napoleon had marched with the old and young guard, and other reinforcements, to succour Macdonald; but the news of this disaster recalled him to Dresden. From this central position, which certainly had many advantages, he hoped to direct his operations in such a manner as to repair all the faults committed by his lieutenants; he confided in the power of his own genius, and never perhaps was its ascendency more conspicuously displayed. Every thing, in fact, gave way before him. Blucher, who had defeated Macdonald, durst not commit himself against Napoleon; Wittgenstein, who had made an irruption into Saxony, was driven back into Bohemia; and similar attempts repeated by each of those generals met with the same fate. In fact, the operations around Dresden resembled what Homer recounts of the siege of Troy. When Achilles rushed forth, the enemy were instantly routed and put to flight; when he retired, they took courage, and failed not to gain some advantage. The plan of Napoleon was magnificent, and though bold even to temerity, he had fully estimated all the chances. So far from entertaining any apprehension of being cut off from France, he waited at Dresden until the allies had so far committed themselves as to be no longer able to avoid a general and decisive battle. His delight was to be surrounded by enemies, with his army, which he knew so well how to direct, compact and in hand. But his generals shrunk from such daring warfare. Brave and skilful as lieutenants, they had none of that boldness and grasp of mind which distinguished their illustrious chief. But the expected crisis was now approaching. On the 7th of October Napoleon quitted Dresden, leaving in that place Saint-Cyr with about thirty thousand men under his orders. After having manœuvred on the banks of the Mulde, so as to intercept the communications of the armies of the north and of Silesia, he attacked them on the 11th, 12th, and 13th, and forced them to retreat. It is even said that he proposed allowing the allies to place themselves in the interval between the Elbe and the Saale, and, covering himself by the fortified places on the Elbe, of which he was master from Dresden to Hamburg, to establish the war between that river and the Oder. On the 14th the imperial head-quarters were still at Düben on the Mulde, when Napoleon received intelligence of the defection of Bavaria, and of the treaty of Ried concluded on the 8th; but on the 15th they were removed to Leipsic, where Napoleon arrived early in the day, hoping that he would only have to do with Schwartzenberg. In this, however, he miscalculated.

Battle of Leipsic.

On the 16th of October the allies approached; Bernadotte and Blucher from the north, and Schwartzenberg from the south. Napoleon opposed himself to Schwartzenberg, and during the entire day kept him in check upon the verge of the hills which border the plain of Leipsic. Ney was less fortunate on the north, where the Prussians under Blucher fought desperately, and at length obliged him to retire with loss behind the Partha. But on the western side of Leipsic Bertrand drove back General Giulay, and thus cleared the road towards France. During the 17th the allies, notwithstanding their superiority in numbers, hung back, awaiting the arrival of Beningsen's army; the day was accordingly spent in partial combats, and in preparations on both sides for the inevitable conflict of the morrow. On the 18th the battle commenced to the north, east, and south of Leipsic, in the vast plain extending beyond Lutzen and Weissenfels, villages celebrated as the scenes of mighty deeds in arms. Leipsic is surrounded with suburbs, excepting in the part towards the west, contiguous to hollows, and facing a plain watered by the Pleiss and the Elster, which are divided into canals, and several times intermingle before their definitive junction. Half a million of men, crowded together on a surface of three square leagues, now engaged with extreme fury in the work of mutual destruction. The disproportion of numbers, however, was enormous. Those of the confederate armies were as follow: Army of Bohemia, Schwartzenberg, 140,000 men; army of the north, Bernadotte, 65,000; army of Silesia, Blucher, 85,000; army of Poland, Beningsen, 40,000; total 330,000 men. The French army was composed of the second corps, Victor; the third, Ney; the fourth, Bertrand; the fifth, Lauriston; the sixth, Marmont; the seventh, Reynier; the eighth, Poniatowski; and the eleventh, Macdonald; together with the imperial guard and the cavalry. Its numbers were as follow: Infantry of the line, 130,000; imperial guard, 30,000; cavalry, 15,000; total 175,000. In numbers, therefore, the allied army exceeded that under Napoleon by no less than a hundred and fifty-five thousand men; and this unprecedented advantage was still further increased by the bad condition of the French squadrons, which precluded the possibility of committing them against even equal numbers of the enemy's cavalry. Napoleon was therefore obliged to rely principally on his artillery; but, pressed on all sides by overwhelming masses, he in vain exhausted his ammunition; the artillery of the enemy was as formidable as his, and latterly better served. Still the French soldiers fought with astonishing courage, and, notwithstanding every effort, maintained their ground. Poniatowski and his gallant Poles kept Schwartzenberg in check. Macdonald was opposed to the Prussians, and, when hard pressed, Napoleon at the head of the guard marched to his assistance, and drove back the enemy. To the north of this attack, Bernadotte, with the army of the north, advanced against Reynier, whose corps consisted chiefly of Saxon and Wurtemberg troops. Eager to encounter the Prussians and Swedes, Reynier ordered these troops to move forward. They obeyed, but it was only to desert and join the enemy. Seven battalions of Saxon infantry, two regiments of Saxon cavalry, and several Wurtemberg regiments, making in all twenty-six battalions and ten squadrons, together with three Saxon batteries of twenty-six guns, passed over to the enemy, and ranging themselves under the colours of Bernadotte, instantly attacked their brothers in arms; in fact, before arriving at any distance, the three batteries were turned against the division of Durutte, forming part of the seventh corps, and swept away entire files by a raking fire. Nevertheless, the emperor, undismayed by this disaster, caused his reserves instantly to advance, and succeeded in checking the enemy, who were now pouring down upon Leipsic. But the army could not long maintain its positions without exposing itself to total ruin. It had neither been broken nor defeated; yet, after its enormous losses, it was evident that want of time alone had prevented the enemy from obtaining complete success. Napoleon was sensible of this; and, on the approach of night, he issued orders for retreat.

Next day, the 19th, Leipsic was taken. The emperor of Russia, the king of Prussia, and Bernadotte, entered by three different gates, and the king of Saxony was made prisoner. Encumbered with the dead and the dying, with fugitives and equipages, this city presented a horrible scene of route and carnage; but the spectacle exhibited by the approaches to the suburb of Lutzen was most appaling; it was a sort of gulf into which the French precipitated themselves, as into a haven of safety. Nevertheless, the combat and the fusillade continued for two hours, during which sixty pieces of cannon horsed, and twelve thousand brave men, were saved: the enemy, master of Leipsic, feared to push to extremity warriors who might set it on fire, and still more to oppose column to column in a confined space. The retreat of the French could only be operated in braving the greatest difficulties. Their route lay through a defile of more than two thousand toises, between marshes, and along five or six bridges; nevertheless the retreat was being executed without very great disorder, when some Russian tirailleurs, gliding along the Elster, arrived near the principal bridge on that river, which had been mined in the night. No sooner were they perceived than the bridge was blown up by the chief of the post of sappers stationed there, who, disregarding the safety of the emperor and of all those on the western bank, fired the train. This accident, occasioned by the absence of the colonel of engineers, to whom the charge of the post had been committed, having cut off the retreat of all those who were still in the boulevards and suburbs, the bravest, those old soldiers who had escaped the casualties of twenty campaigns, only thought of selling their lives as dearly as possible, and perished under the ruins of the houses, which they defended to the last extremity; whilst the greater number believing resistance to be hopeless, fled towards the Pleiss and the Elster. The first of these rivers presented few obstacles; but the other, whose bed is deep and muddy, and whose banks are marshy, swallowed up all those who could not swim. In this number was Prince Poniatowski, who had been created a marshal of France on the 16th, and who on this same day had been wounded whilst performing prodigies of valour on the field of Liebertwolkwitz. Having failed to clear his way through the ranks of the enemies who surrounded and pressed on him, and believing at this extreme moment, when the hands of the Russians were extended to seize his person, that he might find a way to safety through the waters of the Elster, he dashed into the river, and was drowned. Marshal Macdonald, more fortunate, succeeded in clearing the muddy stream. The carnage finally ceased about two in the afternoon. Two hundred pieces of cannon and nine hundred caissons or waggons remained in the hands of the allies. The loss of the French in these two days was immense, being estimated at upwards of sixty thousand men killed, taken, or lost by desertion, exclusively of the wounded. The number killed or mortally wounded on the field of battle did not fall much short of thirty-seven thousand. But the allies paid dear for their success, having lost in killed and wounded nearly eighty thousand men. This is explained by the circumstance that, although their artillery was more numerous than that of the French, the latter played on columns of greater depth and density, and was thus proportionally more destructive. Napoleon arrived in the evening at Marc-Renstaedt, and there rallied the remains of his army.

Remarks.

Such was the terrible battle of Leipsic, the battle of nations, as the Germans call it, in which the numbers of the combatants arrayed in the field, and the extent of the carnage, exceeded any thing which Europe had witnessed since the use of artillery, and the results of which fixed for a time the fate of the Continent. It is, however, difficult to conceive how a great captain like Napoleon, who had fought thirty pitched battles and gained them all, and who had attained the very summit of military glory, by availing himself with rare ability of the great talents of a crowd of French generals, should have concentrated his army in a position so unfavourable, and accepted a decisive battle in the eastern part of the plains of Leipsic, having in his rear the city, the marshes, and the waters of the Pleiss and the Elster, divided into numerous canals, on which there are but few bridges. The only explanation seems to be, that it no longer depended upon him to choose the position of his army; for, if he had established himself beyond the Partha, the Elster, the Pleiss, and the Luppa, he would have extended his army in a level country, where the enemy's cavalry, in all respects superior to his, would have interrupted and paralysed all his movements. He could not avoid fighting on the 16th, in order to force back the Austrian army from Leipsic, and pass the marshy defile which leads from that city to Lindenau, on the road towards France. But his determination to deliver battle on the 18th cannot be so easily justified. Since the combats of the 16th produced no decided results, how could he flatter himself with being more successful on the 18th, when the enemy, more concentrated, were in a condition to bring into action a still greater amount of force? Instead of engaging anew, he should during the night have made dispositions for retreat, which his army was still in a condition to effect, if not without embarrassment, at least without disorder, and without encountering any serious obstacles.

Battle of Hanau.

On the 23d of October the wrecks of the army defeated at Leipsic on the 18th reached Erfurth, where were supplies of ammunitions, provisions, and clothing. All that remained of the German troops had deserted since the battle of Leipsic. On the 26th Wrede, commanding the Austro-Bavarian army, took possession of Wurtzburg, and followed the course of the Mayn. The same day, the troops of Wurtemberg marched to join those of Bavaria, against the French. On the 30th the Austro-Bavarian army, amounting to about sixty thousand men, was found posted at Hanau, on the line which the French had followed from Erfurth, no doubt in the hope of arresting their progress, and thus affording time to Blucher to attack them in the rear, whilst the grand army of Bohemia turned their left flank, and that under the orders of the prince royal of Sweden (Bernadotte) extended itself beyond their right. Placed under the necessity of breaking through this mass of fresh troops, the French fell upon them with incredible fury, and cleared a way by crushing all that opposed them. General Curial at the head of two battalions of the old guard, General Nansouty with the cavalry of the old guard, and General Drouot with fifty pieces of artillery, carried all before them, and not only saved the remains of a brave army, but illustrated its retreat by a brilliant victory. Wrede, who imagined that he had learned the art of war by serving under the French colours, was wounded; whilst the loss of twelve thousand men in killed, wounded, and prisoners, punished the temerity of the general and the ingratitude of his country. Napoleon repassed the Rhine on the 1st of November with the remains of the guard and six corps d'armée, the numerical force of which had been reduced nearly two thirds; and on the 9th he arrived at the palace of Saint-Cloud.

Results of the campaign.

The second overthrow of the French was necessarily productive of more decisive results than the first; Leipsic completed what the disastrous fate of the Russian expedition had only commenced. Germany regained its independence, by which we mean that it disengaged itself from all connection with France. The confederation of the Rhine was dissolved. Hanover resumed its allegiance to England. Ferdinand VII. was released from Valençay, and acknowledged as king of Spain. Holland, evacuated by the French troops, recalled the stadtholder. Denmark concluded an armistice with Russia, by which Napoleon lost his only ally in the north; and Davoust was isolated in Hamburg, without the possibility of disengaging himself. Naples and Sweden alone remained under men of the Revolution, who both retained their regal stations by betraying at once the chief whom they had served, and the country which gave them birth. The exterior frame-work of Napoleon's power had been shattered to pieces by the rude shocks of adverse fortune; and all the changes produced on the Continent, whether directly by the Revolution, or through the instrumentality of the extraordinary person who had been constituted its representative, were obliterated. Nor were his enemies confined to the provinces beyond the Rhine. The royalists stirred in the provinces, the republicans in the capital; and, feeling the compression of despotism removed, the constitutionalists of the first National Assembly began to raise their heads, and to build hopes of re-establishing a representative government. In the legislative body itself, purified as it had been of all those who were conceived to be friendly to free institutions, there were men who still retained their attachment to the principles which they had originally professed; and five of its members, intrusted with drawing up an address, to be presented on the 1st of January 1814, ventured to allude to the liberty of the subject, the necessity of reforming abuses, and the urgent expediency of accepting peace, and being contented with the frontiers of the Rhine and the Alps. This manifestation of independent opinion excited the astonishment and indignation of Napoleon, who, after replying in a style worthy of a disciple of Cagliostro, adjourned the meeting of the legislative body, and shut up its hall.

State of affairs.

The situation of Napoleon had now become worse than critical. All Europe in arms was arrayed against France, whose active means of defence had been nearly annihilated in two campaigns terminating in unparalleled disasters. When Napoleon recrossed the Rhine on the 1st of November 1813, he had not more than thirty-five thousand men in a condition to face the enemy; and even towards the close of the year, when three hundred thousand conscripts had been placed at the disposal of the government, his total numerical force did not exceed three hundred and sixty thousand men, whilst eleven hundred thousand enemies were advancing from various points to pour their invading torrents upon France. On the 11th November, Dresden capitulated on honourable terms, which, however, Schwartzenberg refused to ratify, and the French troops were marched as prisoners into Austria; on the 1st of January 1814, Dantzick surrendered in virtue of a convention, which the Russians in like manner refused to execute; and the other fortresses occupied by the French in Germany speedily shared the same fate. It has been said that the allies offered Napoleon France, imperial France, with the Rhine for its boundary, and that this fair, this generous offer, was madly refused by him. But this charge is without foundation. On the 2d of December 1813, the Duke of Vicenza, in a note addressed to the minister of Austria, declared that the Emperor Napoleon adhered to the general and summary bases proposed in the name of the allied powers at Franckfort, and also agreed that negotiations should immediately ensue in a congress to be assembled at Manheim. The bases proposed were, France confined within her natural limits between the Rhine, the Alps, and the Pyrenees; Spain replaced under its ancient dynasty; and Italy, Germany, and Holland, re-established as states independent of France, and of every preponderating power. To these preliminaries Napoleon now declared his unqualified adherence. The allied powers, however, were bent upon conquest, not conciliation; their armies were preparing to pass the Rhine for the purpose of invading France; and their insincerity was proved by the evasions which they practised when the bases proposed by themselves had been unreservedly acceded to. Meanwhile the tide of war continued to roll on towards France. On the 21st of December, six divisions of the enemy under Schwartzenberg, amounting to more than a hundred thousand men, crossed the Rhine between Basle and Schaffhausen, and ten days thereafter occupied Geneva. On the 31st, the army of Silesia under Blucher crossed the Rhine between Manheim and Coblentz; Bulow, advancing from Holland, passed still more to the north; and Wellington, descending from the Pyrenees, was preparing to invade the south of France. On the 25th of January 1814, Napoleon left Paris to join the army, and give new proofs of transcendent military genius in maintaining to the last a hopeless contest.

Battles of Brienne and La Rothière.

Schwartzenberg, having advanced through Upper Burgundy, had come upon the Seine, the course of which he intended to pursue towards Paris. Blucher, having passed the Vosges Mountains, had established himself on the Marne, at Saint-Dizier and at Joinville. Between these two rivers was the principal mass of the enemy, amounting at least to a hundred and fifty thousand men. Napoleon could not muster half that number, and the greater part of his army consisted of raw levies who had never been in fire. Advancing from Châlons-sur-Marne, and throwing himself between Schwartzenberg and Blucher, he directed his first blow at the latter. The Prussian commander now (29th January) occupied Brienne, with the Russian corps of Sacken and Alsufiew, belonging to the army of Silesia, and was at dinner in the castle when the French under Ney drove in his outposts. The château, the town, and its approaches, now became the scene of fierce combats, in all of which the French were victorious. The castle was taken; and Blucher, who had barely time to effect his escape, was compelled to fall back, take up a position, and wait for reinforcements. The audacity of Napoleon increased in proportion to the immobility of his enemies, who, in fact, durst not execute any movement in his presence except in overwhelming masses. But as the battle of Brienne had failed in its object of preventing the junction of Blucher and Schwartzenberg, he should have returned in all haste to the town of Troyes, where Marshal Mortier would have given him a considerable augmentation of force, instead of waiting to measure himself a second time with an enemy so greatly superior. On the 1st of February, Blucher, reinforced by the corps under Giulay, Wrede, the Prince of Wurtemberg, and the Grand Duke Constantine of Russia, which carried the force under his command to about a hundred and ten thousand combatants, became the assailant in his turn, and attacked the French at La Rothière, a village situated in the plain bounded by the Aube and its tributary the Voire, and distant about two leagues and a half north of Brienne. Napoleon, though he had scarcely forty thousand men present under arms, did not hesitate to accept battle. The engagement commenced at one o'clock in the afternoon, and did not terminate until midnight. Attacked along their whole line, the French stood their ground with great firmness, and towards evening the Russians in the centre began to waver; but a vigorous charge executed by Blucher secured him the advantage. In the battle of La Rothière the French lost about six thousand men, of whom two thousand five hundred were prisoners, and more than fifty pieces of cannon. The loss of the allies in killed and wounded was nearly as great, but it little affected their mass. In the night the French retreated to Troyes, without being pursued in any direction; a proof of the incapacity or timidity of the Prussian commander.

Congress of Châtillon.

Elated with his advantage, and eager to push on to Paris, Blucher, being joined by two fresh divisions, now separated himself from Schwartzenberg and the Austrians, tardy in their operations, both from character and from policy, and persisted in advancing along the Marne. Meanwhile a congress was opened at Châtillon between the four great allied powers and France. It was composed of Count Stadion, Baron Humboldt, and Count Rasumowski, plenipotentiaries of Austria, Prussia, and Russia; England was represented by Lords Aberdeen, Cathcart, and Castlereagh; and Caulaincourt, duke of Vicenza, appeared as the envoy of France. The result of the battle of La Rothière had decided Napoleon to treat conformably to the bases proposed at Franckfort; and the congress accordingly met on the 4th of February. But whilst occupied with the congress of Châtillon, Napoleon had his eye upon Blucher, whose rash advance along the Marne now inspired him with the idea of surprising and defeating the Prussians. Full of this idea, and finding that the allies rose daily in their demands, and refused to leave even Belgium to France, Napoleon recalled the carte-blanche which a few days previously he had given to Caulaincourt, and, on the 9th of February, refused to ratify the conditions transmitted to him by his minister from Chatillon. An opportunity of striking a blow had now presented itself, and he resolved once more to commit all to the fortune of a battle.

Having abandoned Troyes, Napoleon transferred his army, by cross roads and forced marches, from the Seine to the Marne, along which Blucher was confidently advancing towards Paris, under the impression that the battle of La Rothière was the last serious effort of the French. Of this notion he was speedily and severely disabused. On the 10th of February Napoleon threw himself on the Russian corps of Alsufiew, which formed the left flank of the Prussian army, and occupied a position near Sezanne in order to connect the two allied armies. The attack was made with such rapidity and impetuosity, that, of six thousand Russians, scarcely fifteen hundred escaped. Alsufiew, two other generals, forty-five officers, eighteen hundred soldiers, and twenty-one pieces of cannon, were the trophies of the day of Champaubert. On the 11th, at Montmirail, Napoleon came up with the corps under General Sacken, at the moment when he was endeavouring to operate his junction with the Prussian general Yorck, and defeated both with the loss of three thousand men killed and wounded, a number of prisoners, twenty-one pieces of cannon, and nearly all their baggage. In two days, three of Blucher's lieutenants had been defeated, and the wrecks of their corps driven beyond the Marne. On the 14th the emperor, after gaining some advantages at Château-Thierry, on the 12th and 13th attacked Blucher himself at Vaucamp, a league and a half west of Montmirail, and defeated him with the loss of seven thousand killed and wounded, three thousand prisoners, and eighteen pieces of cannon. Leaving Blucher thus humiliated to await the arrival of the Russians under Winzingerode, who were advancing from Belgium to support him, Napoleon now turned towards the Seine, where the grand army of the allies was manœuvring separately, with its advanced posts beyond Moret and Provins, whilst parties extended to the south of Fontainebleau, and spread alarm even to the gates of Orleans. Supported by Marshals Victor, Oudinot, and Macdonald, commanding the remains of the corps, conducting himself the old and young guard, and reinforced by troops which had arrived from Spain, Napoleon advanced on the 15th against the flank of the enemy disseminated upon the right bank of the Seine. The French army presented a mass of about fifty thousand men. On the 17th several strong Austro-Russian divisions, in full march on Paris, were completely defeated near Nangis, by the emperor, who on the 15th had left Montmirail with his guard and the corps of Marshal Ney, and marched twenty-eight leagues in two days. In this action the enemy lost five thousand men, as many prisoners, and a dozen cannon. But its result would have been more considerable if Victor had acted with greater decision. The combat of Montereau on the 18th was merely a continuation of that of the preceding day. The Prince of Wurtemberg being impetuously attacked, lost seven thousand men. Generals Gérard and Pajol had the greatest share in the success of the day. It was during this affair that Napoleon said gaily to his soldiers, who murmured at seeing him expose himself, "Ne craignez rien, mes amis; le boulet qui me tuera n'est pas encore fondu."

Effect of these successes on Napoleon.

These successes revived the confidence of Napoleon in his genius and fortune, and blinded him to the dangers by which he was menaced. After crushing Alsufiew at Champaubert, he wrote to his plenipotentiaries at Châtillon to assume a prouder attitude. The victory of Montmirail confirmed him in the belief that every thing might yet be repaired; and this conviction was strengthened by the subsequent successes at Nangis and Montereau. To an Austrian officer, who came to propose an armistice, and urge his acceptance of the conditions of Châtillon, he returned for answer that he would accede to those of Franckfort, but would on no account consent to yield up Belgium. "Recollect," said he, "that I am nearer to Munich than my enemies are to Paris." The conditions now offered were no doubt severe and humiliating. Departing from the bases founded on the natural limits of France, which they had themselves proposed at Franckfort, the allies now proposed that the emperor of the French should renounce all the acquisitions made by France since the beginning of 1792, and all constitutional influence beyond her ancient limits; that he should recognise in the allied powers the right of determining, conformably to the treaties they had entered into among themselves, the limits and relations of the countries ceded by France, as well as of their own states, without interfering therein in any manner of way; that all the colonies of France should be restored to her, excepting Tobago, and the isles of Bourbon and France; that all the fortresses of the ceded countries, and all those still occupied by French troops in Holland, Belgium, Germany, and Italy, should be given up without exception, and with the least possible delay; and that, under the denomination of depôts, the strong places of Besançon, Béfort, and Huningen, should be occupied by the allied armies until the ratification of a definitive peace. Such were the humiliating conditions agreed to at Châtillon, and which Austria now strenuously urged Napoleon to accept. "The peace," observed some one, "will be good enough, if it is time enough." "It will come too soon," replied Napoleon, "if it bring disgrace."

Battles of Craonne and Laon.

On the 24th February, the French, after several affairs with the rear-guard of the allied army, now in retreat, reoccupied Troyes. Some manifestations of royalism were exhibited at this place, and one unfortunate individual lost his life. At Troyes a flag of truce arrived from the Austrian head-quarters proposing an armistice, which, however, Napoleon refused except on the condition of its extending to the whole line. The urgent remonstrances of the king of Prussia having roused Schwartzenberg from the state of inaction in which he had for some time remained, an attack was resolved upon, and, on the 27th, forty thousand Austro-Russians advanced against fifteen thousand French under the orders of Oudinot and Gérard. Oudinot allowed himself to be surprised, and was only saved by the admirable dispositions of Gérard, and by a rapid and vigorous charge of cavalry executed by Kellerman. The assailants gained nothing but the field of battle. On the 2d of March Soissons was occupied by Bulow, the commandant of the city having opened the gates without making an attempt to defend it, although he had a sufficient garrison under his orders, and the sound of the cannon already announced the approach of the French. On the 4th Marshal Macdonald assumed the command of all the troops in presence of the grand allied army, amounting to about thirty thousand; and having evacuated Troyes and abandoned the basin of the Yonne, he retired to establish his line of defence from Nogent to Montereau. On the 7th Napoleon attacked Blucher at Craonne, about three leagues south-east of Laon. The French had only thirty thousand men, the Prussians upwards of a hundred thousand; but the force of the attack was principally directed against twenty-two thousand Russians under Generals Woronsow and Sacken. The action was long and obstinate; during the day the Russians maintained their ground against the furious and reiterated onsets of the French, and retreated in the night towards Laon, where they formed a junction with the Prussians. In the critical situation of Napoleon this victory was equivalent to a defeat. Laon, a place which served as an entrepôt to the allied army, was next attacked, but without success. In the night of the 9th, Marmont, advancing to support Napoleon in the approaching attack, suffered himself to be surprised by Blucher, and lost two thousand five hundred prisoners, with forty pieces of cannon. The consequences of this check were fatal to Napoleon. On the following day he persisted in his design of endeavouring to carry Laon by main force, but all his efforts failed, chiefly from the want of artillery.

Hopeless situation of Napoleon.

At Laon had vanished Napoleon's last hope of retrieving his fortunes in the field. He therefore dispatched orders to Caulaincourt to treat with the allies upon any terms; but the time fixed for receiving his answer to the conditions proposed had elapsed, and, taking advantage of the change of circumstances, the allied plenipotentiaries refused to enlarge it. Caulaincourt now gave in a counter project, by which the emperor consented to restrict his domination within the boundaries of ancient France, with Savoy, Nice, and the island of Elba, on condition that the crown of the kingdom of Italy, with the frontier of the Adige on the side of Austria, should be given to Eugene Beauharnais; but this the allied plenipotentiaries rejected, and the congress broke up. Disasters now thickened around Napoleon. Encouraged by the presence of the English army under Wellington, Bordeaux declared in favour of the Bourbons; and intriguing statesmen of the Revolution, at the head of whom was Talleyrand, were preparing a similar re-action in the capital, in the hope of establishing a constitutional government under the auspices of a restoration. Hitherto the allies had carefully abstained from openly espousing the cause of the exiled princes; but the manifestations of royalism in the provinces, and intimation of the intrigues carried on in the capital, emboldened them not only to advance upon Paris, but to declare in favour of a restoration.

Manœuvres on the Aube; battle of Arcis.

Meanwhile Napoleon, having left Mortier and Marmont with nearly twenty thousand men, and given orders to the commandants of places on the Moselle, the Meurthe, and the Meuse, to push strong parties in the rear of the enemy, marched on the 17th from Reims, at the head of about eighteen thousand men, with the intention of effecting a junction with Macdonald, who was advancing with thirty thousand; and, on the 20th, he moved on the Aube against Schwartzenberg, who had under his command a hundred thousand effective combatants. During this day and the following one, Napoleon displayed the talents of a great captain with the *sang-froid* of a brave soldier, manœuvring with transcendent skill, and fighting with the most determined bravery. With the loss of about four thousand men the proposed junction was effected, and Napoleon retired on Saint-Dizier and Joinville without being pursued. In thus operating on the right bank of the Upper Marne, the emperor no doubt hoped to draw the enemy out of their positions on the Aube, and cause them renounce their direction on Paris, as well as to rally some reinforcements which had been sent to Metz. It has been commonly supposed that his intention was, at the risk of uncovering Paris, to manœuvre in their rear, and intercept their communications with the Rhine; but his troops were too feeble, particularly in cavalry, to enable him to flatter himself with attaining such a result. Napoleon made every possible effort to retard their advance, and, on the 26th, defeated with great loss ten thousand Russian cavalry belonging to the army of Winzingerode, who had been sent in pursuit of him.

Fall of Paris, and abdication of Napoleon.

On the 27th he marched to succour the capital, and reached Montiérender, five leagues south of Saint-Dizier. On the 29th Mortier and Marmont occupied Saint-Mandé, Vincennes, and Charonne, and established themselves before the barriers of Paris adjoining to these villages. On the 30th the allied troops commenced the attack of the several heights, occupied by about twenty-five thousand soldiers of all arms. The French assumed the offensive on the principal points, and the villages of Pantin and Romainville were taken and retaken several times. The battle commenced at sunrise, and at eleven o'clock in the forenoon the Austrians and Russians were still in complete check. But at that moment the Prussians appeared, entered into line, and proceeded to arrange their attacks. Seized with terror, Joseph Bonaparte, who acted as generalissimo, now only thought of providing for his own personal safety; and having intimated to Mortier and Marmont that he authorized them to capitulate, he fled with all the precipitation of a Thersites. A capitulation was accordingly concluded, and on the last day of March the emperor of Russia and the king of Prussia entered the French capital at the head of their troops. When Napoleon, who had reached Fontainebleau on the 30th, encountered, in the evening of that day, while advancing towards the capital, some of the troops of Marmont retiring by virtue of the capitulation, he refused to give credit to the tidings; and it was only by persuasion, amounting to force, that he was induced to return to Fontainebleau. No wonder his astonishment was great. If the minister Clarke had delivered twenty thousand new muskets to the national guard, to those robust workmen who loudly demanded arms, the heights would not in all probability have been carried on the 30th; and the sudden apparition of Napoleon in the centre of such immense resources as Paris presented, might have suddenly changed the fortune of the war, and led to a very different result; whilst a check sustained by the allies before Paris would have inevitably led to their destruction, by rousing all France to crush the invaders. But treason deprived Napoleon of the last great resource on which he had all along calculated, and completed the subjugation of France. A provisional government was appointed, with Talleyrand at its head; and a proclamation was issued by the allied sovereigns, refusing to treat with Napoleon as sovereign of France. In these circumstances, finding himself deserted by his marshals, officers, and dependents, from Berthier, prince of Neufchatel, down to the Mamluke Rustan, this wonderful man, who had never appeared greater than during the late struggle, signed an unconditional abdication, and, on the 11th of April 1814, his dynasty expired.

There yet remain to be treated of, the first restoration; the reign of the hundred days, with the extraordinary events crowded into that short space; the second restoration, that comedy of fifteen years, as it has been called; and, lastly, the revolution of July 1830, by which the third impression of the old monarchy was destroyed, and a new dynasty established in France on the basis of the interests created by the first revolution. But unavoidable circumstances, and a desire to procure authentic information, render it proper that we should stop at the epoch of Napoleon's abdication in 1814, and for the details necessary to complete our historical survey, to refer the reader to other parts of the work, particularly the articles NAPOLEON and RESTORATION.

(A.)

II. STATISTICS.

I. SITUATION AND EXTENT, FACE OF THE COUNTRY, CLIMATE AND SOIL.

THIS important part of continental Europe extends from the forty-third to the fifty-first degree of north latitude, and from longitude 8·25 east, to longitude 4·43 west. The greatest length of France, exceeding 600 miles, is from east to west, viz. from Alsace to Bretagne, a province which projects into the Atlantic like a wedge, and without which France would approach in form to a square. Its breadth from north to south is about 560 miles; and its superficial extent, not yet exactly ascertained, is computed to exceed 200,000 square miles, or a hundred and twenty-eight millions of English acres.

Though in point of extent of coast and ready access from the interior to the sea, France is far inferior to Britain and Ireland, she is, on the other hand, more fortunate in these respects than the vast inland territories of Austria and Russia. She has the advantage of these countries likewise in strength of natural barriers, the Pyrenees forming a great bulwark on the south-west, the Alps on the south-east, and the Jura and the Vosges Mountains on the east. The Netherlands are the only open part of the frontier of France.

The surface of France exhibits, in general, an advantageous succession of high and low ground. Less level than Poland, the north of Germany, or the greater part of European Russia, it is, on the whole, less mountainous than Spain or Italy, and may with great propriety be compared to England, with this distinction, that whilst in the latter the mountainous tracts are in the north and west, in France they are in the south and east. Passing over the lofty ridges which form the frontier line of France on the side of the Pyrenees, the Alps, the Jura, the Vosges, and confining our attention to the interior, we find throughout Flanders, Picardy, Normandy, and the countries to the north and south of the Loire, a level country, diversified occasionally by hills, either insulated or in succession, but by none of the massy elevations entitled to the name of mountains. These we do not meet until reaching the south of Champagne and north of Burgundy, near the sources of the Meuse, the Moselle, the Saône, the Seine. From this bleak quarter (lat. 47 and 48) a very long range of mountains proceeds from north to south in a direction parallel to the course, first of the Saône, and subsequently of the Rhone, until, on approaching the Mediterranean, they branch off to the south-west and join the Pyrenees. Their greatest height is in Auvergne (about lat. 45), where this chain, or more properly a lateral branch of it, attains, at the mountains called Cantal and Puy-de-Dôme, an elevation of fully 6000 feet, and has its highest ridge covered with snow during the greater part of the year. Another, but a much less lofty range, extends from Bordeaux to the south-east, a distance of a hundred and fifty miles, until it reaches the Pyrenees. The smaller chains are numerous in the east and south-east of the kingdom, viz. in Lorraine, the Nivernois, Dauphiné, Provence; also in part of the interior, particularly the Limousin and Guienne. They are interspersed with extensive plains, but, on the whole, the south and east of France are rugged and elevated tracts, and may be said to be to that country what Wales and Scotland are to Great Britain.

The course of the great rivers is easily connected with this view of the surface of the territory of France. The Moselle, the Meuse, the Marne, the Aube, the Seine, the Yonne, taking their rise on the northern side of the mountain chain, between lat. 47 and 48, flow all to the north or north-west, until reaching the sea, or quitting the territory of France. From the southern slope of the same range

Situation, Extent, &c.

proceed the Saône, the Doubs, and the Ain. These, along with many smaller streams, are all received by the Rhone, which flows almost due south, with a full and rapid current, until it reaches the Mediterranean. The Loire has by much the longest course of any river in France. It rises to the southward of lat. 45, flows in a northerly direction above two hundred miles; turns, near Orleans, to the west, is joined by the Cher, Indre, and Vienne from the south, and, after receiving the Sarthe from the north, falls into the Atlantic below Nantes. The Garonne, a river of less length of course, but of a greater volume of water, descends from the French side of the Pyrenees, flows northward, and, after receiving from these mountains a number of tributary streams, of which the chief is the Arriège, turns to the westward near Montauban (lat. 44), and falls into the Atlantic after being augmented by the waters of the Tarn, Aveyron, Lot, and finally the Dordogne, all flowing from the western face of the mountains of Auvergne.

France has very few lakes, either in the mountainous districts of the south, or in the great levels of the north and west. It contains, however, a number of maritime inlets, forming inland bays, and communicating with the sea only by a channel of greater or less width. These occur partly on the south-west coast, in Gascony; but more in the south and south-east, in Languedoc and Provence. Their want of depth prevents them from serving as roadsteads for shipping, and they are useful chiefly for fishing, or for the manufacture of bay-salt.

Forests.

France has much less of artificial or ornamental plantations than England, and much more of natural forests, the total extent of ground covered by wood being computed at seventeen millions of acres, or one eighth of the territorial surface of the kingdom. Forests are found in almost every department. Lower Normandy contains several of considerable extent. There is a large one at Fontainebleau, only forty-five miles from Paris; and a larger to the north of the Loire, in the vicinity of Orleans. Those situated in the neighbourhood of the sea, or of navigable rivers, or of great works, such as glass-houses and iron-founderies, have long been subjected to an improvident consumption, which is likely to be increased by the heavy duties imposed on foreign coal, and by the undue encouragements given to the smelting of iron by the heavy duties which were in 1814 and in 1822 laid on the importation of foreign iron; so that at present the principal forests are at a great distance inland, particularly in the east of the kingdom, in the department of Ardennes, and in the long mountainous tract that forms the boundary of France on the side of Switzerland.

Scenery.

The want of ornamental plantations, and still more the almost total want of hedges, forms a great deduction from the beauty of scenery in France, and deprives the country of the cheerful aspect so striking in England. The nearest approach to the latter is seen in travelling through the fresh pastures and gentle eminences of Normandy. Of the other provinces, some, like Picardy, Champagne, Poitou, consist of wide uninteresting levels; whilst others, such as Auvergne, part of Upper Languedoc, and the vicinity of the Alps and Pyrenees, contain a bold but bleak scenery. The most beautiful and picturesque views are to be found in the Limousin, or on the borders of the great rivers. The banks of the Loire from Orleans westward are proverbially beautiful. The Rhone, bordered by mountains, has generally a bold, and occasionally a wild aspect. The Seine, equally wide, but much more tranquil, flows through verdant but less striking landscapes.

Climate.

In a country of so great extent and of such diversified surface as France, it is difficult to condense a description of the climate into a few comprehensive heads. The most natural division is into the north, south, and central regions. The north, comprehending Flanders, Picardy, Normandy, Bretagne, and in general all that part of France which would be bounded on the south by a diagonal line from lat. 47 on the west to lat. 49 on the east frontier, bears a great resemblance, both in temperature and produce, to the south of England, rain occurring frequently, and the country being consequently fit for pasture. There, as with us, the predominant culture is wheat, barley, oats, rye, and such fruit as apples, pears, cherries; also hemp, flax, rapeseed. It is here, and here only in France, that the natural pastures are rich and extensive; here also the species of wood, oak, ash, elm, bear a close resemblance to ours. The central region may be said to comprehend the country to the south of the Loire, or rather of the diagonal line we have mentioned, until reaching a similar line in lat. 45 on the west and 47 on the east frontier. Here, with the exception of the mountainous parts, the winter is sensibly shorter and milder. Wheat, barley, oats, and rye, are still cultivated, but maize begins to appear, and vines become general. The weather in this great inland tract is much more steady than in the north. In the summer months there is little rain, and storms, when they occur, are frequently accompanied with hail; but, on the whole, the temperature is perhaps the most pleasant in France, being exempt equally from the oppressive heat of the south and the frequent humidity of the north. The third region, comprehending the whole breadth of the French territory from lat. 45 and 46 to lat. 43, and in some parts to 42·30, approaches in climate to the heat of Spain and Italy; it being necessary in the summer months to suspend all active exertion during the middle of the day, and to reserve it for the morning and evening. A shaded situation is here the *desideratum* for a dwelling, and a supply of water for agriculture. In this region the heat will invariably produce an exuberant crop where irrigation can be applied; hence the frequency of wells, which are generally worked by a wheel and some rude machinery. Wheat is partially cultivated; barley, oats, and rye, only on the high grounds; maize is very general, and vines supply not only the main article of export, but the usual drink of the inhabitants. The common fruits are olives and mulberries, and, in a few very warm situations, oranges and lemons. Pasturage is good only on mountainous or irrigated tracts. To pulmonic invalids the climate may be advantageous, but in this respect also material distinctions occur from locality, the winter in the south-east of France being at intervals very cold, from the *vent de bise*, a piercing wind that blows from the Alps and the mountains of Auvergne. Here, notwithstanding the latitude, the cold of winter is intense.

Bretagne, projecting into the Atlantic, is as rainy as Ireland or Cornwall. Normandy, with part of Picardy and French Flanders, may be compared to our inland counties. In the interior of France the rains are less frequent, but far more heavy; so that there is much less difference in the quantity of rain that falls in the course of the year than in the number of rainy days. The atmosphere of France is much less cloudy than ours. The most frequent wind in the north of France, as in Britain and Ireland, is the south-west; it prevails also, but to a less degree, in the central part of the kingdom. In the south of France the more common winds are from the north.

The difference of temperature between London and Paris is not considerable, nor is the degree of heat found to be intense along the west coast of France, until reaching or rather passing Poitou. In the interior it is much more perceptible, being strongly felt at Lyons, and still more in the latitude of Nismes, Aix, Marseilles, and Toulon. On the whole, the variations of climate between the north and south of France are considerably greater than between the north and south of Britain, where the effect of difference of latitude is so much modified by the vicinity of the sea. We know, besides, of no such variation as the very material one indicated by the diagonal line from east to west, the latter being two degrees colder in consequence of the breezes and vapours of the Atlantic.

The harvest begins in the north of France between the 20th and 25th July, in the central part about the middle of that month, in the south about the end of June. September and October are the months of vintage. The great hazard to the corn of the central part of the kingdom arises from violent storms of rain and hail, in the south from the want of rain in spring. In winter the *vent de bise* proves often destructive to the olives. The great heats are in July, August, and September; a time of much annoyance in the south of France, from gnats, flies, and other insects; whilst scorpions even are found in that warm latitude.

Soil.

To exhibit a classification of the different kinds of soil is a task of difficulty in any extensive country, and in none more than in France, where a striking difference prevails, not only in contiguous departments, but in contiguous districts of the same department. In Flanders, Picardy, Artois, Normandy, and the Pays de Beance, a fertile tract to the south of Paris, the soil consists frequently of a loamy mould; in the central and southern parts of the kingdom it is often lighter; whilst the greater part of Bretagne, and of the departments along the western coast, have a heathy soil, naturally unproductive, but capable of considerable improvement. But these collective estimates are liable to great deductions; and the attempts made by Arthur Young and other statistical writers to calculate the proportion of the different descriptions of soil, whether loam, heath, chalk, gravel, or the like, are considered by the French as far from successful; even the more systematic effort made by their own government, in the beginning of this century, to compute the value of land by *masses de culture*, that is, by classing all kindred soils under one head, proved altogether abortive. We shall forbear, therefore, all such vague calculations, and proceed to state the value of annual produce in the different departments, endeavouring to class the latter in lots, according to their position and relative productiveness.

Average annual income of the various departments of France, computed by the English acre, and in Sterling money, taking the words "annual income" in the most extensive sense, as including the rent of land, the farmer's profit, and the rent of houses in towns.—(Chaptal, *De l'Industrie Française*, vol. i. p. 209.)

North and north-east of France.

The fertility and high state of cultivation of French Flanders, and the near approach made to it by part of Normandy and Picardy, are apparent from the following returns. The chief objects of culture there, as in England, are wheat, oats, barley, and rye; the pasturages are extensive; the horses, cattle, and sheep numerous.

Nord (French Flanders)	23s. 4d.	Somme	15s. 6d.
Seine Inférieure	22s. 10d.	Pas de Calais	15s. 6d.
Calvados	18s. 6d.	Manche	13s. 8d.
		Eure	13s. 7d.

The inland province, called formerly, from the rivers along its circumference, the Isle of France, comes next in the list of relative productiveness. The objects of culture are similar to those of Flanders and Normandy, viz. wheat, oats, and barley; but the pasturages are less rich and extensive.

Seine et Oise	17s. 3d.	Oise	13s. 6d.
Seine et Marne	13s. 7d.		

The district around Paris forms the centre of the above departments. There the average return is stated at 72s. 9d. the acre; but as this includes house rent, and is altotuation, Extent, &c.

gether a peculiar case, we proceed to the next great division of open country.

Alsace, though in some parts mountainous, is in others level and fertile, particularly adapted to pasture and the culture of wheat.

Bas Rhin	14s. 3d.	Haut Rhin	12s. 6d.

Bretagne has in several parts good pasturages, and a soil adapted to the culture of wheat. Many other parts, however, consist of unproductive heaths. The general backwardness and poverty of the province are but too strikingly exemplified by the following return:

Ille et Vilaine	8s. 10d.	Morbihan	6s. 8d.
Loire Inférieure	8s. 0d.	Finisterre	6s. 8d.
Cotes du Nord	7s. 7d.		

ntral division of France.

Here are also extensive *landes* or heath. Vines are partially cultivated, but the general produce consists of wheat, oats, barley. The pastures are extensive, though less rich than in Normandy.

Eure et Loire	10s. 4d.	Mayenne	8s. 3d.
Orne	9s. 7d.	Loiret	8s. 0d.
Maine et Loire	9s. 6d.	Indre et Loire	7s. 2d.
Sarthe	9s. 5d.		

am gne ance nited d part of rgundy.

Of this great tract parts are level and parts are mountainous. The climate, though in general steady, is very different in its degree of warmth, according to the elevation of the ground. Hence a considerable discrepancy in the relative fitness for pasture, for corn culture, or for vineyards. Unluckily the water communication is very limited, there being hardly any canals, and the rivers being too near their source to be navigable.

Aime	12s. 0d.	Aube	7s. 0d.
Haute Saône	10s. 8d.	Yonne	7s. 0d.
Saône et Loire	10s. 0d.	Doubs	7s. 0d.
Jura	9s. 1d.	Marne	6s. 10d.
Ain	8s. 8d.	Haut Marne	5s. 8d.
Cote d'Or	8s. 3d.		

The six following departments, similar to the above in latitude, and not materially different in climate, are of very inferior productiveness; in some parts, from the mountainous nature of their surface; in others, on account of extensive heaths, moors, marshes, and tracts of sand. The objects of culture continue to be wheat, oats, and rye; vines and maize are raised in the warmest exposures.

Loire et Cher	5s. 9d.	Allier	5s. 0d.
Nievre	5s. 8d.	Cher	4s. 3d.
Vienne	5s. 1d.	Indre	4s. 1d.

Lorraine is a mountainous country, containing extensive tracts of sheep pasture. Its chief agricultural products are oats and wheat.

Moselle	8s. 7d.	Meurthe	8s. 0d.
Meuse	7s. 6d.	Ardennes	5s. 8d.
Vosges	6s. 3d.		

vergne.

This extensive province, and the departments to the south and south-west, are, in general, mountainous, cold considering their latitude, and thinly peopled. The chief product of the high grounds is rye. The best departments are those of the

Loire	8s. 4d.	Ardèche	6s. 6d.
Puy-de-Dôme	8s. 1d.	Haute Loire	6s. 2d.

The following, situated to the south and west of the above, are all poor and thinly peopled:

Cantal	5s. 2d.	Corrèze	4s. 3d.
Aveyron	4s. 10d.	Lozère	3s. 8d.
Haute Vienne	4s. 4d.	Creuse	3s. 5d.

th-east division of France.

Here we attain a more genial climate, and a country, in general, well adapted to the growth of the vine. But a great part of this tract (Dauphiné and Upper Languedoc) is mountainous; and the export of wine is consequently attended with much more difficulty than along the banks of the Garonne. Wheat, maize, and silk, are the other principal products.

Civil and Ecclesiastical Divisions.

Rhone (including Lyons)	13s. 3d.	Bouches du Rhone	8s. 11d.
Vaucluse	10s. 0d.	Gard	8s. 10d.
Var	9s. 1d.	Isere	8s. 2d.
Herault	9s. 1d.	Aude	7s. 8d.
		Drôme	5s. 11d.

South-west division.

Of the following ten departments, some are indebted for the amount of their return to the extent of their vintage, others to their productiveness in wheat or maize. In pasture or in cattle these departments are far from abundant.

Tarn et Garonne	13s. 0d.	Haute Garonne	10s. 2d.
Lot et Garonne	11s. 7d	Charente	8s. 11d.
Gironde (including Tarn Bordeaux)	10s. 6d.	Tarn	8s. 4d.
		Gers	7s. 8d.
Charente Inférieure	10s. 2d.	Dordogne	7s. 0d.
		Lot	6s. 2d.

La Vendée.

It remains that we notice a few departments so particularly circumstanced as not to fall under any of the preceding heads. La Vendée, so peculiar in its surface, and not likely to recover for ages the devastations of civil war, is naturally fertile. Its products are wheat, oats, and, in the warmer situations, maize.

Deux Sevres	8s. 0d.	Vendée	6s. 8d.

Landes in the south-west.

Three fourths of this department consist of sandy downs; the remainder produces maize, wheat, and vines; but the average annual produce is only 2s. 1d. per acre.

Pyrenees.

Here the degree of fertility becomes less and less as we approach to the elevated line which separates France from Spain. This rugged region contains great tracts of pasture. The corn raised is maize, wheat, oats, or barley, according to the altitude and temperature of the district.

Basses Pyrenées	5s. 7d.	Arriège	5s. 0d.
Pyrenées Orientales	5s. 7d.	Hautes Pyrenées	4s. 8d.

Lastly comes the still more lofty barrier of France to the south-east, the products of which are a little wheat in the valleys; and in the higher grounds pasture, with corn of the lighter species.

Hautes Alpes	2s. 1d.	Basses Alpes	2s. 0d.

II. DIVISIONS, CIVIL AND ECCLESIASTICAL.

Nothing can be more simple and uniform than the territorial divisions of France since the Revolution. Instead of old provinces or counties, disproportioned in size, and having frequently their chief town at one or other of the extremities, the departments of France have almost always the capital in the centre, and, in their extent, approximate in a great degree to equality. Each department is divided into three, four, five, or more arrondissements; each arrondissement into seven, eight, or nine cantons; and each canton into twelve, fifteen, or more communes. The communes in France are nearly similar to our parishes, though they are constituted communes by having a civil instead of a clerical functionary. The numbers of each class are as follows:—

Departments since the peace of 1814 (including Corsica)	86
Arrondissements	368
Cantons	2,669
Communes	38,990

A far different result this from the gigantic empire of Bonaparte, which, after his latest acquisitions in 1810, extended to Rome in the south, and to Hamburg and Lubec in the north, comprehending above 130 departments, and a population of forty-four millions. But of all these splendid conquests, none, with the exception of the Netherlands, formed a substantial addition to the power of France. The Italian provinces, separated by a vast natural barrier, were inhabited by a people who bore the ascendency of their northern neighbours only until circumstances should enable them to throw off the yoke, and become incorporated into one great and independent state;

whilst the Germans, still more distinct in habits and language from the French, were indignant at their humiliation, and eager to rise with the first appearance of foreign aid. Belgium alone had no natural barrier, no political attachment, to oppose to a union with France.

The ecclesiastical division of France is into archbishoprics and bishoprics. These, before the Revolution, were numerous, there being eighteen archbishops and a hundred and twelve bishops; but as that great political change bore particularly hard on the clergy, of whom, as of the *noblesse*, the great majority were adherents of the Bourbons, the number of prelates was reduced, first to eighty-five, and eventually (in 1801) to fifty, viz. nine archbishops and forty-one bishops. On the restoration of the Bourbons, measures were taken to re-augment their number; and in 1817 a new *concordat*, concluded with the court of Rome, announced the creation of nine additional archbishoprics and thirty-three bishoprics, carrying the totals respectively to eighteen and seventy-four. The eighteen archbishoprics are,

Paris.
Bordeaux.
Bourges.
Besançon.
Tours.
Albi.
Rheims.
Arles.
Rouen.
Aix et Embrun.
Vienne.
Toulouse.
Auch.
Narbonne.
Cambray.
Avignon.
Lyons.
Sens.

As there are in France eighty-six departments, and only seventy-six bishoprics, a diocese necessarily comprehends a larger tract of country than a department.

A further distribution of the French territory is into military divisions, or great districts, comprising four or five departments. Of these there are in the whole kingdom twenty-two, each having a general of rank and a body of officers stationed in a central town.

III. HARBOURS, NAVIGABLE RIVERS, CANALS, ROADS, BRIDGES.

Harbours. In this important point France is considerably inferior to England, her long tract of coast opposite to the Atlantic and the Bay of Biscay being indifferently provided with sea-ports, and those on the southern shore of the Channel forming a striking contrast to the spacious maritime inlets on the side of her rival. To begin from the north-east, Dunkirk has a small harbour in the interior of the town, approached on the Dutch plan by a canal leading from the sea. Boulogne has a shallow roadstead, indebted for its celebrity under Bonaparte to the facility of giving protection, by land-batteries near its entrance, to a numerous assemblage of small craft. The port of Dieppe is exposed, and, of course, unsuitable for winter; that of St Malo is better; and on doubling the projecting part of Bretagne, we find, in the south-west of that province, L'Orient, a port adapted to the entrance of large merchantmen. Proceeding further to the south, we find at La Rochelle a small but secure harbour, and at Bordeaux a river nearly equal in width to the Thames at London. From this there is no sea-port until we reach Bayonne, a place of no easy access. On the Mediterranean, France has the ports of Cette and Marseilles, the latter spacious and secure.

Nantes, though a large commercial town, adjoins a shallow part of the Loire, and vessels of burden are obliged to load and unload at Paimbœuf. The great dockyards and naval stations of the kingdom are at Brest and Toulon, both excellent harbours, and at Rochefort, which is situated on the river Charente, near its mouth. In all these the accommodation for shipping is the gift of nature; but at Cherbourg the case is very different, that port containing works, of which the labour and expense (see the article BREAKWATER) have been very great. Its roadstead, extensive but open, has a sea-wall, which, though now in a state very different from its original destination, affords some protection from the swell of the sea; and its spacious dock, excavated since the beginning of this century, at an expense of L.3,000,000 sterling, is capable of containing fifty sail of the line. Havre de Grace, the best mercantile harbour in the north of France, has also been formed at a heavy expense.

Inland navigation. The square form of France, favourable as it is for military defence, subjects the greater part of the country to the want of those ready and economical means of transport by sea which form the great physical advantage of Britain and Ireland. Unluckily, this want is very imperfectly supplied by the inland waters, canals being very thinly spread, and the navigation of the great rivers subject to many obstructions; occurring in one part from rapidity, in another from shallowness; at one season from drought, at another from overflow. The application of steam to navigation promises to correct in part this most inconvenient tardiness; but the accommodation which will even then be afforded by the Loire in the interior, the Rhone in the south, the Seine in the north, and the Garonne with its Canal du Languedoc in the south-west, will be but a small portion of what is furnished by our numerous intersections in England, or of what is wanted for so extensive a territory as that of France.

The canal of Languedoc, begun in the reign of Louis XIV. and completed in the year 1668, was the first example in Europe of inland navigation on a great scale. It is the most stupendous undertaking of the sort that has been executed in France. Its length is about 150 miles, its general breadth sixty feet, its depth only six feet. It has 114 locks and sluices, and in its highest part it is 600 feet above the level of the sea. As a scientific work, it did honour to an age as yet little advanced in engineering; but in a pecuniary point of view it was unproductive, the tolls never having paid the interest of the very large sum (upwards of L.1,300,000 sterling) expended upon it. It extends from the Mediterranean, near Agde, to the Garonne, below Toulouse, and will ere long be prolonged in a northerly direction to Montauban.

The canal of Briare is of earlier date, and of much less extent. The object here was to open a navigation from the Loire on the south to the Seine on the north, by a canal running almost due north, a distance of forty miles. It then receives from the west the canal of Orleans, commenced in 1675, and proceeding also from the Loire; after which the canal is continued to the north, under the name of Canal de l'Oing, till it reaches the Seine. This canal was begun in 1605, in the reign of Henry IV. and was completed in 1642, under Louis XIII. There are, besides this great work, several other important and extensive canals in France. The Canal du Centre unites the Saône and the Loire in the early part of the course of the latter. It is seventy-two English miles in length, and was completed in 1791, at an expense of L.456,000. Its summit level is about 240 feet above the level of the Loire at Digoin. It has eighty-one locks, five and a half feet of water, forty-eight feet of breadth at the water's edge, and thirty feet at the bottom. The canal of St Quentin, twenty-eight English miles in length, was completed in 1810. It joins the Scheldt and the Somme. The canal of Besançon is extensive. It joins the Saône, and consequently the Rhone, to the Rhine. From the Saône it stretches a little above St Jean de Losne, by Dole, Besançon, and Mulhoine, to Strasburg, a distance of 200 miles, where it joins the Rhine. This canal is not quite finished. The canal of Burgundy, which joins the Rhone to the Seine, will, when completed, be 150 English miles in length. It is at present navigable to little more than a third of this distance. The canal of the Ouxcq was dug, not for a commercial purpose, but to convey the water of that little river to Paris, for the consumption of the inhabitants. At a village called La Villette, on the north side of Paris, there has been lately excavated, at the expense of a million sterling, a basin, approaching in size to our London docks, and calculated, when the necessary canals shall be completed, for the deposit of merchandise brought from Havre and Rouen on the one side, and from Flanders and Champagne on the other. In the south of France there is a short canal proceeding from the Rhone, near Tarascon, in a south-west direction, to the Mediterranean, and called, from its vicinity to a well-known annual fair, *Canal de Beaucaire.* These are as yet the chief canals of France. There are numerous other lesser canals in different parts of France, and several are in progress, besides many which have been projected. But it is probable that this improved mode of communication may be superseded by the still greater improvement of the rail-road, which has, to a considerable degree, engrossed the public attention in France. There are, however, obstacles to the progress of these improvements, arising partly from the mode of management adopted, and partly also from the high price of the materials required. All great works for the behoof of the community at large, such as canals, rail-roads, docks, and the like, are carried on at the expense, for behoof, and under the control of the government. Plans and estimates must be made out and laid before the minister of the interior, who refers them to other public functionaries, namely, the prefect of the department, and afterwards to the *bureau des ponts et des chaussées;* and when all these persons are satisfied, a public officer is then appointed to superintend the work. This tedious official routine, through which all public undertakings have to pass, tends to discourage individual enterprise, and accounts perhaps for the comparatively few works of this description which have been undertaken in France. The high price of iron, in consequence of the tax on foreign iron, must operate as a great discouragement to the construction of rail-roads in France; and thus we have an additional illustration of the ruinous effects of this tax in obstructing the domestic improvement of the country.

ads.

The great roads in France are managed, not, as with us, by county commissioners, but by government *bureaux* or boards, the chief of which are at Paris. The extent of road under their direction is about 30,000 miles; and the annual expenditure from L.1,300,000 to L.1,500,000, the whole of which is defrayed without one toll or turnpike. An attempt was made under Bonaparte to levy tolls; but this excited so much clamour in a country where commercial intercourse is carried on almost wholly by land-carriage, that it was found indispensable to seek the necessary funds from another source, namely, a tax on salt. The great roads in France are in general in tolerable condition; but no epithet can convey an idea of the wretched state of the cross roads in almost every department; full of hollows, encumbered with stones, or inundated with water, they receive hardly any repair, but are abandoned, year after year, to the effects of the elements.

The great roads in France are much wider than in England, exhibiting frequently a long straight avenue lined on each side with chestnut or other large trees. They are often paved like a street for many miles in succession; the art of road-making being as yet too little understood to prevent material injury from the heavy waggons and ill-constructed wheels, without resorting to this unpleasant alternative. Travelling is thus much less agreeable than in England, particularly as the villages want neatness and cheerfulness, whilst most of the towns along the road are disfigured by narrow crooked streets, in which new stone buildings are often mixed with antiquated wooden structures, such as have disappeared from our provincial towns for nearly a century past. The clumsy vehicles formerly used as stage-coaches in France have at length been replaced in most frequented roads by coaches in the English style; and the mails are now conveyed in a kind of chariot called a *malle-poste.*

Harbours, &c.

Bridges.

The French have as yet but few cast-iron bridges, all their great structures of this description being of stone. Of these, the chief are the bridges over the Loire at Orleans, Tours, and Nantes; those on a smaller scale over the Seine at Paris; and those over the Saône and Rhone at Lyons. The Pont du St Esprit above Orange, over the Rhone, is a long structure of sixteen arches. At no great distance from it is the Pont du Gard, one of the most entire and beautiful monuments of Roman architecture, composed of a triple tier of arches, erected for the purpose of conducting an aqueduct over the river Gardon. This magnificent structure is 157 feet in height, 530 feet in length at the bottom, and 872 at the top. Of the lately erected bridges in France, the most remarkable are those over the Seine at Neuilly near Paris, and over the Oise at St Maixent, with two of larger dimensions, viz. one over the Garonne at Bordeaux, the other over the Seine at Rouen.

IV. AGRICULTURE.

The agriculture of France is in a very different state from that of England or Scotland, being marked by a degree of backwardness not a little surprising in a country so far advanced in many departments of art and science. The causes of this, however, are not of difficult explanation. France never enjoyed till lately the advantage of a representative body; and the condition of the peasantry was long far inferior to that of the same class in England. No ecclesiastical reformation had taken place to remove a valuable part of the national territory out of the hands of indolent life occupants; and the *grands seigneurs,* the other great body of landholders, devoted their attention to Paris and Versailles, without bestowing a thought on their lands or their tenantry, except to extract from them the means of defraying their expenses in the capital. To this was added a system of taxation, less heavy indeed than that to which we are subjected in England, but extremely crude and impolitic, as evinced in the *gabelle,* or tax on salt used in private families, and in the *corvée,* or obligation on the peasantry to labour on the high roads. To these were joined the humiliating enactments of the game-laws, and the more substantial injury of tithes; for the clerical body in France levied this pernicious assessment as in England, though possessing in property lands of the computed rent of five millions sterling.

Another great drawback on French agriculture was the insignificant size of the occupancies, whether held as farms or in property. A French agriculturist on a small scale has little idea of selling his paternal acres, and converting the amount into a capital for a farm. He is much more likely to go on as the proprietor of eight or ten acres of land, and the cultivator of as many more. The mode of paying rent was equally singular; money rents were general only in the north or most fertile parts of France; they did not, on the whole, exist in more than a fifth or sixth of the kingdom before the Revolution. A more frequent species of tenure was by a grant made under a reservation of a fine, of a quitrent, or of certain servitudes, of which the least burdensome were sending corn to the mill, or grapes to the press, of the proprietor. But of all indications of poverty and backwardness, the most striking was the system of *métairie* described by Dr Smith; a practice by which a tenant, having little capital of his own, receives from the proprietor the live stock and implements necessary for cultivating his petty tenure, and divides with him its produce. This wretched method was and still is common, not indeed in the north or north-east of

Agriculture.

France, but in many of the poorer districts of the centre and south. There are, it is to be remarked, several distinctions in this system; the landholder, in some parts, providing only half the cattle and seed, and in others the whole. There is of course a corresponding difference in the apportionment of the produce.

Effects of the Revolution.

La Révolution a été faite pour le cultivateur is a common saying in France; indeed, that great convulsion improved so much the situation of the agriculturists, by cancelling, at one decisive blow, the tithes, the game-laws, the *corvée*, and other relics of feudal servitude, that, after all the horrors of Jacobinism, and all the tyranny of Bonaparte, the escape from former degradation still preserves an attachment to the Revolution among this pacific class. Further, the sale of the church lands transferred a valuable mass of property from indolent into active hands. But with this we must terminate our eulogy on the Revolution, the further progress made by agriculture having been caused less by any political change, than by the gradual effect of experience, and the diffusion of information. The degree of agricultural improvement in France since the Revolution has certainly been less than in England and Scotland, and in one very material point that memorable convulsion has tended to retard it; we mean by the law, suggested by a jealousy of the ascendency of the *noblesse*, which obliges the owner of property, whether in land or money, to make an almost equal division of it amongst his children. The parent of two children has the free disposal of only one third of his property, and the parent of three children of only one fourth, the residue being shared equally amongst all. The claim of primogeniture is thus in a manner annulled; and a law which is apparently wise and equitable, proves the source of great injury to agriculture, by multiplying the petty lots of land throughout a country where they were previously far too numerous.

Products.

We have already mentioned, in stating the average produce of the departments, the chief objects of culture in France. It remains to exhibit a table of the apportionment of the French territory at large to different species of culture.

		English Acres.
Arable grounds of all kinds, poor and fertile		56,000,000
Pasturage and meadow lands		17,000,000
Vines, nearly		5,000,000
Kitchen gardens		800,000
Miscellaneous culture		2,000,000
Plantations, viz. chestnut woods	1,000,000	
Orchards	900,000	
Hop-grounds, osieries, nurseries	200,000	
Olive grounds	106,000	
Pleasure grounds and gardens	40,000	
		2,246,000
Woods regularly cut for fuel	16,000,000	
Woods allowed to grow for timber	1,100,000	
		17,100,000
Heath and other lands of insignificant value		10,000,000
Land totally unproductive in an agricultural view, viz. rocks, summits of mountains, surface of roads, sites of towns, public walks, beds of rivers, and canals	17,000,000	
Ponds, small lakes, inland bays, marshes	1,000,000	
		18,000,000
		128,146,000

To this we add a shorter though not uninteresting table, viz. the comparative culture of France and England, as exhibited in proportions of 100.

	France.	England and Wales.
Land under tillage of every description, including vines	50	34
Land in grass, whether natural or sown	13	42
Land in forests, plantations, copses, hedges	15	4
Poor land, as heath, marshes, commons; also land totally unproductive, as rocks, mountains, summits, beds of rivers, roads	22	20
	100	100

This parallel, brief as it is, places in a striking light the very different state of agriculture in the two countries. The surprising proportion of land in France under tillage is owing to the smallness of the occupancies, the cheapness of labour, and the general use of bread instead of animal food by the lower orders. The last is connected with another remarkable circumstance; the very slender proportion of land under pasture, of which the main cause is the dry climate of the southern and central part of the kingdom. In the proportion of poor and unproductive land the two countries are nearly on a par, but the French incur a very heavy disadvantage by using wood instead of coal for fuel, and covering with forests many tracts which might be made available either to pasture or tillage.

Nett Return of Land in France, reckoned by the English Acre, and calculated from Official Surveys.

	s.	d.
Tillage (average of poor and fertile soils)	11	0
Vines	37	0
Meadow land	37	0
Natural pasturage, chiefly mountainous	3	6
Woods	7	6
Chestnut plantations	7	6
Orchards	15	0
Kitchen gardens	45	0
Various kinds of culture, viz. nurseries, hop-grounds, olive grounds, &c.	18	6
General average of all France, per English acre	9	1

We proceed to add a few remarks on French agriculture, with reference to articles less known or less generally raised in England. Buck wheat is cultivated extensively in Normandy and the north of France, partly as green food for cattle, partly for the diet of the peasantry; it is generally sown in June and reaped in the end of September. Rape-seed is very general in French Flanders and Normandy; it supplies oil for the market and food for cattle, either when green or in the cake. Colza (coleseed) is raised for the same purposes. Tobacco would be generally cultivated in France, but it is monopolized for the benefit of the state, and its cultivation is confined to certain licensed parts, which are chiefly in Alsace and Picardy. The quality of the article produced under the royal monopoly is greatly inferior to that produced by private cultivators abroad, whilst, the price being 400 per cent. higher, the latter is smuggled into France in great quantities, notwithstanding all attempts to prevent it. Flax is raised very generally, not merely in French Flanders, Alsace, and Normandy, but in the provinces of the west and south, where the family of almost every peasant rears a little stock annually to be spun by his wife and daughters. Hemp also is raised in many parts of France, particularly in the north. Maize is a plant of great importance, whether for the food of man or of cattle; when intended to stand for harvest, it is planted in rows with very little seed, and yields more than twice the quantity of wheat that would be produced on the same space.

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During its growth the leaves are stripped regularly for the food of cattle; and in some districts it is sown thick and mown merely for that purpose. Such valuable substitutes have as yet prevented turnips from being generally introduced into France. Even potatoes were long very little known, and it is only during the last half century that the dislike to this root has disappeared. Chestnuts are most common in the central part of France, where they supply no inconsiderable portion of the food of the peasantry. In the south the fruits are chiefly olives, almonds, mulberries, figs, and prunes; oranges are partially cultivated in the south-eastern extremity of the kingdom, on the verge of Italy, but with great uncertainty, for a severe winter is fatal to these trees, and in some measure also to the olives.

Irrigation is little understood in the north of France, but in the south the want of frequent rain renders it a primary object of attention; it in fact determines the *ratio* of productiveness, since the warmth of the sun seldom fails to ripen whatever, whether grass or corn, has received an adequate supply of moisture. It takes place in some parts by guiding the rills from the side of the hills and mountains; in others by digging wells or raising water by a wheel; and in the vicinity of rivers by diverting a portion of their stream.

The culture of the vine extends more or less over fully the half of France, beginning as far north as Champagne, and spreading over the country to the south and the west. This culture is, however, very limited in Champagne, and even in Burgundy; in Provence and the lower part of Languedoc the climate is warmer, and the culture general, though not managed with such skill as along the banks of the Garonne, where the spirit of improvement is excited by a demand for foreign markets. As vines succeed in light and unproductive soils, their culture gives a value to much ground which would otherwise be useless; and the petty subdivisions of land are here less injurious than in the case of corn. From the great variety of soil and climate, the quality of French wines is very various. The amount produced has been considerably increased since 1790, as well from the division of many large estates, as from the quantity of waste land which has been brought into culture. It is computed that nearly 5,000,000 acres of land are planted with vines, and that the value of the annual produce is from L.28,000,000 to L.30,000,000 sterling, of which about a tenth or twelfth part only is exported. A further quantity, equal to about a sixth of the above, is made into brandy, for brandy is distilled wherever vines are grown; and of it also the best in quality is in the vicinity of the Garonne. This important and staple branch of French industry has been very seriously injured by the prohibitory system of customhouse laws, which have been extended and increased in rigour since the restoration of the Bourbons, and to which many of the leading statesmen of France still evince a most mistaken partiality. France, by excluding the produce of other nations, virtually deprives, or greatly limits, by the same laws, the reception of her own produce into foreign countries. It is clear that they must pay for the wines of France with their own produce, which, if France refuse to receive, they have no other equivalent to give her in return; they must procure an equivalent from foreign countries, and the effect of this is to restrict the trade, by raising the price of French wines. Accordingly, it appears that whilst France exported to England from 16,000 to 20,000 tuns of wine when the population was only five millions, this supply had fallen off, partly owing to the heavy duties imposed in Britain, and partly to the prohibitory duties imposed in France on British produce, to 1800 tuns, whilst the population of the country had in the mean time greatly increased; a melancholy illustration of the effects of that illiberal policy which pretends to improve commerce by prohibiting the free intercourse of commercial countries.

The minuteness of the *Cadastral* survey has led to official calculations in France, of products which have not yet engaged the attention of other governments. Madder is cultivated on a small scale, partly in the north, partly in the south of France; its chief use is in dyeing woollens and cottons. Wood is used for yellow and green colours; saffron, cultivated formerly to a great extent, is now confined to one district (the Gatinois) in the south of France; hops are raised only in Picardy and French Flanders.

Subjoined are the values of the following articles produced annually in France:

Wine	L.30,000,000
Raw silk	600,000
Hemp	1,200,000
Flax	800,000
Madder	200,000
Wood for fuel, and timber of all kinds	5,600,000
Olive-oil, rape-seed, and cole-seed	2,800,000
Tobacco	300,000
Chestnuts	300,000
	L.41,800,000

Of the following articles, similar to the produce of our own soil, we subjoin not the value merely, but the quantity and average price:

	Quantity in Winchester Quarters.	Average Price.		Annual Produce.
		s.	*d.*	*L.*
Wheat	18,508,000	41	8	38,558,000
Rye and mixed corn (méteil)	10,886,000	27	10	15,150,000
Buck wheat	3,022,000	14	0	2,115,000
Barley	4,520,000	23	2	5,236,000
Peas and beans	646,000	41	8	1,346,000
Potatoes (56,928,000 boisseaux)	......	0	10½	2,491,000
Oats	11,524,000	20	10	12,000,000
Maize and Indian corn,	2,265,000	27	10	3,152,000
Wool, Merino, 2,000,000 lbs. at 1s. 8d. per lb; second quality, *métisse*, 8,000,000 lbs. at 1s. 3d; third, or common quality, 70,000,000 lbs. at 10d.	......	......		3,583,000
				83,631,000

Of the pasturage ground of France, occupying one eighth of its territory, the chief part is in Normandy, Bretagne, and other humid quarters of the north and west. In the south, the natural pasture is confined to particular districts, chiefly mountainous; in the low grounds, the grass, whether natural or sown, is brought forward only

Agriculture.

by means of irrigation. Clover and sainfoin are cultivated in France, but chiefly in the north and north-east; lucerne is much more general, being raised not merely in the north, but in the central and southern provinces, wherever irrigation is practicable and the soil and climate are favourable. The art of improving cattle by breeding is little understood in France, nor is there much judgment shown in gradually fattening them by a removal to richer pastures. Still the beef and mutton of the north and west are very good; their price varies from province to province, but very seldom from year to year; the general rate is 30 per cent. less than in England. Butter is made and used throughout the chief part of France, as in England, but cheese comparatively little. In the south, however, even butter is little known, and its place in cooking is supplied by olive oil, an unwelcome ingredient to a northern palate. One of the latest novelties in French pasturage is the introduction, in 1819, of a large flock of Cashmere goats, which were sent to browse in the Eastern Pyrenees, and are said to experience but little inconvenience from the change of climate.

Horses.

In the number of horses, as well as in their size and beauty, France is greatly inferior to this country. In the performance of labour, however, the inferiority is much less conspicuous; large, old-fashioned carriages, drawn by four or six horses, are seen proceeding along a paved road much more easily than we should anticipate from the weight of the vehicle, the knotted harness, and the diminutive size of the animals. The same observation is applicable to the ploughs, the carts, and the waggons of France, which are awkwardly built, but all dragged on with expedition, the strength of the horses surpassing the promise of their appearance; a strength, however, attended by a circumstance of no slight inconvenience, very few of these animals being gelded. A French mail-coach performs only five instead of seven or more miles an hour as with us; but this is owing less to inferiority in the horses, than to the state of the roads, and to the general want of dispatch at post-houses.

Of the aggregate of horses in France (about 1,500,000), more than half belong to the northern provinces, viz. Normandy, Bretagne, Picardy, Alsace, and the Isle of France. In the central and southern departments, a great proportion of the work is done by oxen, which are more suitable to petty farms and mountainous districts. The total of horned cattle in France in 1812 was reported officially as follows:

Bulls	214,000	Cows	3,910,000
Oxen	1,702,000	Heifers	856,000

Since this period, however, the number must have materially increased, as in 1816 a duty was laid on all foreign cattle imported; and, however impolitic this duty, as indeed it is known to have inflicted grievous injury on particular districts, still it must have tended to increase the breed at home.

Sheep.

Sheep are reared in almost every province of France, the gentle elevations of the north and the mountains of the south being alike favourable to them. The mutton is good; but in the art of improving the fleece, the French have as yet much to learn. Merinos were first brought from Spain in 1787, and formed into a royal flock at Rambouillet. The quality, originally good, has been progressively improved, and distributions of Merinos have been successively made to proprietors of sheep pastures in all parts of the kingdom. The consequence has been, that in many districts the weight of the fleece has been nearly doubled. Still, in the more backward parts of France, very little attention is paid to the care of sheep or to the improvement of the wool. The animals are not folded during night, but crowded into covered buildings (*bergeries*), and exposed, particularly in winter, to much injury from going suddenly into the air. To encourage the rearing of sheep, a duty of twenty per cent. was in 1822 laid on foreign wool.

Agric ture.

Mules are almost as little known in the north of France as in England; but in the central and southern parts they are very generally reared. Poultry, in France, is both larger in size and more abundant than in England.

Size of farms.

Even in the north and north-east of France, the farms are of small extent. To occupy 200 acres, or to pay a rent of L.200 a year, places one in the foremost rank of farmers. Larger possessions are common in pasture districts, that department of agriculture admitting, in France, as in England, of a greater concentration of capital and extension of business than in the case of tillage. But such districts are rare; and in by far the greater part of France the farms under tillage, if farms they can be called, are of fifty, forty, thirty, and often as small as twenty or even ten acres, there being, it is computed, no less than three millions of such petty occupancies in the kingdom. In the south of France the system of *métairie* is still prevalent, and nearly on the same footing as in Lombardy and Tuscany. That such insignificant occupancies are adverse to all enlarged ideas of farming, is sufficiently obvious; and to their many disadvantages there can only be opposed this single benefit, that no spot of tolerable soil is neglected, even the space given by us to hedges being reserved for culture.

The beneficial effect of long leases is as little understood in France as it still unfortunately is in a great part of England. The common method is to let land for periods of three, six, or nine years. The peasantry, though exceedingly illiterate, are by no means a slow or phlegmatic race. They exhibit, as Frenchmen in general do, no small share of sprightliness and activity in the individual, with very little concert or combination in the mass. They are content to hand down the family occupancy from father to son, without any idea of altering their mode of life. The dwellings of the farmers, and still more of the cottagers, are like those of our forefathers half a century ago; the outside having frequently a pool of water in its vicinity, whilst the inside is miserably bare of furniture. Their implements are equally rude, and discover but too clearly that the price of iron is beyond their reach, being greatly enhanced by the duty imposed on foreign iron, and the French iron masters having never been able to supply the market in any quantity with this useful article. Their harrows have wooden teeth; and even the ploughs, in some backward districts, are almost entirely of wood. The cart in common use is an awkward medium between a cart and a waggon, being as long as the latter, and not broader than the former. The singularity, to an Englishman, is to see a vehicle of great length and burden supported by a single pair of wheels. Corn and hay, in France, are not stocked, but housed. The winnowing machine is in a great measure, and the thrashing machine altogether, unknown. Thrashing often takes place in the open air, and is in general performed by the flail. In the south of France, the antiquated mode of treading out the corn by horses and mules is still prevalent.

The diet of the French peasantry is exceedingly simple. Bread and cider, with soup, pease, cabbage, or other vegetables, form its chief ingredients in the northern provinces; whilst, in the central and southern, the same aliments are in use, with the substitution of thin wine (*vin de pays*) for cider, and of chestnuts for the pears and apples of the north. Bread is, still more than with our peasantry, the grand component part of diet, and the article of which the price determines the comfort or distress of the lower orders for the year. Butcher-meat is reserved for the tables of the middle and upper classes.

Gener observ tions.

The landholders in France give almost no attention whatever to beautifying the country; its aspect is consequently monotonous, without plantations, seats, or cheerful cottages. The peasantry live in villages, frequently ill built and ill situated. The purchase of land, however, is the favourite mode of investing money in France. It sells, in general, for twenty-five years purchase; whilst the public funds seldom fetch above sixteen or eighteen. The French have little confidence in government stock, and, in fact, very little knowledge of its nature. There is at Paris a society similar to the Board of Agriculture in England, and forming, like it, a central point for corresponding with the different agricultural societies in the kingdom. It holds its sittings twice a month, and a public meeting annually, for the distribution of prizes. The French have also (since 1819) a corn law, permitting imports and exports only when the home market shall be above or below a specific rate. This law, somewhat similar to ours in form, is materially different in its operation, the limitation prices being very low, and the landed interest in France having no power to create an artificial enhancement. The Revolution, by breaking landed property into fragments, has destroyed the ascendency of its owners as a separate interest. The members of the French House of Commons are in general lawyers, merchants, or *propriétaires*, that is, owners of land and houses on a scale which we should account very small. Even in their House of Peers the country interest is of little account. The chief difficulty the French government have to contend with, in regard to the corn trade, is the popular prejudice that freedom of export raises the home price. The south of France, being in a great degree appropriated to the culture of the vine and olive, stands in need of an almost annual importation of corn. The north is very different; yet the smallness of the farms, the use of bread in every meal of the day, and the want of agricultural capital, are great drawbacks on exportation. In the present century, the only shipments of consequence have taken place in 1810 and 1814, both years of unusual abundance.

Of the 17,000,000 of acres which we have mentioned as covered with wood in France, the proportion belonging to government is about 3,700,000 acres. A very small part of this is allowed to grow for large timber. The rest is subject to an annual cutting and sale, for fuel; a purpose for which coal is very little used in France, excepting in the case of forges, glass-houses, and other large works. In the government forests gross mismanagement took place during the disorders of the Revolution. Extensive tracts were sold for an insignificant consideration, whilst in those that remained timber was felled with a lavish hand, and without any regard to the ultimate effect on these valuable properties. The case, however, was altered in 1801, when a special board, appointed for the care of the forests, introduced the most satisfactory regulations. In the years of financial pressure (1815, 1816, and 1817), it was proposed to effect sales of these great domains; but a fair price being unattainable, government continues to keep them, and derives from the wood annually cut and sold a revenue of from L.700,000 to L.800,000 sterling. Fuel being little wanted in the south of France, the forests are confined to remote and rugged situations. These, like most of the forests of the kingdom, harbour a multitude of wolves, which are frequently destructive to the sheep and lambs. Regular officers, called *Lieutenants de Louveterie*, are appointed for wooded districts; and on occasions of heavy loss, recourse is had to a general *battue*, of which the usual result is a partial destruction of these animals, without any sensible reduction of their numbers at large. Bears also are found in the forests; but they are much more rare, being confined to the elevated districts in the Alps and Pyrenees.

After these observations on the agriculture of France, it remains to compare its produce with that of our own country, and this inquiry naturally divides itself into two parts; the total, or, as it is termed, the gross amount produced; and the nett income afforded, after all deductions for expense of culture. First, as to the gross produce, Dr Colquhoun estimates the property created in Great Britain and Ireland in the year 1812, by agriculture in all its branches, at nearly..........L.217,000,000

Add for seed corn, not included in this estimate; also for the increase of our population, and corresponding increase of our produce from 1812 to 1820..........	33,000,000
	L.250,000,000
Deduct for decrease in prices by the change from war to peace, 25 per cent..........	62,500,000
Remains,	L.187,500,000
The amount of property annually created by agriculture in France is computed, by M. Chaptal, at	L.190,000,000
This calculation was made in peace, and at prices (see the preceding corn table) so low that, to bring them to an equality with our own, even in peace, we must make an addition of..........	80,000,000
Together,	L.270,000,000

Those readers who imagine that the addition for the difference in the value of money is too large, have merely to refer to the quantities of produce in the preceding corn table, or to the surer test afforded by the relative population of the two countries. Supposing that our population is now increased to nineteen millions, that of France still exceeds it by fully ten millions, a number which, were the consumption of the individual the same, would imply, on the part of France, an annual production of the value of above L.280,000,000. If to this a small addition be made for the French produce exported, our estimate will be found to make the requisite allowance for the plainer fare of Frenchmen; and a small allowance will be deemed sufficient, when we take into account the very cheap diet of the Irish part of our population. But the point to be explained is, not how France produces so much, but how she does not produce more. Britain and Ireland are to her, in territorial extent, in the proportion of sixty-one to a hundred; but in produce they are as sixty-nine to a hundred. But as the soil of France, if not superior, on an average, to that of England and Ireland, is greatly superior to that of Scotland or Wales, to what are we to look for the inferiority of her produce? There are, we apprehend, two main causes; first, the waste of large tracts in wood; and, secondly, the inadequacy of manual labour, largely as it is afforded by her dense agricultural population, to counterbalance the productive powers of the capital and machinery applied by us to agriculture.

We come next to the question of the clear income arising from land, the amount of which is seldom above a fourth part of the gross produce, since it implies a number of very heavy deductions, viz. the support of the farmers, their families, their servants, their cattle; the mortality and depreciation of live stock; wages, and wear of tools and implements; in short, every description of charge that intervenes between preparing the ground for culture, and realizing its produce in money. In regard to France, we are enabled to proceed in such computations with considerable accuracy, in consequence of several late estimates made by order of government, of which the highest, and we believe the most accurate, made in 1815, gives, for the clear return of the land, about..........L.52,000,000

To which adding, to bring the low prices in the valuation to a par with our own..........	23,000,000
Total,	L.75,000,000

a sum, including not merely rent, but rent and farmer's profit together. In England, our best authority for this purpose is the return made under the property-tax act, in 1810, a time when our paper currency was but slightly depreciated.

This return gave, for England and Wales, as rent solely, about	L.29,000,000
Add for Scotland and Ireland, a computed amount of	11,000,000
	L.40,000,000
Deduct for decrease of rent, increase of poor-rate, and other burdens since 1810, 25 per cent	10,000,000
Leaving, after payment of tithe and poor-rate,	L.30,000,000
The collective income of the farmers of England and Wales, in 1810, was, like the rent, about L.29,000,000, to which making a similar addition for Scotland and Ireland, and a similar deduction for the fall of prices and increase of burdens, the result is a further sum of	30,000,000
In all	L.60,000,000

In these returns of nett income the balance is considerably more in our favour than in those of gross produce. In the one, Britain and Ireland are to France as sixty-nine to a hundred, in the other as eighty to a hundred. To what is this extraordinary disadvantage upon the side of France to be attributed? We answer, to the employing of manual labour instead of machinery, and to the very great addition thus caused to the number of persons to be supported out of the produce of the land before realizing its proceeds. In England and Scotland the agriculturists are not to the population at large as forty to a hundred; and, after making a large addition for Ireland, which, in its petty occupancies, bears no slight resemblance to France, the result does not give, for our whole population, forty-four persons in a hundred dependent for support on agriculture. But in France this proportion exceeds sixty in a hundred; and there are thus to be supported out of agricultural produce above 5,000,000 persons more than there would be were the proportion of agriculturists as in Britain and Ireland.

	s.	*d.*
The average income of the whole kingdom, per English acre, is, we have already said	9	1
But as this includes the rent of houses in towns, there is to be deducted, on that account, a sixth, or	1	6
Leaving	7	7
To which adding one half for the very low prices in the French estimate	3	9
The result is	11	4

per acre, valuing the produce according to the currency of English markets.

This comprehends both landlord's rent and farmer's profit. There are at present no satisfactory means of computing either separately; but if we suppose them equal, the rental of France is only	L.26,000,000
From which, by a single tax, the *contribution foncière*, a deduction is made of above	5,000,000
Leaving	L.21,000,000
equal in England, after making allowance for the difference of money, to	30,000,000

In other words, the rental of Britain and Ireland, after allowing for the difference of money, and after deducting tithe, poor-rate, and taxes of every kind, is equal to that of all France; a proof, if any were wanting, how much more our landholders are favoured by the legislature than those of the same class on the south side of the Channel.

V. MINES AND QUARRIES.

Far from equalling her northern neighbour and rival Great Britain in metallic wealth, France yields in this essential article of produce to Germany, to Russia, to Sweden, and to Hungary. According to the most approved works recently published, the mines of France may be classed into five groups, namely, the mines of the Vosges and the Black Forest; those of the central provinces of France; those of Bretagne; those of the Pyrenees; and those of the Alps. It is not many years since the mines of the Vosges yielded above 30,000 cwt. of lead, and a small quantity of silver, besides copper mixed with silver. The produce did not, it is probable, repay the expense, as they have since been abandoned. In the central part of France there are numerous mines of lead, but they are not productive. They are chiefly situated in the department of La Lozère; and they yield annually, along with the lead, 1600 marcs of silver. The mines in Bretagne are of some consequence, as they employed in 1828 about 900 workmen, and produced, along with about 1,200,000 cwt. of lead, 2000 marcs or 16,000 ounces of silver. In the chain of the Pyrenees there is only one mine of copper, which has long since been abandoned. There are, however, numerous iron mines, which furnish materials for more than 100 forges. The chain of the Alps contains many mines of iron, but is not rich in other metals, possessing some unproductive mines of lead, and one of silver, which has long been abandoned. There are some appearances of gold in the department of the Isère; but not such as to encourage any trial of their value. If there are few other mines, those of iron are in great abundance, being scattered throughout the country; and of these the produce is every day improving. The whole value of the metallic produce of France was estimated in 1828 to be equal to L.3,199,595. The number of mines is estimated at 500, and the number of workmen employed at 18,000. The working of mines is impeded in France by the want of good roads and canals, on which to convey the ore and the coal for smelting it. The production of iron has been encouraged by heavy duties on foreign iron. In 1814 a duty was imposed of fifteen francs per fifty kilogrammes, or 12s. 6d. per 110 lbs. imperial, on all foreign iron imported, which was in 1822, including the decime or the tenth added to all duties, raised to L.1. 2s. 11d. on all coal-worked foreign iron. But this prohibition did not bring prosperity to the trade, though by these duties the price of iron in France was L.23. 9s. 2d. per ton, whilst English iron was sold at L.9. 6s. 8d. It is estimated that these heavy duties on foreign iron cost the agriculturists of France, in the additional expense of ploughs and other implements of agriculture, a sum varying from L.1,500,000 to L.2,000,000 a year.[1] Estimating the annual consumption of iron in France to be 160,000 tons, and the difference of price between French and English iron to be L.10 per ton, the law of 1814, which imposed a duty on foreign iron, and the law of 1822, which increased that duty, cannot have cost the French people less than L.30,000,000 sterling of direct loss; whilst it is scarcely possible to calculate the indirect evil of this monopoly or protecting duty in favour of the iron masters. One reason of the high price of French iron is the want of coal, an evil which is aggravated by the heavy duty on foreign coal, in consequence of which they are compelled to employ wood in their forges; and it

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[1] See *First Report on the Commercial Relations between France and Great Britain*, p. 28.

Mines and Quarries.

is calculated that one fourth part of the wood cut down in the forests is consumed in the manufacture of iron. Coal has been discovered in more than half the departments of the kingdom, and would doubtless be traced in others; but the want of water communication limits the consumption of this article almost to the place where it is produced. At St Etienne, near Lyons, are excellent coal mines; but there being no iron mines in the vicinity, nor of course iron works, there is no consumption of fuel on a large scale. The coal is only used for domestic fuel, and for the manufacture of hardware. M. Costaz, in an estimate contained in his work on the agriculture and commerce of France, makes the coal produced in France to amount to 15,310,687 metrical quintals or cwts., equal to 765,000 tons;[1] the value of which he estimated at between L.700,000 and L.800,000. The quantity of coal imported from Britain amounted in 1831 to 40,000 tons, though subject to a heavy duty of one franc sixty-five cents per hundred kilogrammes, or 1s. 4½d. per 220 lbs. imperial; and there were imported from Belgium, the duty being thirty-three cents per hundred kilogrammes, 440,000 tons.[2] The heavy duty on coal operates most injuriously on the industry of France. It is a most serious impediment to the working of the iron mines, for the encouragement of which such heavy duties are imposed on foreign iron. But such is always the effect of the prohibitory system. It pulls down with one hand what it builds up with another. The iron masters and the coal owners have each a monopoly of the home market. But is it not clear that these two monopolies run counter to each other, and that the iron trade is encouraged by the one, whilst it is most seriously discouraged by the other, and the whole inhabitants of France are taxed in a much higher price for fuel by the heavy duty laid on the importation of this useful article? Steam-boat navigation is also discouraged, so that no steam-boats regularly ply between any of the Atlantic ports of France. A steam-boat which in England could be navigable at an expense for coal of L.2280, would cost in France L.5700, about eighteen per cent. on the capital employed. It is the owners of forest property who are the most zealous supporters of this duty, an impost which benefits them at the expense of the whole of France, and indirectly depresses the national commerce and industry in its most important branches. Only a small portion of Paris is lighted with gas, which is ascribed to the high price of iron pipes; and the supply of water is also impeded by the same cause. The mines, like other large undertakings in France, are under the direction of government, being superintended by a board at Paris (*Conseil Général*), and having an *Ecole Royale* with public teachers, the whole under the control of the minister of the home department. This, however, does not prevent their machinery being in general very clumsy and antiquated.

Turf fit for fuel, or peat, as in Ireland, is found in various parts of France, and is likely to be used, as wood becomes progressively scarcer. This article is produced in the departments of Gard, Isère, and the Lower Rhine.

Salt is made in various parts of the kingdom. The works corresponding to the salt mines, or rather to the brine springs, of Cheshire, are called, from their position, *Salines de l'Est*, and are situated at the small town of Salins in Franche Comté; they are wrought by undertakers on lease, yield about 20,000 tons a year, and afford a considerable revenue to government. The heat of the climate on the south and south-west coast of France is favourable to the evaporation of salt water, and consequently to the formation of bay-salt, the name given to salt made, not by the action of fire, but by the heat of the sun, operating on sea water enclosed in a shallow bay (in French *étang*), so as to produce a saline deposit. The duty raised from salt in France is in all nearly L.2,000,000, a sum of great importance to the Treasury, but attended with fully as much injury to the productive powers of France as was formerly our salt tax to those of England. The Revolution began by abolishing entirely the odious *gabelle*, and salt being soon afterwards made in great quantities, and sold very cheap, became the object of a most extensive consumption, being given to cattle as food, mixed with manure on the fields, or scattered as a stimulant to vegetation at the foot of olive trees. But this extended use of salt was of short duration. No sooner was the power of Bonaparte consolidated, than he ventured to impose a tax on salt, less impolitic and oppressive, indeed, than the *gabelle*, but which had the effect of limiting the use of this article to such a degree, that the value of bay-salt consumed, instead of amounting to L.1,000,000 sterling, does not at present exceed L.100,000. The consumption is confined to domestic purposes, and to a trifling export; yet the few cattle which still receive salt as a part of their food are visibly in better condition than those which are deprived of it.

Quarries.

France is in general much better supplied with quarries than England. The vicinity of Paris abounds in quarries of freestone. The case is similar in the mountainous districts, and even in several, such as Lower Normandy, that are comparatively level. The houses are consequently built of stone in those cities which, like Paris or Caen, are in the vicinity of quarries. In other situations they exhibit a mixture of stone and brick. Slates being comparatively rare, the roofs of the houses are generally of tile, and the annual value of this rude species of productive labour, the manufacture of bricks and tiles, may be computed at nearly L.1,000,000 sterling. There are marble quarries in several of the mountainous districts, but not situated so as to admit of export.

VI. MANUFACTURES.

Our historical notices of French manufactures are very imperfect until towards the year 1600, when the wars of religion were brought to a close, and peaceful industry received encouragement from Henry IV. and his minister Sully. It was then that the patronage of government was extended to the manufacture of silk, of glass, of jewellery, of gold and silver tissues; also of the finer woollens and linens, the coarser kinds having been established many centuries before. But the great extension of the finer manufactures of France took place after 1668, during the reign of Louis XIV. and the ministry of Colbert. It was then that workmen were invited from Holland, and induced to settle at Sedan and Abbeville, places still celebrated for their woollens. In the south of France also, establishments were formed for making the light cloth suited to the Turkey market, so that, towards the year 1700, the manufactures of France, as well for woollens as other articles, had made considerable progress; we mean that they had arrived at the state to be expected from a people of great activity, but of little combination. The manual labour of the workmen was ingenious; the machinery extremely imperfect; the linen, the paper, and in some measure the woollens and hardware, found their way abroad, because in the rest of Europe these manufactures were very backward, and, in particular, because the exports of England were then very limited. The repeal of the edict of Nantes was a very impolitic measure,

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[1] *Histoire de l'Administration en France de l'Agriculture, et des Arts utiles*, &c. Par Cl. Anthelm Costaz, tome ii. p. 14.

[2] *First Report on the Commercial Relations between France and Great Britain*, p. 23.

Manufactures.

but its consequences have been much overrated, for England has profited very little by the extension of her silk fabrics; and Brandenburg, the chief resort of the French emigrants, has never become an exporting manufacturing country.

Another and a more important error is the current notion that French manufactures were formerly (from 1650 to 1750) more extensive and flourishing than at present, also that they underwent an almost total extinction during the Revolution. These, like many other impressions in regard to France, rest merely on the loose allegations common in that country, where current report almost always partakes of the marvellous. Official *data*, wherever they are preserved, far from sanctioning such fluctuations, are decidedly in favour of a progressive though slow increase.

Woollen manufacture.

To begin with the oldest and most widely diffused branch, woollens,[1] we find that the relative numbers of workmen, at three distinct intervals, and in very different parts of the country, were as follows, viz.

	1789.	1800.	1812.
Eastern Pyrenees, Carcassonne	...	8,000	9,000
Ditto, Limoux	4,400	4,500	6,200
In Languedoc, St Afrique, and Rhodez	6,700	8,500	10,000
Ditto, Castres, Albi, and Mazamet	10,400	13,600	18,300
North of France, Vire	3,000	3,800	4,800

Lizieux also in the north had nearly the same number of workmen (5000) throughout.

The finest qualities of woollens are made at Sedan in Champagne, and at Louviers in Normandy. In these the only material is merino wool. At Elbœuf and Darnetal, both likewise in Normandy, the qualities are very various, the prices being from 6s. to 28s. the English yard. Carcassonne and Limoux owed the origin of their extensive manufactures to the abundant supply of wool from the pastures in the Pyrenees. Since the reduction of their exports to the Levant, an alteration in the quality of their cloths has opened to them a vent in the interior of France. The mountainous districts in Languedoc contain great numbers of sheep, and are the seat of the manufacture of serges, tricots, and other coarse woollens, most of which are made, not by workmen collected in a factory, but on the domestic plan still followed in part of Yorkshire, and in the north-west. In the hamlets or villages of the departments of the Tarn and Aveyron, almost every house has its loom, and during the evenings in winter, or in the daytime when the weather is adverse to country labour, the women employ themselves in spinning, and the men in weaving.

A highly finished species of the woollen manufacture, viz. shawls, veils, ladies' cloth, &c. has been introduced in the present age into France. Rheims is the seat of this important branch, and employs, in the town and neighbourhood, no less than 20,000 workmen. Similar articles are made at Paris.

Shawls became fashionable in France as an indispensable article of female apparel after the expedition of Bonaparte to Egypt. Many of the officers who were attached to the army brought back numerous presents of shawls, so those who did not display a Cashmere shawl were judged to belong to the humbler classes of society; and shawls were imported in great quantities from Constantinople, Moscow, Vienna, and London. These shawls, however, brought an enormous price when imported into France, which necessarily limited their consumption to the richer classes. The great demand now turned the attention of manufacturers to this important manufacture, and ordinary shawls are now made of merino and other wools. But this was only a step in the progress of the manufacture; and a finer species of wool having been imported from the countries to the north of the Caspian Sea, the ingenious manufacturers with these materials at last produced shawls which rivalled in beauty those of the East, and in which it required the most practised and skilful eye to discern any difference. In 1819 and 1823 medals were given to several individuals for having brought this branch of industry to such perfection.

Two towns very remote from each other, Lodève in the south, and Vire in the north-west of France, manufactured, under Bonaparte, very largely for the army. French woollens are, in general, much thicker than ours. In the fine qualities the raw material forms (Chaptal, vol. ii. p. 131) somewhat more than half the cost. In ordinary qualities it is somewhat less; but it is only in the slight qualities that the price of labour goes considerably beyond that of the materials. The computation for the whole country is, that a value of L.4,000,000 sterling in wool becomes converted into a manufactured value of L.9,000,000, of which a tenth only is exported; for, though French woollens in general are more substantial and durable than English, the inability of their merchants to give long credit prevents their competing with us in the United States, or other foreign markets. The cloth in France which corresponds to our superfine, and which is worn in general by the upper ranks, is very fine and durable, but heavy. In price it varies from 22s. to 35s. the English yard. It is remarkable, that notwithstanding an import duty of 33 per cent. imposed in 1822 on foreign wool, the importation of British wool into France has been increasing for the last ten years. In 1824 the quantity imported amounted to 4187 lbs., whilst in the last four years from the year 1834 the average importation has amounted to 1,000,000 lbs. This duty on foreign wool has, however, been very injurious to the French woollen manufacturers; because, by compelling them to pay a high price for the raw material, it prevented them from manufacturing woollen cloth as cheaply as their English competitors, to whom the foreign market, where the raw material had now fallen to a low price, was open. One third of this duty has been since reduced.

Cotton.

The cotton manufacture was introduced into France about 1770, and at first in the south of the kingdom; the raw material being supplied, not from America, but from the Levant. From the south, this manufacture passed, about the year 1780, to Rouen, St Quentin, Paris, Lisle, and other parts in the north, extending with a rapidity surpassed only by that of England. At present, and for many years past, the great import of cotton is from the United States. In this great department of manufacture the French have only followed in the footsteps of Great Britain, whose machinery, after the lapse of a certain time, the French manufacturers have imitated; and though they have equalled the British manufacture in durability, they have generally been inferior in elegance or cheapness. The last is, in a great measure, owing to the centre of the manufacture being at Rouen and Paris, places where the support of workmen, including the extra price of fuel, is not less expensive than in Lancashire. The districts at present most remarkable for the cotton manufacture are,

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[1] Costaz, *Sur l'Agriculture et les Manufactures de la France*, p. 108.

	Looms in 1812.	Workmen in 1812.
Normandy, Rouen, and adjacent towns	10,800	40,000
Lyons and Tarrare	8,000	23,000
French Flanders, Lisle, Cambray	10,100	20,000
Paris and its districts	...	7,000
Picardy, St Quentin, and adjacent towns	10,700	14,600
——— Abbeville, Amiens, and their vicinity	5,600	14,000
Champagne, Troyes, and adjacent towns	7,000	13,700
Alsace, Mulhausen, Bischweiler, &c.	...	19,000

Cotton yarn is often made in a different place from cotton cloth. Paris and French Flanders are the chief quarters for the supply of the former article, which is sent in quantities to Rouen, St Quentin, and other places. In former years, cotton yarn used to be smuggled in great quantities from England; but this is now limited to the finer qualities. The cotton manufacturers of the more substantial kind, called *bonneterie*, such as stockings and caps, are carried on in Champagne, in Normandy, and in the department of the Gard in Languedoc. The total number of the workmen, young and old, employed on cotton in France, appears to be about

The total number of the workmen, young and old, employed on cotton in France, appears to be about	200,000
The number of works for spinning cotton yarn is nearly	300
Looms for making *bonneterie* (in 1812), above	10,000
Looms for weaving cotton cloth	70,000

From the following accounts of the raw material of cotton imported into France, it appears that this manufacture is gradually extending.

Cotton Imported into France.

	Lbs.		Lbs.
1822	47,459,306	1827	65,305,647
1823	44,777,814	1828	60,225,358
1824	61,666,187	1829	70,045,802
1825	54,268,086	1830	64,372,952
1826	72,411,886	1831	60,815,917

The average annual value of the importation of cotton for the last five years is calculated by M. Costaz[1] at about L.3,700,000. The quantity of cotton imported into Great Britain amounted, for the year 1831, to 288,674,000 pounds, and the value, calculated at 7d. a pound, to L.34,000,000; from which it will be seen to how much greater an extent this manufacture is carried on in Britain than in France. The cotton manufacture is, however, prosecuted in many parts of France, and presents a great variety of fabrics and an extensive division of labour. In one place the weaving alone is followed; in other places the manufacture of threads, which are sold to those who weave them into cloth. Such is the case in the department of the North, which exports a great quantity of thread to the cloth manufacturers. In other places they bleach the linens, which are afterwards dressed and stamped. The workmen employed in the cotton manufacture are estimated to amount to 260,000.[2] Still, however, France is decidedly inferior to Britain in almost every branch of the cotton manufacture; and the consequence is, that as the importation of English cotton goods is prohibited, they are smuggled into the country in great quantities. Among these, the introduction of cotton twist is most extensive; and as the French mills cannot manufacture the higher numbers, from 170 to 200, which are required in the fabrication of bobbinet, it has been found impossible to repress the contraband importation of this article. "It makes its way," say the writers of the Report on the Commercial Relations between Great Britain and France, "both by land and sea, in spite of all interdictions, and to a continually increasing amount."[3] The English can be sold also at half the price of the French article, which presents an additional inducement to the smuggler. The annual value of the manufactures thus illicitly introduced is estimated at L.500,000 sterling. English bobbinet is also smuggled into France to the estimated annual value of L.625,000 sterling, which sells at from seven to eight per cent. above the price of French goods of the same nominal quality. Quiltings, cambrics, and muslins are also largely introduced by the illicit traders; and the delivery of these goods is ensured at a premium of from eighteen to fifty per cent., according as the risk is greater or less in the case of heavy or of light goods.

Linen.

In the extent of her linen manufacture France is greatly superior to England; not that her soil is better adapted to the growth of hemp and flax, but because England depends on importations of linen from Ireland and Germany, and the spinning of flax does not form the occupation of our female peasantry. In France, particularly in the north, every farmer, and almost every cottager, covers a little spot with hemp or flax sufficient to employ his wife and daughters in spinning throughout the year; a stock of linen being the usual dowry of these humble occupants of the soil. The manufacture of this article is not exclusively concentrated in the towns, like that of the other fabrics. Many of the weavers reside in villages, and even in hamlets; and the hemp and the flax are spun by the hand. This is a most valuable branch of domestic industry, which gives employment to females under the roof of their parents. But it is destined, in the progress of capital and industry, to be superseded by machinery and great establishments, in which the poor of both sexes are collected together under one roof, to the utter ruin of morality. In Normandy, Lisieux, Dieppe, the neighbourhood of Havre, Yvetst, Bolbec, and the more inland towns of Vimoirtiers and Domfront, are all remarkable for one or more branches of the linen manufacture. The more backward province of Bretagne manufactures, at Rennes, St Malo, and Vitré, quantities of coarse linen, canvass, and sacking; but Anjou affords a much superior article; the *toiles de Laval* have long been in repute, and give employment, in Laval and the contiguous towns, to nearly 25,000 workmen. Lisle and its populous district have very extensive manufactures of hemp and flax; for the number of workmen so employed, directly or indirectly, in this part of French Flanders, is not short of 50,000. Since 1790, fine linen has, in France as in England, been in a great measure replaced by fine cotton; and the two together employ, at St Quentin (in Picardy) and the neighbourhood, no less than 40,000 workmen. In a very different part of the kingdom, the province of Dauphiné, there are carried on linen manufactures of various qualities, the prices being from 1s. 6d. to 5s. a yard.

Cambrics, thread, gauze, and lawn, rank among the leading manufactures of the north-east part of France. They are made at St Quentin, Valenciennes, Cambray, and in a smaller degree at Douai, Chauney, and Guise. Lace is still more general, being made in quantities at Valenciennes, Dieppe, Alençon, Caen, Bayeux, and Argentan. Machinery had up to 1820 been very little applied to this manufacture in France, and the number of women employed by it was very great. There are considerable manufactures of printed linens, and the dyeing of linen thread gives rise to an extensive commerce. At Rouen, and in the surrounding districts, this branch of industry is carried on; and many

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[1] Costaz, *L'Agriculture, et les Arts utiles*, tome ii. p. 394, 395.

[2] *L'Agriculture, et les Arts utiles*, &c., tome ii. p. 504.

[3] See First Report of George Villiers and John Bowring on the Commercial Relations between Great Britain and France. Presented to Parliament 1834.

Manufactures. stuffs of great variety, and for which there is a brisk demand, are produced. In 1822 the duties on foreign thread and linen were raised by the French government till they were nearly prohibitory; and the annual importation from Germany and Belgium, which formerly amounted to a million and a half, fell almost entirely away. The price of home-made linen rose twenty-five and thirty per cent.; the consumers had recourse to cotton as a substitute; the French dyeing trade fell off, and also the entrepôt trade in foreign linens, both of them sources of great business.

The value of the hemp annually grown in France may be computed, as a raw material, at L.1,200,000, the quantity imported at L.200,000, together, L.1,400,000; a value which is doubled in the coarse, and tripled in the finer manufactures. Of this quantity of hemp, the half is made into canvass and thread, a third into cordage, and the remainder into cloth for domestic use. Of the flax annually employed, the value, as a raw material, is about L.800,000; a sum which is tripled when made up into thread, linen, and mixed stuffs, and much more than tripled in the finer qualities.

Upon the whole, the value of the finished fabric from hemp is supposed (Chaptal, vol. ii. p. 142) to be about	L.4,500,000
That from flax, including lace	3,000,000
Add for the domestic manufacture of the peasantry	2,500,000
Total value made in France, from the stoutest sail-cloth to the finest lace	L.10,000,000

French linen differs in quality according to the place of manufacture; but in general it is thicker and stiffer than Irish linen, whilst in whiteness it is inferior to the linen of Flanders and Holland. It is, however, a substantial and durable article.

Paper. This useful article is manufactured in great perfection in France, and has been much improved since the era of the Revolution, at which time the art had remained in much the same state as it was when it was first invented. Subsequent to this period it has been improved in every stage; and its annual produce is valued at above a million sterling. Various attempts have been made to reduce the price of paper, by extracting the ink from paper which has been printed or written upon, and converting it into the raw material for a new manufacture. But it does not appear that any of these processes have been brought to perfection.

Hardware. France has 330 blast-furnaces, the position of which is regulated by that of the iron mines. They are chiefly in the mountainous departments of the Dordogne in the south-west, and of the Haute Marne, the Haute Saône, and the Côte d'Or, in the east of the kingdom. Of forges for malleable iron, called *forges à la Catalane*, there are eighty-six scattered throughout different departments, but chiefly in the hilly part of Languedoc. There are also a number of wire-works in France, in which, as in the blast-furnaces, there has been since 1790 a progressive but very slow increase, altogether different from the rapid advance of the iron-works of England previously to 1815. The stationary character of these works has evidently been owing to the deficiency of fuel and of water communication; disadvantages which prevent the hardware manufactures from being concentrated in cities or populous districts, and cause them to be spread over the country in petty towns or villages, with a very limited division of labour, and a consequent inferiority of execution. The result is, that France does not export hardware, and that in nothing is the inferiority of domestic accommodation in that country more conspicuous than in articles which belong to the province of the locksmith and cutler. The amount of pig-iron annually made in France appears (Chaptal, vol. ii. p. 154) to be about 100,000 tons. The value of the hardware of the kingdom, including cutlery, arms, and other articles of nice workmanship, is computed at L.8,000,000 or L.9,000,000 sterling. Fine cutlery is, however, largely smuggled into France. The annual import of iron and steel is only from L.2,000,000 to L.3,000,000, having greatly declined in consequence of the heavy import duty on it. The high price of iron is a great obstruction to the progress of the hardware manufactures; and this circumstance places in a strong light the impolicy of the heavy duties on foreign iron, by which all those important branches of industry in which iron is used are stunted in their growth. In copper, the importations greatly exceed the home produce. From Great Britain the quantity imported for the last ten years has increased from 200 to 20,000 hundredweight. Of lead, also, the chief part is imported. The manufacture of steel has only been lately introduced into France. Prior to 1786 there was no manufactory of this useful article; and it was only after accounts had been published by scientific persons, of the composition of that article, and after repeated experiments, that in 1809 manufactories of steel were established, which have been since extended to several departments, especially to those of the Loire.

Steam-engines. The invention of these wonderful machines has been introduced into France from Britain, where they are now employed in every department of industry. It was in the year 1779, at the village of Chaillot, near Paris, that the first steam-engine was established in France; but, owing to prejudices, to attachment to old customs, it was long before it came into very general use. These prejudices, however, gradually faded away before the productive powers and manifest utility of this extraordinary application of science to the business of life, and there are now many establishments for the manufacture of these machines. A premium has also been offered for the invention of any expedient by which the danger of explosion may be prevented, or by which any saving can be effected in the consumption of fuel. The scarcity of coal is a great obstruction to the extensive use of steam-engines; and the tax on foreign coal is in this view peculiarly impolitic, and injurious to the general interests of the community.

Silk. In this department France possesses, both from physical causes and from long-established manufacture, a decided superiority. Mulberry trees were introduced in the fifteenth century, and were first planted, not in the south, but in the central part of the kingdom, near Tours. That town was the seat of the earliest silk manufactures, and it was not till 1600 that the culture of the mulberry was carried southward. It is now prosecuted in twelve departments, which, in 1812, produced as follows (Chaptal, vol. i. p. 181):

	Silk in Cocoons. Lbs.		Silk in Cocoons. Lbs.
Indre et Loire	35,500	Brought over	6,175,800
Allier	6,300	Vaucluse	2,200,000
Ain	12,500	Gard	1,710,000
Loire	35,500	Hérault	486,000
Isère	1,847,000	Mouths of the Rhone	873,000
Ardeche	2,737,000	Var	210,000
Drome	1,502,000		
	6,175,800		11,654,800

The importation of raw and thrown silk into Great Britain amounted, in 1832, to 4,224,897 lbs.

The mulberry thrives in a variety of soils, and may be planted with success in neglected borders or in waste lands. The labours of the silk-worm last only six weeks, after which the cocoons are in a state to be purchased for winding or carding. These processes reduce the quantity so much that the produce of an average year does not exceed 560,000 lbs. *soie grèze*, worth 20s. or 21s. the lb.; and 322,000 lbs. organized silk at 25s.

Ma fac-tu s.

To this is to be added an equal quantity of foreign silk, imported chiefly from Italy. The cost of manufacture nearly doubles the value of the raw material in the plainer qualities, and in the highly finished, such as fine ribbons, may be said to triple it.

State of the Silk Manufacture in 1812.

	Looms.	Workmen.
Tours	320	960
Gange in Languedoc (stocking looms)	922	1000
Avignon	1600	5000
Nismes	4900	13,700
St Chammond and St Etienne, to the west of Lyons; ribbons chiefly	8200	15,450
Lyons	10,700	15,500

The manufacture of silk is considered as an important branch of French industry, not only on account of the variety and beauty of the fabrics, but because the raw material is an indigenous product of the country. It is estimated[1] that the amount of the annual sales to foreigners is thirty millions of francs, or L.1,250,000; that the home consumption of the kingdom amounts to L.3,333,334; and that the whole annual value of the silk manufacture is equal to L.4,598,889. The export of silk manufactures from Britain amounted, in 1832, to L.529,990. The manufacture of silk is not confined to any particular spot. It is carried on in different parts of the country, in all of which it diffuses prosperity. It has enriched the poor of Nismes, of Avignon, and of Tours; St Chamond, St Etienne, owe a great part of their prosperity to the manufacture of ribbons, and the town of Ganges to bonneterie; Paris derives immense profits from her manufactures of silk stockings, and other fabrics, either of silk or with a mixture of silk, or of wool and cotton. Silk is also the great staple manufacture of Lyons, in which it is carried on in all its branches with prodigious success; and since the Revolution, in addition to fabrics of silk, all sorts of stuffs mixed with silk, and with cotton and wool, have been manufactured; and to these manufactures Lyons is indebted for its riches, having risen not only to be the second town of France, but to be one of the most opulent and flourishing cities in the world. It is estimated that about 60,000 or 70,000 individuals, young and old, are supported by the silk manufacture in Lyons and the adjacent district. The dyeing of silk being an important branch of the manufacture, many experiments were made to bring it to perfection; and, in particular, a dye of perfect black, that would retain its colour, was a desideratum. This dye was invented by a common dyer at Lyons, who received a pension, besides being made a member of the legion of honour. Prior to this, the black dye which was used changed in a few days to a brown, and came off the stuff when it was hard pressed by the hand. Another improvement which was made consisted in procuring a silk of a permanent white colour. The eggs of the worm which produced this silk were brought from China, not, however, with the desired success. The worm was afterwards purchased from a merchant of Alais, and being distributed in the northern departments of the country, the produce of white silk is now very considerable, and is of great importance in the manufacture of gauzes, crapes, and tulles. Other inventions were devised for saving labour in the various stages of the silk manufacture, by which, in this branch of industry, France was long enabled to outstrip all her neighbours, though of late years the silk manufacture has made rapid advances in Great Britain.

Leat r.

Articles of leather are in France cheaper by a third than in England. The value of leather annually prepared for sale in France is (Chaptal, vol. ii. p. 187) nearly L.3,000,000 sterling; when made up into articles, as boots, shoes, saddles, harness, its value is nearly double. Great improvements have been made in the art of tanning, in consequence of the progress of chemical science.

Manufactures.

Jewellery, porcelain, &c.

Jewellery, as well as watch and clock making, are carried to a considerable extent in France, particularly at Paris; a time-piece is there a much more frequent article of ornamental furniture than in England, and the number of new watches made annually in the kingdom is not less than 300,000; altogether, the value of these different kinds of workmanship amounts to L.1,500,000, of which more than the half is made in the capital. The works in bronze belong still more particularly to the capital, and form in their different branches and stages, of which gilding is the chief, a further annual value of L.1,500,000 sterling.

Paris is remarkable for other fabrics of taste and luxury; in particular, the porcelain of Sèvres, near St Cloud, and the beautiful but very expensive tapestry of the Gobelins. The materials of the latter are silk and the finest woollen thread; the subjects woven into the work are taken from paintings executed on purpose. Both the establishments have been long conducted by government at a sacrifice, and both are now on a reduced scale, the articles being far too costly for private individuals. The latter are more frequently purchasers of *passementerie*, by which is understood artificial flowers, fringes, gold and silver lace, with a variety of trifling but tasteful articles, all sufficiently adapted to a city where so much more is thought of display than of utility.

Soap.

The value of all the soap made in France is computed at L.1,400,000. The main ingredient is olive oil; and Marseilles was formerly the seat of this manufacture for almost all France; an advantage owing both to the extent of the olive-grounds in the south-east of the kingdom, and the vicinity of Marseilles to Italy, the Levant, and Spain, whence soda and olive oil were imported in vast quantities. The disorders of the Revolution, and the establishment of similar manufactures in other parts of France, have caused to Marseilles the loss of a third of its soap works; they are still however very extensive.

Oil.

Of the oil used in France, whale oil forms a very small proportion; the great supply is of vegetable oil, viz. that extracted from the rape and cole-seed of the north, and the olive oil of the south. The collective value of these is very considerable, not short (Chaptal, vol. i. p. 186) of L.3,000,000 sterling, almost all consumed in France, where lamps instead of candles are in very general use.

Liquors.

Beer, formerly little drunk in France, has become of extended consumption since 1790; but even at present the quantity used does not exceed L.2,000,000 sterling, its place being supplied by cider in the north, and by wine in the south. The consumption which corresponds to that of our home-made spirits, and in a great measure to that of our rum, is in brandy, of which the value annually made is between L.2,000,000 and L.3,000,000 sterling. Further, there are at Paris a number of establishments very recently formed for the singular purpose of distilling from potatoes a spirituous liquor, which (Chaptal, vol. ii. p. 197) has been generally approved, and has been brought into competition with brandy.

Lesser manufactures.
Hats.

Of hats, an article which in France is made more durable, but much less light and pleasant than in England, the manufactures, formerly concentrated at Lyons and Marseilles, are now diffused throughout several towns; and the value annually made is about L.1,000,000 sterling. Perfumery is made extensively in the south, where, from the mildness of the climate, aromatic plants are abundant. Paper being exempt from the heavy duties of England, is sold in France upon very reasonable terms, whilst in quality it is equal to our

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[1] See Costaz, *Sur l'Agriculture et les Manufactures de France.*

Manufactures.

own. The value annually used in printing, in writing, and in the hanging of rooms, is computed at fully L.1,000,000 sterling. Of glass, the manufacture has been much improved and extended during the present age. Whether for mirrors, for windows, or for bottles, this article in France is good and of a moderate price. The number of glass-houses in 1818 was 185, and the value of their manufacture L.900,000. As to earthenware, it is only since 1790 that English pottery has been successfully imitated in France. It is now made to the value of L.200,000 or L.300,000, whilst the coarse earthenware, fabricated in almost every province of the kingdom, is computed at L.600,000.

Saltpetre, till lately a monopolized manufacture, is now unrestricted, and is made to the value of somewhat more than L.100,000 annually. Sulphuric acid has, since the beginning of the present century, been greatly lowered in price and increased in quantity; its annual manufacture representing a value of nearly L.300,000. Muriatic acid is used in whitening linen and cotton, and is made to an annual value of L.100,000. Soda is manufactured in France to the value of L.100,000; copperas L.100,000; alum L.250,000.

Sugar.

The manufacture of sugar from beet-root was introduced into France during the war with Great Britain, when the coasts of France being blockaded by the enemy's superior fleets, the importation of foreign articles, and among others that of sugar, was rendered dangerous and difficult; and its price was so high as entirely to preclude its consumption by the middling classes in society. Various articles were resorted to as substitutes, such as honey, the juice of raisins, &c. But they were not relished by the taste of the people; and in this case experiments were tried by eminent chemists to extract from beet-root the sugar which it contained. These experiments were successful, and there are now more than 200 establishments, from which were produced annually 7,480,000 lbs. of raw sugar. After the peace of 1814 this manufacture fell into discredit, especially under the now free competition of West India sugar. But in 1826, by new experiments, and more perfect machinery, it was found that sugar could be extracted from beet-root, and sold at a moderate price with a profit; and the quantity manufactured in 1829 amounted to 13,200,000 lbs.,[1] and in 1832, according to a statement made by M. Costaz,[2] to 12,000,000 lbs.

Summary of the computed Value of Goods annually manufactured in France.

Woollen manufactures, fully	L.9,000,000
Cottons, nearly	8,000,000
Hardware	9,000,090
Canvass, linen, lace, cambric	10,000,000
Silk, nearly	5,000,000
Leather	6,000,000
Jewellery, watches, clocks	1,500,000
Bronze	1,500,000
Soap	1,400,000
Spirituous liquors	2,400,000
Beer	2,000,000
Cider and perry (wine reckoned under agriculture)	2,000,000
Hats	1,000,000
Starch and perfumery	1,500,000
Paper	1,000,000
Glass	900,000
Earthenware and pottery	800,000
All lesser manufactures	13,000,000
Total	L.76,000,000

General observations.

Labour in Paris is as much dearer relatively to the provincial towns of France, as labour in London is relatively to those of England. It still remains for us to remove from our capital some manufactures which have been most injudiciously established there; but the French have carried this false calculation much further, Paris being the centre not only of ornamental fabrics, such as jewellery, bronze, sculpture, cabinet-making, but of a number of coarser employments, which a very slight change of plan might transfer to a cheaper quarter. There are at Paris periodical exhibitions of French manufactures held once in three or four years, at which are present the king, the princes, the nobility, and all eminent men of science. There is also in that capital a *Conservatoire des Arts et des Métiers;* a collection, on a large scale, of models of all instruments or machines that relate to arts and manufactures.

It is more the practice also in France than in Britain to encourage ingenious inventions in the mechanical arts, by premiums and honorary marks of distinction. Yet, with all these advantages, industry has not made the same progress as in this country. The truth is, that profit derived from the utility of the invention itself is the great stimulus to industry; and the inventor of any new improvement in manufactures, by taking out a patent, and obtaining the monopoly of his invention for a term of years, is sufficiently rewarded, provided the invention be really useful by saving labour, and thus enabling its contriver to bring a cheaper article of equal quality into market.

To prescribe the mode of manufacture was formerly a favourite course with government in England as in France. From the time of Colbert (1660) the French *ordonnances* prescribed peremptorily the length and breadth of serges, of druggets, in short, of every kind of cloth calculated for export, under the plausible idea that all these precautions were necessary to establish a reputation for quality. It is a curious fact, that these rules were desired by the manufacturers themselves, and were long considered as the safeguard of French industry. A change was introduced in 1779, and permission given to every manufacturer to follow his own method, provided he distinguished the goods thus made from those which were in conformity with the regulations. But this was of very short duration. The power of habit and prejudice prevailed. New *ordonnances*, issued the succeeding year, revived the former limitations; and the manufactures of France were not put on an unrestricted footing till the Revolution. Much inconvenience had also been sustained from the absurd law which prevented a workman from settling in business in any town excepting that in which he had served an apprenticeship. This law was abrogated in 1767.

The manufacturing industry of France is confined, far more than ours, to the home market, whether we look to the supply of the raw material, or to the export of the finished articles. Her imports are large only in cotton and silk; in wool and iron they are not considerable; whilst in flax, hemp, and leather they may be termed insignificant. In exports the limitation is still more striking, her hardware, her linen, her woollens, her cotton, her leather, and, in a great measure, her silk, being confined to the home market; a restriction owing partly to our manufacturing superiority, but more to the capital of our merchants, and their ability to give long credit. The productive industry of France is consequently much less subject than ours to sudden fluctuation. It follows nearly the same routine year after year. On the occurrence of a war, or other political change, the commerce and manufactures of our neighbours, to borrow a phrase of Talleyrand (Letter to Mr Fox, 1st April 1806) *se replient sur*

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[1] See Costaz, *Histoire de l'Administration de l'Agriculture en France*, tome ii. p. 458.

[2] M. Costaz was lately president of the Chamber of Commerce at Bordeaux, and is now, 1834, governor of the Bank of France.

eux-mêmes. Need more be added to show the error of those who maintain that, half a century ago, her manufactures were of great amount; that they were almost entirely suspended by the Revolution, and indebted for their subsequent revival to the exertions of the government? The fluctuations, at no time of great amount, have related chiefly to the export trade, and owed their origin to the general hostilities of 1793.

An analysis of the causes of success in manufacture is instructive, as showing that excellence, where it exists, is the natural result of specific causes, and by no means a consequence of that general superiority, the belief of which is so dear to the vanity of every nation. The individual talents of workmen in France and England may fairly be considered on a par; the quickness and activity of the French being counterpoised by their volatility and want of adherence to a given object. The leading advantage of their manufactures is solidity, arising from the comparative cheapness of labour and raw materials. Hence the durability of their woollens and silks; and hence also the cheapness of their paper and leather. The points of inferiority are much more numerous, but may be almost all traced to one cause, an imperfect division of labour. In England, the facility of water communication may be said to unite several towns into one, facilitating the division of employment, and overcoming the disadvantages of a separate and remote position; but in French towns, instead of the inhabitants limiting themselves to a few manufactures of kindred character, there prevails a habit of endeavouring to make every thing on the same spot. Lyons, Rouen, and Lisle, are populous cities, and entitled to rank with Manchester, Glasgow, and Leeds; but there must end the parallel; for St Etienne forms a poor counterpoise to Sheffield; and Birmingham, with several of our other towns, is without a rival. In short, it may be assumed generally, that, in a French town of equal size, the work, both of manufacturers and of artisans, is, even in the case of ingenious individuals, much less nice and accurate than in England.

VII. COMMERCE, COLONIES, FISHERIES, SHIPPING.

In no country in Europe has trade been laid under such galling restrictions as in France; and it is remarkable that this system of restriction has in a great measure been the creation of modern times. The ancient legislation of France was rather friendly to foreign trade. It encouraged importation in preference to exportation. This latter privilege of export was in 1577 claimed by Henry III. as his royal and seignorial right; and he regulated by his ordonnances the export duty on a variety of articles, whilst the produce of foreign countries was admitted on payment of an *ad valorem* duty of two per cent. Louis XIV. introduced a sort of navigation act, by which he levied a tax of fifty sous on all foreign ships. In 1667 further restrictions were introduced; and in 1687 the exclusive system was established in its full rigour. Her statesmen seem to have imagined that a flourishing commerce could be created by legal authority, and that domestic industry could only be encouraged by the exclusion of all foreign competition; and hence all the vices and obsolete maxims of the mercantile system will still be found in the commercial policy of France. The extension of the restrictive system was promoted by the authority of Colbert, a minister who, though he introduced order into the finances, and improved in many particulars the system of taxation, and was indeed a great master of detail, adopted the most erroneous maxims of commercial legislation. It is justly observed, in the masterly Report of Villiers and Bowring on the commercial relations between Great Britain and France, that the "whole of the bounties by which he induced adventurers to enter into remote speculations, as well as the excessive duties which he imposed on cheaper foreign articles, were almost uncompensated sacrifices; while, on the other hand, of the manufactures which he transplanted into France, and which he protected by the exclusion of rival productions, scarcely one took permanent root;" and even those which he intended to support by special encouragement would all of them have been more prosperous, but for the regulations with which his mistaken zeal retarded the progress of manufacturing industry. His whole system was an attempt to regulate by law what would have been better left to the sagacity of individuals, and to give an artificial direction to the national capital. Thus he encouraged a trade to the West Indies by granting a bounty of 25s. on every ton of goods exported, and of 41s. 8d. on every ton imported. He boasted of setting up 40,000 looms by virtue of legal enactments, without considering that the capital employed in these establishments would have taken a more natural direction, and been more profitably employed, but for his interference. The restraints also which were thus laid on domestic industry were often enforced by the despotic authority of the government. Many of the absurd and pernicious regulations of Colbert were broken down by the French Revolution; but others remained, and the tariff of 1791 was from beginning to end a system of prohibition, the object of which was to encourage the home manufacturer by freeing him from the intrusion of all foreign competitors. It must be confessed that the trade of Great Britain was originally regulated by the same narrow views, and is still shackled in many of its important branches. Indeed it is undeniable that Britain set the example of illiberality; and it was no wonder that the French legislature of that day should be jealous of a country which excluded her silks and cambrics, and laid a discriminating duty of thirty-three and a half per cent. on French wines; and whose parliament, under the reign of William III., declared the trade with France to be a nuisance. These views, however, have been now abandoned by all British statesmen. The commercial treaty concluded with France in 1786 by Mr Pitt, was the earnest of a better system; and since this period the legislators of this country have been impressed with the injurious tendency of all commercial restrictions; and they have been labouring strenuously to emancipate the national industry from those fetters in which it has been too long bound. But in France the progress of improvement has been slower, and it has besides been retarded by political events. The long and sanguinary war waged between Great Britain and France subjected the latter to the maritime hostility of her powerful opponent, the consequence of which was, that her trade was interrupted with foreign countries, and the supply of many of their staple articles of produce greatly diminished, and of course raised enormously in price. It became a great object, in this case, to produce these articles at home; and thus, in addition to the existing restraints upon the importation of foreign manufactures, special encouragements were given to the production of articles for which neither the soil nor the climate of France was peculiarly fitted. And thus when the maritime blockade of France was raised by the peace of 1814, her industry had, partly from ancient and mistaken maxims, and partly from the pressure of war, received a very artificial direction, and was oppressed by the most ruinous and complicated restrictions. At the restoration of the Bourbons in 1814, the tariff of 1791 was the law of the land in commercial matters. It had undergone a few modifications, but these were all mostly in the restrictive and prohibitory spirit, and were accommodated to the hostile position which France occupied in regard to surrounding nations; and when the barrier to a free intercourse with foreign nations was at length thrown down by the peace of 1814, the exclusive provisions of the tariff of 1791 were brought into full operation, and it was then found that when the obstacles to her commercial intercourse with foreign nations raised up by the war were withdrawn, a no less effectual line of circumvallation had been drawn around her commerce by the restrictions and prohibitions of her own erroneous policy. It is remarkable, indeed, that a committee of the Chamber of Deputies, in reporting on the budget in 1832, enter into an exposition and defence of the restrictive system, the principle of which is to encourage domestic industry by the exclusion of the cheaper and better manufactures of foreign nations. The fallacious and narrow views, the loose reasonings, and the gross mis-statements of facts, especially where a reference is made to the commercial policy of Britain, is far from evincing on the part of this committee either diligent research or legislative wisdom.

The tariff of 1791 either excluded from France, or laid under heavy duties, almost all the great staple manufactures of other countries. Manufactured iron in every shape, manufactured steel, copper, tin, cutlery, and all articles manufactured from any of the metals; all fabrics of wool, cotton, silk, or tissues of hair, saddlery, spirituous liquors, grain, refined sugar, tobacco, toys, and various other inconsiderable articles, are included in this magna charta of domestic commerce. The weakness, the inconsistency, and the various fallacies on which this system is founded, are so well exposed in the Report of Villiers and Bowring, to which we have already alluded, that we subjoin the passage, which, though somewhat long, is replete with instruction.

"It requires merely to state some of the objections to importations, in order to show their narrow and anti-commercial spirit. The introduction of manufactured tin, for example, is opposed because it might benefit England, which is rich in tin mines, as if the importation into France could take place without equally benefiting her. The reasons, too, which are grounded on the superiority of other countries; as, for example, 'dangerous rivalry' in the case of manufactured steel; 'cheapness' of foreign article in the case of shipping; threatened 'annihilation of the French manufacture' in that of cutlery; 'extra advantages of the English' in plated ware; 'apprehension of the English' in articles of pottery; 'imprudence of admitting English saddlery,' as so many persons, regardless of price, prefer it; 'advantages of machinery' in works of iron; all are modes of announcing the superiority of the foreign articles, and the power which foreigners possess of supplying them on cheaper terms than they can be produced at home.

"There are other grounds of prohibition by which particular French manufactures are avowedly sacrificed to the interest of other branches of French industry. The importation of extracts of dye-woods is disallowed for the purpose of encouraging the importation of the dye-woods themselves; the interest of the dyer, the manufacturer, and consumer, being wholly forgotten. The importation of iron of certain sizes is prohibited, lest small manufacturers should establish fabrics, and supply the markets at a less cost than the larger establishments. Woollen yarn is not allowed to be imported, because it can be produced in France, though the high price must be a great detriment to the woollen manufacture; and cast iron of a great variety of sorts is prohibited, on the ground that a sufficiency may be obtained at home, though the cost is notoriously more than double that of many articles of foreign cast iron. Molasses are not allowed to be introduced, because the price in France is so low, and the exportation so large, on the ground that importation will lower the prices still more, though the lowness of price would obviously make importation unprofitable; and the fact of considerable exportation is the best evidence that the average prices are low in France. Rock salt was prohibited in 1791, and the prohibition is now justified on the ground that mines have lately been discovered. The prohibition of refined sugar is supported on the ground that its admission would not benefit the treasury; but it is clear, if the interest of the treasury were kept in view, that all prohibitions would be suppressed, or superseded by a system of duties. While some articles are prohibited because the production is small in France, and requires protection, others are prohibited (dressed skins, for example) because the production is great, and engages a large number of hands."

There is another branch of the French legislation regarding commerce, and of the legislation indeed of most other commercial countries, which is equally exceptionable with the prohibition to import foreign manufactures; namely, the system of drawbacks and bounties on the exportation of domestic produce. Having by special encouragements created a surplus of certain articles at home, and which the high price prevented from being sold to foreigners, the public were called upon to pay the difference between this high price and the price abroad; and thus they were taxed, by the exclusion of the foreign article, in a higher price for what was consumed at home, and also taxed for all that was consumed abroad, in the bounty which was paid on the exportation of the article. This is a double iniquity, which has of late years gone on increasing in France. In 1817, the whole amount of what was conceded on this account amounted to L.3500 per annum, whilst in 1830 it amounted to L.600,000, nearly one fifth of the nett amount of the whole custom-house revenues of France; and as it was going on progressively, it might soon have absorbed the whole custom-house income, without in the least benefiting, but rather injuring, the general interests of commerce. During the first nine months of the year 1832 premiums or bounties were paid to the amount of 24,448,375 francs, or L.1,018,682.

The commerce of France, obstructed by these restrictive duties, has not made the same advances as her agriculture and manufactures. The internal produce of every country necessarily increases with its population; and the inhabitants of France having increased, since 1780, from 24,800,000 to 33,000,000, must produce as well as consume more. But in the mean time her commerce has not kept pace with this increase in her population. The value of the imports into France amounted in 1787 to 631,790,700 francs, or about twenty-five millions sterling, and engaged 888,868 tons of shipping; and her whole imports only amounted in 1830 to twenty-five and a half millions sterling, and employed 1,009,454 tons of shipping, which is far from being an increase corresponding to her augmented population. The foreign commerce of England was, in the year 1787, about seven millions less than that of France, or about eighteen millions sterling, and employed 1,349,419 tons of shipping. Her population was nine millions. In 1830 her foreign trade had increased to L.69,700,748, including L.17,127,764 to the colonies, which employed 2,860,515 tons of shipping. Thus, whilst the official value of the commerce of England has nearly quadrupled, and her shipping nearly doubled, not above one fiftieth part has been added to the foreign commerce of France; a fact which strongly illustrates the pernicious influence of monopolies in damping the energies of individual enterprise, and thus obstructing the national prosperity.

The following is a brief sketch of the trade of France with other countries.

North of Europe.

The corn, the hemp, the flax, the tallow, which form such important articles of export from the north of Europe to England, are comparatively unnecessary to France. Their timber and pitch are imported there, but the quantities required by a people where ship-building is so limit-

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ed are necessarily of little consequence. The further articles of import are iron, copper, lead, salt, fish, all likewise on a small scale. The returns from France are no longer in the sugar and coffee, which, before the loss of St Domingo, furnished an annual export to the north of fully two millions sterling. They are limited to wine and brandy, luxuries of which the consumption is confined to a few large towns, such as Petersburg, Hamburg, Stockholm, and Dantzick.

With Germany, at least with the centre and south of Germany, the exchanges of France are carried on by a tedious land carriage, or by a still more tedious river navigation. Here are no canals to facilitate the conveyance of bulky commodities; all proceed in a slow routine, excepting horses and horned cattle, which are imported into France in considerable numbers, and made to travel with expedition. In regard to the Netherlands the case is different. With them there is an easy communication by sea, and, as far as regards French Flanders and part of Picardy, a still more easy communication by means of canals. The following table presents a view of the trade between France and the Netherlands in 1830.

Articles.	Value of Articles for Home Consumption.	Articles.	Value of French Goods Exported.
	Francs.		Francs.
Raw hides	2,170,931	Wines	3,686,854
Wools	1,808,174	Spirits	766,546
Silk	401,465	Dry fruits	422,531
Leaf tobacco	420,399	Tanned skins	606,568
Wood	3,103,913	Stuffs and thread	17,255,943
Mats and straw plaits	339,136	Clocks and watches	514,162
Coal	7,661,243	Mercery	833,280
White lead	172,865	Linen and clothes	523,880
Indigo	2,966,839	Bricks	95,359
Hempen and flaxen thread	5,966,241	Madder	886,835
Sheep	628,672	Other goods	10,986,742
Cows	1,559,140		
Oxen and bulls	608,520		
Cheese	1,949,111		
Grain	3,125,419		
Stuffs of hemp and wool	12,029,238		
Other goods	14,374,219		
Total	59,285,525	Total	36,578,700[1]

From Holland are imported spirituous liquors, spices, butter, cheese. The returns from France consist chiefly of wine, silks, brandy, and dried fruit. When the Netherlands were subject to France, this intercourse was very active; but since 1814 it is much impeded by restrictions on both sides.

From Italy France imports raw silk, corn, rice, olive oil, and fruit, chiefly lemons, oranges, figs, and raisins. The returns, various in kind, but small in quantity, consist of wine, brandy, cattle, woollens, linen, leather, hats, stockings, jewellery, glass, hardware. From the Levant, the imports, though less than formerly, still consist of raw silk, cotton, wool, corn, dried fruits; the exports, manufactured silks, woollens, stockings, and, in a small degree, hardware, paper, liqueurs, linens, lace. With Spain the intercourse is more extensive: the exports from France consist of corn, flour, salt fish, wine, brandy, also woollens, cottons, silks, leather, linen, lace, hats; all articles which have passed through some process of manufacture, and bear testimony to the industry of the French. The Spaniards, on the other hand, true to their character, make no returns except in produce and raw materials, viz. wool, silk, fruit, sweet wines, along with some iron and copper. With Portugal the trade of France is not considerable, the staple products, wine and brandy, being the same in both countries.

Were congeniality of feeling, either in an individual or a national sense, the regulator of commerce, the intercourse between the French and Americans should be great; for no nations ever sympathized more cordially with the sufferings of each other, or were more decided in ascribing them to the aggressions of England. But a mutual want of capital restricts the connection. The Americans require long credit, and to give credit exceeds the means of the French. The cotton, tobacco, and rice of the United States are paid partly by wine and brandy, but in a very slight degree by manufactures. This branch of trade will increase with the population and wealth of the United States; and this appears to be the case, as the tonnage employed has increased from 30,793, its amount in 1820, to 95,818, its amount in 1830. The most ready means of extending French commerce would be with England; a country of customers whose activity supplies them with the means of giving in exchange a number of useful commodities. At present the intercourse is more considerable than with almost any other country; but a partial reduction of the custom-house duties would extend greatly the mutual trade of the two countries. England would supply France in greater quantities with imports, consisting of cottons, hardware, earthenware, copper, tin, coals, &c.; whilst a corresponding increase would take place in the French exports, of which the staple articles are wine and brandy, the smaller silks, olive oil, fruit, butter, poultry, and, when our laws allow, corn and butcher-meat. In the importation of the produce of the soil from France, our course would be clear and direct, our climate not admitting of the growth of the vine, the olive, or the mulberry; but, in regard to manufactures, it is a matter of nicety to say in what articles an exchange would take place, our late improvements in machinery counterbalancing the cheap labour of France in several branches, such as lace, in which our competition would formerly

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[1] *First Report on the Commercial Relations between France and Great Britain*, p. 133.

Commerce, &c.

have been hopeless. It is evident, however, that there would be a series of varied and extensive exchanges, not so much perhaps in distinct articles, as in different qualities or shades of quality in the same article or branch of manufacture. These exchanges are necessary for completing assortments in shops, in warehouses, in shipments; and their extent would be such as to be comprehended only by those who are familiar with the endless ramifications of manufacture, or who are aware of the striking exemplification of this truth, afforded by our intercourse with France in the auspicious interval between the commercial treaty in 1786 and the rupture in 1793.

Trading towns.

The chief commercial business of Paris is necessarily inland; but it is the centre of exchange transactions for France, foreign as well as inland; as London is for England, and Amsterdam for Holland. Havre de Grace is the channel of the maritime intercourse of the capital, the outlet for its exports, and the medium through which it receives colonial produce, raw materials, and foreign manufactures. Bordeaux is a sea-port of great activity, as well for the exportation of wine and brandy, as for the importation of sugar, coffee, and cotton. Marseilles, a larger but a less bustling city, continues the emporium for the trade with Italy and the Levant. Nantes has suffered greatly by the loss of St Domingo, as well as by the abolition of the slave trade, of which it was the centre. It still exports to Martinique and Guadaloupe, linen, hardware, printed cottons; and, like Bordeaux, receives in return sugar, coffee, and raw cotton. Rouen, though accessible to vessels of burden, is, like Lyons and Lisle, chiefly remarkable for manufactures.

The following tables will be found to contain, from official documents, a comprehensive view of the value and extent of the commerce of France at different periods.

Statistical Table of the progress of Trade between France and other Nations, from the year 1716 *to the* 1st *January* 1830.

Years.	Imports into France.	Exports from France.	Years.	Imports into France.	Exports from France.
	Francs.	Francs.		Francs.	Francs.
1716—1720	65,079,000	106,216,000	1807	418,284,811	384,639,709
1721—1732	80,198,000	116,765,000	1808	421,382,663	341,386,672
1733—1735	76,600,000	124,465,000	1809	357,803,500	340,605,400
1736—1739	102,035,000	143,441,000	1810	384,776,700	376,619,600
1740—1748	112,805,000	192,334,000	1811	445,016,600	338,017,800
1749—1755	155,555,000	257,205,000	1812	410,293,400	430,471,300
1756—1763	133,778,000	210,899,000	1813	316,067,000	359,794,100
1764—1776	165,164,000	309,245,000	1814	275,402,300	375,615,800
1777—1783	207,536,000	259,782,000	1815	229,736,692	404,592,976
1784—1786	301,727,000	354,423,000	1816	310,706,409	617,925,194
1787	631,790,700	445,301,300	1817	451,498,766	447,833,761
1788	577,570,000	466,380,000	1818	469,255,945	603,760,998
1789	636,540,000	441,220,000	1819	396,844,774	504,631,923
1797	369,331,000	225,538,000	1820	473,012,159	593,145,249
1798	309,235,000	253,801,000	1821	520,753,362	581,458,665
1799	289,656,800	300,690,375	1822	612,140,466	441,637,685
1800	351,330,394	271,575,605	1823	562,359,670	497,252,537
1801	434,472,177	303,245,000	1824	699,143,705	523,733,741
1802	492,692,856	339,120,607	1825	785,046,460	801,942,180
1803	500,040,592	373,468,506	1826	738,205,663	735,154,920
1804	510,538,773	411,067,287	1827	752,853,324	642,254,598
1805	548,422,457	400,783,338	1828	815,778,396	638,494,196
1806	531,558,442	464,810,280	1829	764,828,678	666,393,227

FRANCE.

Trade and Navigation of France with Foreign Nations.

TRADE.				NAVIGATION.					
	Years.	Imports.	Exports.	Ships.		Tonnage of Ships.		Ship's Crew.	
				Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
		Francs.	Francs.	No.	No.	No.	No.	No.	No.
Low Countries	1825	198,924,230	152,593,518	221	318	19,819	32,984	1,296	1,969
	1826	148,536,333	65,689,339	231	674	22,556	73,196	1,473	4,157
	1827	121,249,242	57,831,377	196	579	17,067	60,689	1,223	3,526
	1828	145,621,987	56,856,729	271	420	25,664	47,464	1,632	2,589
	1829	120,935,733	60,849,496	357	277	30,495	30,657	1,963	1,684
	1830	116,574,651	37,059,834	192	157	19,066	18,716	1,173	1,055
	1831	6,139,971	18,194,967	137	158	12,697	16,199	1,104	1,221
		70,215,037	28,466,038	29	48	2,471	4,547	176	176
England	1825	131,898,619	130,952,967	2,176	3,907	137,937	199,232	16,209	31,964
	1826	62,330,580	225,930,914	2,222	3,935	143,505	167,961	16,717	26,211
	1827	94,821,318	126,399,626	2,100	3,967	138,120	177,689	15,856	25,984
	1828	107,300,565	126,129,546	2,079	3,479	135,349	167,975	16,080	23,034
	1829	86,878,455	113,286,143	2,248	3,153	156,087	152,586	17,010	21,523
	1830	114,527,595	138,254,725	2,211	2,981	155,400	144,909	17,133	20,988
	1831	135,894,618	126,877,727	2,179	3,635	131,352	164,238	15,728	22,014
United States	1825	50,033,325	99,572,723	248	175	63,310	43,242	2,986	2,052
	1826	77,244,342	51,881,348	412	165	109,518	41,732	4,932	1,805
	1827	83,451,348	81,143,828	348	216	92,214	58,925	4,249	2,482
	1828	83,738,515	69,067,039	288	171	82,339	46,381	3,649	2,075
	1829	90,915,371	73,760,334	341	192	100,488	56,984	4,374	2,446
	1830	84,716,226	76,796,585	346	143	101,723	43,456	6,379	1,854
	1831	80,479,951	134,964,236	258	213	76,903	62,602	3,410	3,033
Sardinia	1825	61,118,916	43,935,400	909	926	58,230	45,945	7,208	5,490
	1826	80,762,408	41,031,731	1,227	703	53,129	38,998	7,339	4,596
	1827	63,511,191	38,801,571	1,003	815	38,313	36,065	5,840	4.857
	1828	80,133,307	45,460,375	1,586	1,045	81,660	53,762	7,664	6,359
	1829	61,968,591	42,460,685	1,076	879	52,697	43,873	6,571	5,323
	1830	79,408,967	48,082,152	1,338	862	79,381	46,515	8,661	5,403
	1831	61,306,086	45,852,571	1,234	1,162	58,256	63,191	7,511	7,387
Germany	1825	88,006,284	36,958,262	The trade between France and Germany is carried on by land, and the goods leave France by way of Farbuch, Sarguemines, Bitche, Wissembourg, Schelestadt, Colmar, Strasburg, &c.					
	1826	52,877,307	36,990,748						
	1827	35,564,445	34,170,220						
	1828	36,443,745	36,368,748						
	1829	34,208,738	40,112,758						
	1830	48,696,841	39,297,231						
	1831	31,513,581	39,622,531						
Spain	1825	33,503,935	68,832,966	949	1,139	46,484	42,798	6,783	6,600
	1826	30,056,810	58,713,818	939	899	46,195	41,975	6,481	6,252
	1827	35,363,711	54,592,224	1,188	784	55,373	40,103	8,576	5,458
	1828	28,681,762	54,443,463	856	590	45,638	36,266	6,410	4,341
	1829	27,261,411	57,856,582	833	638	43,781	31,150	6,169	4,441
	1830	31,186,999	47,618,375	862	554	49,295	25,464	6,135	3,726
	1831	29,148,174	46,770,617	895	687	51,715	27,355	6,472	3,955
Austria	1825	26,468,464	2,679,430	26	30	4,908	5,145	266	309
	1826	13,907,417	2,619,780	35	37	5,545	8,278	398	417
	1827	34,238,690	5,657,279	31	31	6,429	7,466	355	389
	1828	26,293,506	5,299,436	35	39	8,018	7,792	455	475
	1829	34,688,407	5,275,729	40	34	8,947	7,052	474	411
	1830	32,517,658	6,638,919	85	50	18,469	8,762	1,007	523
	1831	38,589,023	5,654,450	54	26	13,737	5,674	669	312
Switzerland	1825	22,161,312	40,149,178	The trade between France and Switzerland is carried on by Colmar, Strasburg, Saint Louis, Belfort, Nantua, Seyssel, Morteau, Pontarlier, Les Rousses, Montbéliard, &c.					
	1826	32,068,292	41,145,263						
	1827	22,826,426	39,640,513						
	1828	23,148,399	49,806,164						
	1829	21,610,462	47,787,229						
	1830	30,454,392	47,955,985						
	1831	29,413,215	44,754,225						

Commerce, &c.

Trade and Navigation of France with Foreign Nations, continued.

TRADE.				NAVIGATION.					
	Years.	Imports.	Exports.	Ships.		Tonnage of Ships.		Ship's Crew.	
				Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
		Francs.	Francs.	No.	No.	No.	No.	No.	No.
Turkey	1825	20,297,374	11,803,574	99	84	16,683	16,164	1,041	930
	1826	24,420,069	9,452,496	101	112	16,181	18,998	1,040	1,175
	1827	17,182,247	11,120,228	62	69	10,760	13,054	669	823
	1828	12,115,522	8,154,744	53	64	8,882	9,379	576	619
	1829	22,275,136	9,639,428	116	95	17,015	15,522	1,253	1,119
	1830	24,006,532	13,463,760	104	97	17,811	18,241	1,182	1,093
	1831	12,263,389	12,075,478	50	49	10,252	10,709	700	654
Prussia	1825	15,252,556	9,650,275	155	55	21,160	7,417	1,116	383
	1826	15,596,731	6,160,882	241	63	43,581	9,157	2,020	461
	1827	15,058,888	6,379,267	197	50	37,424	7,955	1,731	393
	1828	23,015,586	7,117,637	303	58	49,289	9,129	2,411	452
	1829	21,153,395	7,716,089	322	55	52,505	9,282	2,544	454
	1830	21,223,000	8,490,068	249	73	49,226	10,729	2,271	493
	1831	17,020,143	12,075,478	55	48	10,734	7,049	512	368
Russia	1825	15,281,195	9,052,813	152	103	29,496	18,272	1,597	989
	1826	14,983,075	6,527,525	222	104	40,203	17,967	2,195	923
	1827	13,657,575	9,185,795	171	107	30,843	19,742	1,659	909
	1828	17,011,860	8,416,598	209	110	34,878	19,294	1,979	1,034
	1829	18,655,420	10,076,519	249	119	40,895	20,268	2,240	1,078
	1830	41,819,755	9,440,779	395	96	77,036	15,878	4,165	857
	1831	18,567,663	6,297,178	148	74	35,171	13,531	1,891	703
Two Sicilies	1825	15,044,807	13,430,483	234	165	32,285	27,381	2,434	1,898
	1826	12,134,981	10,257,540	232	178	33,986	29,679	2,762	2,041
	1827	21,326,952	8,113,497	202	136	37,530	25,011	2,487	1,637
	1828	14,297,237	7,723,957	180	142	33,962	25,545	2,187	1,639
	1829	11,062,198	9,321,390	192	162	36,523	29,172	2,326	1,972
	1830	21,311,695	9,458,856	329	139	64,027	21,583	4,073	1,553
	1831	25,816,895	7,339,155	355	173	71,729	32,447	4,796	2,517
Mexico	1825	2,925,297	18,398,756	18	63	3,732	11,086	223	710
	1826	4,025,163	14,307,476	26	51	5,302	10,246	322	636
	1827	11,736,648	15,068,348	25	44	5,294	9,501	326	599
	1828	27,472,243	9,992,017	35	39	8,270	9,613	556	583
	1829	21,571,880	9,734,072	40	40	9,981	9,576	611	584
	1830	16,484,738	23,226,747	37	43	9,330	10,217	538	613
	1831	8,864,196	20,353,235	30	29	7,389	6,838	473	435
Sweden and Norway	1825	20,748,193	3,098,323	637	245	91,482	34,207	5,169	2,086
	1826	14,124,647	3,306,559	839	339	129,572	48,167	7,052	2,654
	1827	10,401,380	2,901,458	660	329	100,655	47,570	5,534	2,636
	1828	10,103,416	2,908,763	712	378	113,480	56,253	6,082	3,178
	1829	11,691,293	3,344,794	687	291	117,778	42,271	6,072	2,412
	1830	11,652,074	2,538,722	695	261	116,639	29,274	6,077	1,844
	1831	8,927,834	2,249,504	489	168	83,611	24,701	4,312	1,351
Brazils	1825	11,257,971	10,491,401	60	62	13,710	14,683	771	864
	1826	9,861,625	9,439,088	57	61	12,409	13,500	793	704
	1827	10,604,524	11,463,708	60	76	13,543	16,874	800	999
	1828	14,646,813	12,973,047	53	137	11,866	27,097	708	1,596
	1829	13,601,768	13,922,451	56	125	12,129	27,699	721	1,561
	1830	16,468,014	11,905,011	69	81	14,951	18,932	860	1,019
	1831	7,661,246	5,801,424	37	47	9,205	10,711	552	577
Tuscany and the Roman States	1825	12,681,625	7,642,551	539	473	31,687	27,453	4,059	3,596
	1826	9,130,356	7,063,777	516	369	30,111	21,309	3,964	2,773
	1827	11,187,587	8,455,967	497	481	34,206	24,804	3,941	3,452
	1828	14,523,170	10,989,185	491	613	29,670	34,498	3,656	3,307
	1829	14,616,941	8,938,556	400	417	23,333	23,900	3,029	3,039
	1830	14,246,550	9,486,706	444	319	26,934	18,896	3,394	2,430
	1831	6,974,575	10,517,422	422	304	20,967	17,230	3,100	2,319

Trade and Navigation of France with Foreign Nations, concluded.

TRADE.				NAVIGATION.					
	Years.	Imports.	Exports.	Ships.		Tonnage of Ships.		Ship's Crew.	
				Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
		Francs.	Francs.	No.	No.	No.	No.	No.	No.
English East Indies	1825	195,134	3,726,196	6	8	1,834	2,298	110	143
	1826	8,777,038	4,867,285	10	11	2,882	4,160	165	258
	1827	9,546,924	6,590,974	11	18	4,448	6,315	285	348
	1828	16,321,986	9,451,593	13	27	4,165	7,140	265	506
	1829	19,459,898	7,246,838	24	25	7,297	8,282	486	493
	1830	17,224,132	3,416,663	15	9	5,228	3,120	323	183
	1831	16,651,390	2,210,482	21	13	6,582	5,012	381	272
Spanish Islands (Cuba)	1825	9,034,783	11,500,453	60	69	12,927	15,268	843	926
	1826	8,326,368	10,206,094	64	59	14,002	12,829	865	803
	1827	9,563,228	9,957,266	72	82	15,890	17,802	913	1,070
	1828	7,911,009	10,197,858	68	70	13,930	14,226	854	866
	1829	10,167,162	9,958,079	85	61	18,233	12,876	1,067	776
	1830	9,716,422	5,565,371	65	28	14,169	6,455	823	388
	1831	4,931,563	5,355,052	39	33	8,447	7,392	518	432
Hanseatic Towns	1825	6,755,230	11,790,683	69	187	7,497	25,646	457	1,341
	1826	8,034,230	11,124,649	97	204	10,242	30,520	627	1,568
	1827	6,403,090	12,856,111	83	165	9,596	23,979	606	1,243
	1828	9,594,209	15,919,619	164	305	17,913	31,192	1,097	1,606
	1829	12,027,183	13,095,614	338	189	29,128	25,622	1,879	1,365
	1830	9,773,574	12,940,679	140	186	15,847	27,006	995	1,395
	1831	4,076,541	12,091,879	78	160	9,245	23,254	566	1,294
Egypt	1825	6,459,474	9,235,425	67	44	14,461	8,966	820	521
	1826	7,458,445	5,267,585	82	60	15,552	13,580	908	808
	1827	9,708,756	4,702,227	89	61	19,719	16,379	1,078	1,105
	1828	7,537,809	2,983,161	50	31	10,566	6,410	583	363
	1829	2,842,315	8,427,994	26	31	4,846	8,193	274	556
	1830	5,730,352	3,355,659	42	26	8,742	5,241	487	282
	1831	7,850,138	2,169,419	46	41	9,090	8,430	517	490
Hayti	1825	5,552,242	9,887,657	52	64	9,191	11,542	603	756
	1826	6,410,051	5,392,018	72	43	13,145	7,948	825	498
	1827	7,812,498	9,593,206	63	64	12,352	12,665	755	760
	1828	6,949,534	4,069,917	62	36	11,996	6,860	727	424
	1829	5,143,755	6,309,243	39	41	7,548	7,675	457	482
	1830	5,625,804	3,712,936	43	27	8,724	5,527	509	326
	1831	3,774,173	2,426,855	35	21	6,818	3,933	390	235
Barbary States	1825	5,912,180	8,112,937	95	92	10,267	11,705	814	1,364
	1826	4,603,595	4,346,242	69	63	8,004	7,697	595	540
	1827	7,732,215	4,520,315	140	90	14,441	10,625	1,101	805
	1828	5,568,223	3,702,539	72	37	8,670	5,061	674	385
	1829	3,455,899	3,973,474	21	34	2,735	4,373	218	347
	1830	52,306,046	7,970,101	146	143	21,582	20,225	1,506	1,505
	1831	2,069,786	1,927,388	26	40	2,960	4,408	264	332
Peru	1825	3,777,065	5,854,168	7	11	2,052	2,968	132	234
	1826	3,839,719	9,596,334	10	14	2,764	4,119	154	264
	1827	9,423,889	6,819,448	10	11	2,923	3,173	195	216
	1828	1,244,489	8,505,661	2	13	523	3,430	34	235
	1829	1,409,242	9,910,587	3	7	872	1,684	54	128
	1830	3,266,389	4,317,855	2	1	502	175	34	14
	1831	2,386,971	1,351,265	16	1	3,725	223	217	14

Commerce, &c.

The following table contains a view of the trade between France and Great Britain.

Importations into France from England, and Exportations from France to England, in the Year 1830.

IMPORTATIONS.

Articles.		Quantity.	Value.
Horses	heads	522	L.7,620
Raw hides	lbs.	290,703	5,346
Wools	value	...	59,236
Hair for horses and spinning	lbs.	53,704	38,968
Thrown silk	~	7,241	7,037
Tallow	~	1,639,641	16,359
Spermaceti	~	141,982	6,181
Whalebone	~	245,153	15,564
Elephants' teeth, tortoise-shell, and mother-o'-pearl	~	3,049	810
Grains	gallons	2,569,534	71,491
Rice	~	9	13
Seeds	lbs.	229,243	8,237
Cocoa	~	44	
Coffee	~	705	10
Pepper	~	469	119
Peruvian bark	~	2	6
Indigo	~	2,350	938
Dyeing and cabinet-makers' woods	lbs.	423,836	1,539
Cotton	~	46,390	1,598
Hemp	~	152	2
Grindstones	piece	6,525	2,610
Coal	lbs.	112,764,983	30,677
Iron	~	13,616,844	53,900
Copper	~	2,301,607	84,612
Lead	~	451,045	3,681
Tin	~	740,205	26,854
Arsenic	~	121	3
Potash	lbs.	367,166	3,996
Rough saltpetre	~	61	
White lead	~	136,983	1,714
Acids	~	158,420	5,030
Woollen stuffs	~	14,604	5,563
Silk stuffs	~	12,914	25,782
Paper	~	83,362	9,244
Straw hats	pieces	3,269	1,873
Mats	yards	7,103	3,378
Files, rasps, and utensils	lbs.	154,077	8,989
Machinery	value	...	45,095
Carriages	~	...	15,076
Anchors	lbs.	431,567	7,828
Mercery	~	24,893	6,126
Furniture	value	...	1,718
Curiosities	~	...	1,418
Precious stones	~	...	60,144

EXPORTATIONS.

Articles.		Quantity.	Value.
Horses	heads	407	L.5,776
Sheep	~	7,914	4,862
Oxen	~	2,757	22,056
Provisions	lbs.	377,620	6,403
Furs	value	...	6,591
Feathers	lbs.	8,233	3,123
Butter	~	219,153	5,367
Eggs	~	7,662,811	111,202
Corn and flour	~	607,792	1,834
Dry pulse	~	62,798	284
Chestnuts	~	338,209	1,533
Seeds { for sowing	~	5,446,260	124,109
Seeds { others	~	5,401,914	59,678
Volatile oils	value	...	4,248
Corkwood	lbs.	285,391	6,212
Flax	~	2,755,415	29,893
Madder	~	3,745,812	63,070
Oilcake	~	3,335,718	3,671
Salt	~	1,673,455	910
Cream of tartar	~	279,210	8,863
Verdigris	~	77,949	3,131
Perfumery	~	81,865	10,802
Wines	gallons	605,916	235,169
Brandy	~	1,972,932	361,125
Pottery	lbs.	313,748	18,589
Glass { empty bottles	gallons	214,409	11,773
Glass { others	lbs.	593,675	6,750
Linen & hempen cloth } linen	~	49,239	13,750
Linen & hempen cloth } cambric	~	93,312	270,828
Woollen cloth	~	65,406	79,907
Silk stuffs	~	279,312	608,175
Cotton stuffs	~	39,580	13,429
Felts	pieces	9,437	1,382
Paper and works in paper	lbs.	420,341	48,613
Skins { tanned and curried	~	279,933	19,042
Skins { chamois	~	117,563	11,196
Straw hats	pieces	17,196	8,276
Basket work	lbs.	88,037	2,056
Plated ware	~	41,420	7,513
Clock work	~	93,867	41,157
Mercery	~	66,253	10,045
Millinery	value	...	12,706
Furniture	~	...	10,261
Beds, linen, and clothes	~	...	29,304
Curiosities	~	...	11,322
Toys	lbs.	13,541	2,968
Carriages	value	...	353
Leather	lbs.	104,251	69,381
Articles of Parisian industry		...	15,191
Other articles	~	...	96,905

Commerce, &c. Currency.

The currency of France consists chiefly of gold and silver, in which the main payments are effected, and of copper coins for the smaller sums. It appears that from 1803 to 1814 there were coined, with the effigy of Napoleon, at the different mints, of which there are thirteen in France, in gold to the value of L.22,001,018, and in silver to the value of L.36,992,502. From 1814 to 1828, the amount of the coinage was L.17,081,635 in gold, of twenty and forty franc pieces; and in silver the amount in pieces of five francs down to five sous was L.36,996,560, bearing the effigy of Louis XVIII. and Charles X. On the above data, the amount of circulating specie in the kingdom was estimated on the 1st of January 1828 at 2,713,731,183 francs, equal in value to L.113,072,132 sterling. The gold and silver currency, prior to the Revolution in 1789, was estimated at L.87,500,000 sterling. We can scarcely, however, draw any positive inference from the quantity of gold and silver coined in France, respecting the amount of the specie actually circulating, as within the last seven years the exportation of coin, with a liberality that is rather at variance with the ordinary policy of France, has been freely permitted. The coinage of France has accordingly become an article of trade; and bullion and coin have been freely exported or imported, according to the necessities of commerce. For the ten years preceding 1830, the quantity of bullion imported has exceeded the quantity exported by L.39,089,667, as will appear from the following table :—

YEARS.	IMPORTS.	EXPORTS.
	Francs.	Francs.
1820	109,872,796	89,742,053
1821	126,311,000	176,694,082
1822	185,961,210	56,468,976
1823	200,531,428	106,498,106
1824	244,282,108	83,191,840
1825	251,424,068	134,648,066
1826	173,477,051	174,642,151
1827	68,869,081	31,471,931
1828	208,101,075	28,571,562
1829	148,475,281	58,574,584
1830	220,947,754	59,597,474
	1,938,252,852	1,000,100,825

Bank of France.

This bank, which is the city privileged bank in France, received its charter in 1803 for fifteen years, which was afterwards extended in 1818 to the year 1845. It is under the direction of a governor, named by the king, with a salary of 100,000 francs a year. It has, besides, two deputy-governors, and a general council of eighteen directors; also a separate council for the discount department, composed of twelve members chosen from among such of the shareholders as are merchants. This bank issues notes of the amount of 1000 and 300 francs, which are payable in specie at the will of the holder. Its capital, which consists of 67,900 shares at 1000 francs, making a total of 67,900,000 francs, is employed in discounting bills of exchange, in making advances of money in government securities, and in deposits of bullion or foreign coin, diamonds, shares in public companies, at the rate of one per cent. per annum. No less than the value of 10,000 francs is received as a deposit, and discount for forty-five days is deducted from the amount of the sum advanced; nor, if the deposit be redeemed the next day, is any part of the discount refunded. The paper of the bank of France chiefly circulates in Paris and the neighbourhood; at a distance from Paris its notes pass at a discount of one and a half per cent., as they are not received in payment of taxes or custom-house duties in sea-ports; so that remittances to Paris must be made in cash, for which a charge of five per cent. is made at the post-office: the dividend of the bank on each share has been thirty francs half-yearly, or at the rate of six per cent. per annum. A surplus fund, which has accumulated, has been, in consequence of the reiterated demands of the shareholders, put in a course of distribution; and in the year 1831 two entire dividends were made of fifteen francs and six francs per share, besides two other payments, under the name of a bonus of reserve, the one amounting to seven francs fifty centimes, and the other to three francs, per share. The balance of the reserved fund amounted in 1830 to 6,974,398 francs, which would give a further bonus of 146 francs 95 cents. on each share; and for the purpose of authorizing the distribution of this sum, a law was passed in December 1831. By this law the bank is bound to hold a third part of its profits in reserve, after paying the regular dividend of six per cent. per annum. The circulation of the bank varies from 214,000,000 to 240,000,000 of francs. In the commencement of the year 1831, it held commercial bills to the amount of 75,000,000 of francs, which by its cautious or timid policy was reduced towards the end of the year to 23,000,000, the greatest reduction which it had experienced for the previous fifteen years. The diminution of discounts occasioned a corresponding rise in its stock of bullion, which was increased from 103,000,000 to 266,000,000 francs. Saving banks, *caisses d'épargne*, have been lately introduced at Paris.

Commerce, &c.

Fairs.

Land carriage in France costs only from 2s. to 2s. 6d. per cwt. for a hundred miles; a cheapness which facilitates the transport of merchandise to the various annual fairs which are still held in every great town in the kingdom, exactly as was done by our forefathers a century ago. This periodical routine begins by the *foire de Longchamps*, which is held annually at Paris in spring, and is followed by a long list of provincial fairs, of which the chief are those of Beaucaire in Languedoc, and Guibray in Normandy.

Weights and measures.

The weights and measures of France were reduced, as is well known, to a very simple and uniform scale, soon after the Revolution; but there has been much difficulty in accustoming the inhabitants, particularly in country districts, to the adoption of the new system, which unluckily preserved none of the names with which they were familiar. In 1812 a kind of compromise took place, government sanctioning the retention of the old names, such as pounds, ounces, ells, and bushels; but requiring that their contents should be calculated by a reference to the new standard. It is, accordingly, on this footing that business is now transacted in France. The new weights and measures are, in general, larger by a fraction than the old, and the use of the latter is prohibited by law.

Colonies.

The colonial possessions of France are quite unsuited to her greatness in other respects. The insurrection engendered by the Revolution deprived her of the western half of St Domingo, a rich and beautiful territory, containing formerly more negroes, and exporting more produce, than all the British West Indies together. The French government seems to have relinquished the hope of regaining this country, at least by military means, and to limit its ambition to the remaining colonies, Martinique, Guadaloupe, Cayenne, in the West Indies. The first two are, like most of our West India islands, cultivated to a considerable extent, but capable of much improvement. The petty island of Marie Galante is in a similar state; but Cayenne forms a part of a most extensive tract, of which one corner only is as yet rendered productive, and which may eventually become a great settlement; though on the score of health it is as unpromising as the adjacent colonies of Demerara and Surinam. Before the loss of St Domingo, the annual import into France amounted to 70,000 hhds. of muscovado or brown sugar, 60,000 hhds. clayed, and nearly 20,000 of fine clayed. Of this very large supply there were exported nearly 40,000 hhds. of brown, and above 60,000 hhds. of clayed, forming, exclusively of any duty, an annual value of between L.2,000,000 and L.3,000,000 sterling, and affording a most acceptable exchange for a number of imported commodities. The sugar thus imported from St Domingo has long been lost to France, no sugar being now exported from that country.

In Africa the French possess Goree and some factories near the mouth of the Senegal. In the East they have the isle of Bourbon, and Pondicherry, Chandernagore, and some smaller factories on the mainland of India; and their vessels are, like the Americans, admitted to trade with Calcutta, Madras, and other British settlements, on payment of moderate dues; but they possess no power of annoying, or even of resisting Britain, in the event of hostilities. The retention of the Mauritius, at the peace of 1814, deprived them of the great receptacle for their privateers in the East; and in a very different part of the world, the continent of North America, they retain nothing since the cession of Louisiana in 1803. In the seas of Europe, Corsica is almost the only insular possession of the French. They have no great maritime fortresses, like Gibraltar or Malta, and no dependencies of the nature of the Ionian islands.

The commerce of France with her colonies is regulated by the same narrow maxims as the other branches of her foreign trade. The colonies and the mother country are mutually bound to trade exclusively with each other. The staple produce of the French West India colonies, as well as the isle of Bourbon in the East, is sugar; and it appears that the price of this article in the European markets will not repay the expense of its cultivation in those countries. The colonists, therefore, insist that all other sugars shall be excluded by heavy duties from the markets of France; that they shall have the exclusive privilege of supplying these markets; and on a complaint that the duties imposed on foreign sugars were not high enough to give them the monopoly of the home market, an additional duty was in 1822, on the suggestion of the director-general of the customs, imposed on all foreign sugars. In return, France possesses the exclusive privilege of supplying the colonies with all the manufactures and other European goods which they require. On this principle of mutual monopoly the trade is now conducted. The effect of this system is to levy a tax on the inhabitants of France, in order to indemnify the colonists for the losses which they incur in carrying on an unprofitable trade. They cannot furnish a supply of sugar to France at the ordinary rate of the European market; and the price must therefore be artificially raised in that country, in order to enable them to carry on the cultivation of their estates; whilst, on the other hand, they are not at liberty to buy the goods which they require in the cheapest market, but must take them at whatever price they can be afforded by the mother country. The quantity of sugar imported into France is 60,000,000 of kilogrammes, or 1,178,571 cwts.; of coffee, 4,000,000 of kilogrammes, or 74,107 cwts. The whole amount of the colonial importation into France is estimated at L.2,125,000, and the average exports at L.1,416,666. The additional expense which France pays for colonial products, in consequence of the exclusion of foreign sugar and other articles, is estimated at L.833,333 per annum. To this amount the French people are taxed for the colonial monopoly. The colonies again purchase the articles which they require for their consumption at a higher price than they could be procured from Great Britain; and they complain that on this account they pay L.625,000 per annum. Thus both parties suffer. The restrictive system is a source of mutual mischief to the colonies and the mother country; and indirectly also it produces injurious consequences to the general trade of the country. The merchants of Paris, Bordeaux, and Marseilles, who are interested in the trade, concur in stating that the impossibility of importing bulky articles, such as sugar, from foreign countries, interrupts the commerce with India and the Levant. Indigo, silk, spices, &c. the produce of India, are not indeed excluded from France; but a vessel cannot be loaded with these costly articles, for which there is no sufficient demand; and hence the want of the more bulky articles effectually obstructs the trade between the two countries.

Another evil of this colonial monopoly is, that the colonies supply more sugar than France can consume. But it cannot be sold in other countries at the price which is paid to the colonies by the mother country; and hence it becomes necessary to find out the means of forcing a sale of the surplus which cannot be consumed at home. A bounty is accordingly granted on all sugar exported from France; and in 1831, whilst the duty on the importation of sugar produced L.1,636,030, there was paid back for bounties L.483,951, which is more than one fourth of the gross receipts. The loss which France has incurred since the peace of 1814 by this erroneous system is estimated in Bowring and Villiers' Report, at L.40,000,000 sterling; and in return for these great sacrifices, the colonies afford but a limited demand for the manufactures of the mother country, as will appear from the following account of the population of the principal colonies, extracted from the colonial budgets.

	Whites.	Free People of Colour.	Slaves.	Total Population.
Martinique	9,937	10,786	81,182	101,905
Guadaloupe	17,257	16,705	101,554	135,516
Bourbon	18,747	6,387	63,447	88,581
	45,941	33,878	246,183	326,002

We subjoin a table of the trade of France with her colonies for four years prior to 1831.

	Years.	COMMERCE WITH FRANCE.					
		Importations.			Exportations.		
		No. of Ships.	Tonnage.	Value Imported.	No. of Ships.	Tonnage.	Value Exported.
				Francs.			Francs.
Martinique	1828	153	39,703	20,999,677	187	47,889	19,921,447
	1829	153	39,382	20,640,837	153	41,791	20,948,148
	1830	132	34,457	19,833,277	126	33,775	12,344,008
	1831	136	35,037	18,992,032	154	40,966	12,637,930
Guadaloupe	1828	173	44,856	23,939,954	185	48,574	19,329,237
	1829	190	46,903	25,236,852	189	47,701	22,456,596
	1830	158	39,209	20,823,871	134	35,375	11,274,262
	1831	194	47,772	26,183,619	195	47,623	12,143,453
Bourbon	1828	56	16,684	11,790,785	68	20,228	8,216,594
	1829	55	17,268	14,233,538	95	28,296	16,664,005
	1830	77	23,316	14,706,439	71	21,456	11,697,814
	1831	62	18,315	15,003,276	50	15,122	3,715,508
Senegal	1828	34	4,027	3,448,115	39	4,680	3,972,711
	1829	24	2,560	2,465,166	43	5,450	4,551,041
	1830	29	3,013	3,070,758	35	3,985	4,121,075
	1831	25	2,706	3,313,837	29	3,058	3,093,815
Cayenne	1828	21	3,480	2,433,791	23	3,699	1,956,817
	1829	20	3,399	1,842,963	24	4,119	1,779,277
	1830	25	4,269	2,881,335	28	5,206	1,768,771
	1831	23	4,056	2,426,758	27	4,458	1,736,792
Indian Establishments	1828	10	2,823	4,654,920	13	3,442	470,191
	1829	3	824	926,962	10	2,750	1,013,586
	1830	7	1,812	5,274,792	...	......	......
	1831	5	1,241	3,723,270	4	1,145	129,721

Fisheries.

The fisheries of France are composed, like our own, of those on the coast and those at a distance, particularly at Newfoundland. All along the north coast of France, the fisheries consist, as on our side of the Channel, of cod, mackerel, herrings, and pilchards. On the shore of the Atlantic, and still more on that of the Mediterranean, are caught great quantities of sardines, a fish of passage, which appears periodically in shoals, like the herring. The tunny, a fish not known in northern latitudes, is found in the Mediterranean in the early part of summer. It varies in weight from ten to twenty-five pounds, and is in like manner caught in shoals. These home fisheries, little calculated for forming seamen, have been left to their natural progress, whilst repeated attempts have been made by government to extend the fishery in America; a design favoured by the early possession by France of Newfoundland and Canada, as well as by the long peace that followed the treaty of Utrecht. Towards the middle of last century the French fisheries in America employed annually about 5000 seamen; but the unsuccessful contest with England in 1756 reduced them greatly, and deprived them of their principal station, Cape Breton. The peace of 1783 was concluded under better auspices. The islands of St Pierre and Miquelon were ceded to France by the treaty of Versailles, and the rights of fishing and of drying fish from the Cape St John to Cape Ray. In the Gulf of St Lawrence her rights were subsequently recognised, by the treaties of 1802 and 1814, at three leagues distance from the coasts belonging to Great Britain; but within the gulf, at a distance of fifteen leagues from Isle Royale, and thirty leagues from New Brunswick.

For the encouragement of the French fisheries, enormous pecuniary sacrifices have been made. The only time they were ever in a prosperous state was, not when they were protected by the artificial encouragement of the mother country, but when the French colonists, being in possession of a large tract of the American seacoast, were in consequence compelled to trust to prudence and economy alone for the success of their adventures. During the last session of the chamber of deputies, a committee, appointed to inquire into this subject, made their report, in which they state " that the French fishermen have now to compete with those who are always on the spot; who carry on their fishing concerns in small boats, and at a trifling cost; who pay no charge of outfit; who lose no time in voyages; who employ the cheaper labour of children, women, and old persons; who have their drying and salting establishments in the neighbourhood; and who can accommodate all their proceedings to the urgency of circumstances." It is to counterbalance these advantages that France has resorted to the system of bounties, which has been carried to a great length in order to force the establishment of a trade in the face of natural obstacles. The result of the investigations of the committee was the recommendation to government to grant such a premium to those who adventured in the fishery as should place them on a level with their more fortunate rivals. In 1816 a bounty was granted of fifty francs per man for the cod fishery, fifteen francs per man for the herring fishery, and twenty-four francs per quintal on the introduction of the fish into the colonies. In 1818 these premiums were raised by royal ordonnances to forty francs per quintal, which is more than 100 per cent. on the value; and the market price of the fish became in consequence a nett profit to the adventurer. This premium was reduced in 1822 to thirty francs per quintal. But a new law was passed in 1832, which is to be valid till 1837, and which allows a premium of fifty francs for every seaman engaged in the cod fishery of St Pierre and Miquelon; thirty francs for each engaged in the fisheries of the Great Bank of Newfoundland, or Iceland; fifteen francs if on the Dogger Bank; and fifty francs in every case if the fish are dried at St Pierre or Miquelon. An additional premium is allowed of twenty-four francs per metrical quintal or cwt. on cod fish shipped from France to the French colonies, thirty francs if shipped direct from the fisheries, twelve francs per quintal if shipped to other ports from France, and ten if direct from the fisheries; also twenty francs per quintal as a premium on cod roes. The effect of these bounties is to place the adventurer in the French fisheries beyond all risk of loss. In many cases they are equal to the whole expense of the outfit, the voyage, and the return; and, though no cargo is brought home, no loss can be incurred. The whole expense and hazard of the trade is thus borne by the public.

The following table contains the amount of the cod fishery from 1826 to 1830.

Years.	Importations into France.				Direct Exportations from the Fisheries to the Colonies.	Total Produce of the Fisheries.
	Salt Fish.	Reduced Half.	Dried Fish.	Total.		
	Quintals.	Quintals.	Quintals.	Quintals.	Quintals.	Quintals.
1826	84,296	42,148	159,616	201,764	29,784	231,548
1827	90,460	45,230	159,702	204,932	19,971	224,903
1828	128,563	64,281	172,582	236,763	17,316	254,079
1829	103,489	51,744	203,571	256,315	29,218	285,533
1830	105,003	52,501	136,458	188,959	37,986	226,943
Totals.........	511,811	255,904	831,929	1,088,733	134,275	1,223,006
Average of five years	102,362	51,181	166,385	217,747	26,855	244,601

	French Exportations.		
	To the Colonies.	To Foreign Countries.	Total.
Average of five years................	39,225	17,909	57,134

Average exportation of France being..........................57,134

There remains for the average consumption of France, and for land-frontier export.................................160,613[1]

On the above the following bounties have been paid:—

1826..................	2,519,902 francs.
1827..................	2,166,118
1828..................	2,723,317
1829..................	3,381,031
1830..................	4,368,582
	15,158,950
Average on the five years...	3,031,790[2]

From the above accounts it appears that for the five years previous to 1831 the cod fish caught amounted to 1,223,006 hundredweight, which, estimated at twenty francs per quintal, the price quoted in the French ports, is equal to 24,460,120 francs, or L.978,405 sterling; and for this produce France has paid in the shape of bounties 15,158,950 francs, equal to L.606,358 sterling; and if we add seven francs per hundredweight for freight and expenses, it will be found that the produce of the fisheries, which is worth only L.978,405, has cost the French nation between L.1,200,000 and L.1,300,000; besides that the fish are of very inferior quality to those caught by the Americans, the latter selling at forty-seven francs thirty-five cents. per quintal, whilst the French cod fish only brought twenty-six francs ninety-five cents. With all this expense, however, the French fisheries are not adequate to the supply of the colonies, which receive considerable quantities of fish from foreigners, as will be seen from the following table.

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[1] *Rapport sur la Pêche*, 1831, p. 108.

[2] *Idem*, p. 109.

Colonial Importations—Average of Five Years from 1826 to 1830.

	At Martinique.	Guadaloupe.	Cayenne.	Senegal.	Bourbon.	Total.
From France	13,827	19,501	1,162	158	4,577	39,225
... Newfoundland	2,399	3,853	264	...	...	6,516
... St Pierre	8,924	7,188	...	...	515	16,627
... Foreign fisheries	19,920	9,445	...	...	...	29,365
Total	45,070	39,987	1,426	158	5,192	91,733

If we contrast the expense and the produce of the British fisheries with those of France, the disadvantages under which the French prosecute this branch of trade will be manifest. It appears that whilst the British only employ in the Newfoundland fishery at the rate of seven men per hundred tons, the average number employed by the French in their different fisheries is nineteen and a half men per hundred tons; and in the report laid before the Chamber of Deputies for 1832, it is stated that the cost of each man employed in the cod fishery amounted, from 1823 to 1825, to 223 francs, in 1829 to 296 francs, in 1830 to 440 francs, being about L.17. 12s. sterling, or 6s. 9d. a week, independently of the cost to the owner of the vessel.

The shipping that cleared out from the united kingdom, and the exportations from St John's and Labrador on British account, were,

	Ships.	Tons.	Men.	Quantity Exported.
In 1824	313	40,625	2,572	996,976 cwt.
1825	322	44,255	2,768	973,464
1826	282	35,781	2,267	928,442
Totals	917	120,661	7,607	2,898,882
Average	306	40,220	2,539	966,294

In the same period the vessels which cleared out from France, and the quantities of fish imported into France, were as follows:

	Ships.	Tons.	Men.	Quantity Imported.
In 1824	348	36,999	6,672	447,380 cwt.
1825	336	35,172	6,311	462,253
1826	341	38,938	7,088	484,380
Totals	1,025	111,109	20,071	1,394,013
Average	342	37,036	6,690	464,671

From the above tables it will be seen that the number of British seamen does not amount to a third of the number employed by France, the average being only 2539 seamen to 40,220 tons of shipping, while the proportion of French seamen is 6690 to 37,036. They catch double the number of fish, and these of a better quality, namely, 966,294 cwts. while the French only take 464,671 cwts. On the whole, it appears that the French risk about seven times the capital in these fisheries for which they could purchase the same supply of fish from foreigners. We subjoin two other tables, the first giving a detail of the state of the French fishery for 1831, and the other a general view of its produce from 1823 to 1831 inclusive.

General Statement of the Returns of the Cod Fishery effected in the Ports of France during the Year 1831.

Ports of Arrival.	Ships.			Produce of Fish Imported.					
				Cod Fish.					
				Pickled.	Dried.				
	Number.	Tonnage.	Men.	Weight.	Weight.	Oil.	Sounds.	Roes.	Issues.
				Kilogrammes.	Kilogrammes.	Kilogrammes.	Kilogrammes.	Kilogrammes.	Kilogrammes.
Bayonne	6	758	153	3,960	518,800	11,255	......	2,365	12,550
Bordeaux	31	4,020	522	1,863,519	1,222,491	74,991	3,195	......	1,791
La Rochelle	29	3,404	420	1,672,059	472,797	43,346	4,467	4,343	21,927
Nantes	9	979	123	161,422	294,887	47,852	224	......	......
Saint Malo	23	2,893	811	46,553	993,737	171,713	31,744	......	35
Saint Servan	6	966	569	8,318	127,400	96,597	9,648	... ..	4,740
Portrieux	2	328	106	......	200	21,457	......	......	......
Paimpoi	1	250	124	957	21,224	6,608	1,577	100	100
Binic	1	244	75	......	......	2,228	......	......	......
Cherbourg	3	547	131	......	245,000	46,380	......	......	8,500
Granville	34	4,501	1,090	779,893	1,411,510	133,638	14,916	......	22,450
Fecamp	14	1,825	198	1,157,363	......	11,557	3,866	......	18,576
Le Havre	7	995	227	......	601,025	57,099	13,202	......	......
Dieppe	3	396	43	280,760	......	8,604	604	......	3,221
Boulogne	3	345	49	277,819	......	5,096	10,897	.....	4,551
Dunkirk	79	4,686	921	3,669,776	......	......	181,632	7,150	80,815
Marseilles	48	7,664	651	281	6,768,682	419,870	9,105	......	......
Cette	3	379	30	......	140,190	4,878	2,625	......	......
Total	302	35,180	6,243	9,922.680	12,817,943	1,163,169	287,702	14,318	179,256

Comparative Statement of the Returns of the Cod Fishery effected in the Ports of France from the Years 1823 *to* 1831 *both inclusive.*

Ships.				Produce of Fish Imported.					
				Cod Fish.					
Years.	Number.	Tonnage.	Men.	Pickled. Weight.	Dried. Weight.	Oil.	Sounds.	Roes.	Issues.
				Kilogrammes.	Kilogrammes.	Kilogrammes.	Kilogrammes.	Kilogrammes.	Kilogrammes.
1823	184	16,258	3,655	4,407,730	4,423,739	415,210	136,301	6,843	......
1824	348	36,999	6,672	7,677,824	14,691,189	1,353,898	248,630	10,039	......
1825	336	35,172	6,311	7,288,949	15,823,731	1,294,336	242,960	7,387	......
1826	341	38,938	7,088	8,627,341	15,591,664	1,063,670	249,598	6,331	......
1827	387	44,808	8,238	9,046,145	15,970,250	1,201,623	316,503	3,229	......
1828	381	45,094	7,957	12,838,291	17,256,155	1,395,897	287,362	8,436	......
1829	414	50,574	9,428	10,548,878	20,377,594	1,909,147	337,063	10,762	... ..
1830	377	45,036	8,174	10,400,302	13,645,790	1,156,059	275,471	5,102	232,163
1831	302	35,180	6,243	9,922,680	12,817,943	1,163,229	287,702	14,319	179,256

Whale fishery.

The whale fishery was established in France in 1784, by means of encouragements held out by Louis XVI. who ordered that no duty should be collected on the articles exported, and that the produce of the fisheries should pay no import duty. He guaranteed the adventurers against loss, and ultimately paid, in addition to 300,000 francs (L.12,500), which he advanced without interest, an additional sum of 160,691 francs (L.6695), being the balance of loss on seventeen voyages. Notwithstanding these encouragements, the whole project was abandoned in 1787. In 1816, the offer of bounties attracted new adventurers into this branch of trade. The premium offered by the government was fifty francs per man, and two thirds of the crews were allowed to be foreigners. In 1819, forty francs were allowed to foreign vessels having a crew half French, fifty francs when the captain and one third of the crew were French; the premium to be doubled if the vessel passed Cape Horn. In 1829, a new ordonnance granted ninety francs per ton on vessels wholly equipped by Frenchmen, forty francs when only two thirds were Frenchmen, and thirty francs if the captain was a foreigner. The premium was doubled if the vessel passed Cape Horn. A supplementary premium was allowed to vessels fishing to the south-east of the Cape of Good Hope, and the double premium was given to all vessels fishing at a higher northern latitude than sixty degrees; and as the fishing is seldom or never prosecuted at a lower latitude, this premium of 180 francs per ton (L.7. 4s.) was invariably paid. The law of 1832, which regulates the whale fishery of France, establishes a bounty of seventy francs per ton from March 1832 to March 1833, if the whole crew be French; the bounty to be diminished four francs yearly till it reaches fifty-four francs. If one third of the crew be foreigners, the bounty to be forty-eight francs per ton, to diminish two francs yearly till it reaches forty francs per ton. A supplementary bounty to be given of fifty francs per ton if the crew be French, decreasing three francs per annum per ton, and twenty-four francs if one third be foreigners, decreasing one franc per annum, to be paid to vessels doubling Cape Horn, or reaching sixty-two degrees of south latitude, if returning with less than half a cargo, or after an absence of sixteen months; five hundred tons to be the minimum for a single whaler.

With these extraordinary encouragements, capital was attracted to this new line of industry; and in 1831 three vessels cleared out for the Greenland whale fishery, and thirteen for the South Sea fishery, which employed 6412 tons of shipping, and were manned by 551 men. The following table exhibits the gradual progress of the French whale fishery from 1817:

Years.	Vessels.	Destination.		Tonnage.	Crews.			Remarks.
		North.	South.		French.	Foreigners.	Total.	
1817	4	...	4	1285	30	58	88	2 of Havre. 1 of Bordeaux. 1 of Nantes.
1818	16	1	15	4905	129	256	385	3 of Nantes, 9 of Havre. 2 of Bordeaux, 1 of L'Orient. 1 of Calais (N.)
1819	11	1	10	2765	197	66	263	1 of Nantes, 3 of Havre, 3 of Bordeaux. 3 of St Servan, 1 of Honfleur (N.)
1820	17	4	13	4677	302	101	403	7 of Havre, 1 of St Malo, 4 of Nantes. 1 of Bordeaux (1 of Honfleur, 2 of Dunkerque, and 1 of Dieppe : 4 North.)
1821	9	1	8	2077	168	40	208	2 of Havre, 2 of St Malo, 3 of Nantes.
1822	9	1	8	2935	174	61	235	1 of L'Orient, 1 of Dieppe (N.) 3 of Havre, 4 of Nantes.
1823	4	1	3	1376	68	47	115	1 of Bordeaux, 1 of Dieppe (N.) 3 of Havre, 1 of Dieppe (N.)
1824	9	1	8	3078	194	57	251	3 of Havre, 5 of Nantes. 1 of Dieppe (N.)
1825	7	1	6	2497	134	73	207	5 of Havre, 1 of Nantes, 1 of Dieppe (N.)
1826	7	1*	6	2541	106	67	173	6 of Havre, 1 of Granville.*
1827	6	...	6	2121	113	41	154	4 of Havre, 2 of Nantes.
1828	7	...	7	2639	126	51	177	6 of Havre, 1 of Nantes.
1829	9	1	8	2573	195	75	270	7 of Havre, 1 of Dieppe (N.), 1 of Nantes.
1830	16	3	13	6198	515	37	552	6 of Havre, 1 of Granville (N.) 2 of Dieppe (N.), 4 of Nantes, 2 of St Malo, 1 of La Rochelle.
1831	16	3	13	6412	457	94	551	10 of Havre, 3 of Granville. 1 of Dieppe, 2 of Nantes.
	147	19	128					* Was sent to the fishery in the Gulf of St Lawrence, on the west coast of the island of Newfoundland.

It was estimated by the minister of commerce, in his report on this subject to the Chamber of Deputies, that the 550 seamen employed in the whale fishery do not cost the state less than 1,000,000 francs, at the rate of L.72. 12s. per man, or L.6 a month. The wages granted by the budget to seamen employed in ships of war amounts to L.1 per month; so that the allowance to the seamen employed in the Greenland fishery is six times the ordinary allowance of seamen in the public service. It is remarkable that France was granting these extravagant allowances for the encouragement of the whale fishery exactly at the time that Great Britain was withdrawing the bounties by which she had formerly endeavoured to promote this branch of trade as a nursery for seamen. Yet in 1830 the number of vessels that cleared out for the fishery was 123, consisting of 40,166 tons, navigated by 5044 seamen; being thus about eight times the quantity of tonnage employed by France.

France seems destined, by the natural advantages which she possesses, to become a maritime power of the first rank. Her sea-coast exceeds in extent that of any other continental state. On the Atlantic she has 130 leagues of coast, 150 on the Channel, and ninety on the Mediterranean; whilst her position between northern and southern Europe, and her numerous ports and navigable rivers, are eminently favourable to the extension of her navigation. But in this, as in all other branches of the French trade, the prejudicial effects of the restrictive system have been abundantly manifest. France, in forcing a trade with her colonies, containing less than half a million of inhabitants, has sacrificed her trade with other tropical countries and their numerous population, to the great injury of her shipping interest; the vessels employed in carrying on her foreign trade having fallen off since 1787, instead of having increased, as they ought to have done, considering the great advances which have been made since that time in population, in capital, and in productive industry. The following accounts exhibit a view of the changes which have taken place in the shipping of France since the year 1787.

Whole amount in 1787, 2,007,661 tons } Increase, 682,778
(Outward) in 1830, 2,690,439 } tons.

In the whole foreign trade of France:

Years.	Tons.		French. Tons.	Foreign. Tons.
In 1787,	694,269	of which	164,583	532,687
In 1830,	526,856		156,338	370,518
Diminution,	167,414		8,245	162,169

In the colonial trade:

Years.	Tons.
In 1787	114,064
In 1830	102,283
Diminution,	11,781

In the fisheries, including the herring, mackerel, and fresh fisheries:

Years.	Tons.	Cod. Tons.	Whale. Tons.	Coast or Fresh Fishing. Tons.
In 1787,	86,868	53,800	3,720	29,148
In 1830,	128,878	49,394	5,894	73,590
Increase,	42,010	Decr. 4,406	In. 2 174	In. 44,442

In the coasting trade:

Years.	Tons.
In 1787	1,010,852[1]
In 1830	2,302,940
Increase,	1,292,088

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[1] The return of 1786 does not state whether, like that of 1830, it comprehends the tonnage employed in the river navigation.

Commerce, &c.

From the above accounts it will be observed that a very great decline has taken place in the shipping employed in the foreign trade of France, whilst a great increase has taken place in the tonnage employed in the coasting trade; a fact which affords clear and convincing evidence of the extending resources of the country, which would have equally occasioned an increase in the shipping employed in the foreign as well as the domestic trade, if this important branch of industry had not been stunted in its natural growth by the monopolizing system. The navigation of France no doubt suffered grievously during the last war, under the maritime hostility of Britain. But in the course of nearly twenty years it would have recovered from this state of depression, if the natural energies of the country had been allowed free scope in this line of industry. The whole amount of the tonnage employed in the trade between France and Great Britain was, according to French accounts,

	Tons.
In 1787	87,563
In 1830	144,909
Increase	57,346

In 1830, 59,539 tons were reported outwards, and 67,356 inwards, in the packet service.

The following table exhibits the whole amount of the vessels and tonnage which entered inwards and outwards in all the ports of France from 1825 to 1829.

	Years.	Vessels.				Tonnage.			
		French Ships.	Foreign Ships.		Totals.	French Ships.	Foreign.		Totals.
				Neutral.				Neutral.	
Inwards.	1825	3,387	3,473	745	7,605	329,735	317,850	96,820	744,405
	1826	3,440	4,299	611	8,350	355,776	456,890	86,792	899,458
	1827	3,350	3,959	480	7,789	353,102	408,873	66,636	828,611
	1828	3,465	4,122	606	8,193	346,591	445,708	81,931	874,230
	1829	3,048	4,342	728	8,118	331,049	487,739	94,016	912,804
Outwards.	1825	3,908	4,583	1,411	9,902	354,311	283,797	116,643	754,751
	1826	3,586	4,335	973	8,888	355,742	341,036	91,636	788,414
	1827	3,522	4,141	1,180	8,843	346,370	346,733	93,109	786,212
	1828	3,341	4,164	899	8,404	326,835	344,547	115,972	787,354
	1829	3,101	3,698	792	7,591	316,462	311,286	108,942	736,690

The following table exhibits the state of the French navigation for the year 1831, with the number of ships and the seamen employed.

IMPORTS.									
From whence.	French Ships.			Foreign Ships.			Total.		
	Number of Ships.	Tonnage.	Number of Sailors.	Number of Ships.	Tonnage.	Number of Sailors.	Number of Ships.	Tonnage.	Number of Sailors.
From foreign countries..	2,935	225,330	20,777	3951	461,194	36,291	6,886	686,524	57,068
French colonies..........	440	107,886	6,035	...	...	...	440	107,886	6,035
Fisheries....................	8,283	119,476	53,929	...	...	...	8,283	119,476	53,929
Coasting....................	70,740	2,226,000	278,065	...	...	...	70,740	2,226,000	278,065
Total..................	82,398	2,678,692	358,806	3951	461,194	36,291	86,349	3,139,886	395,097
EXPORTS.									
Destination.	French Ships.			Foreign Ships.			Total.		
	Number of Ships.	Tonnage.	Number of Sailors.	Number of Ships.	Tonnage.	Number of Sailors.	Number of Ships.	Tonnage.	Number of Sailors.
Foreign countries.........	3,211	214,493	21,473	4240	362,981	32,319	7,485	577,904	53,963
French colonics...........	460	111,760	6,326	...	...	...	460	111,760	6,326
Fisheries.....................	8,412	117,827	54,640	...	...	...	8,412	117,827	54,640
Coasting....................	67,292	2,088,473	263,841	...	...	...	67,292	2,088,473	263,841
Total.........	79,375	2,532,553	346,280	4240	362,981	32,319	83,649	2,895,964	378,770

One cause of the slow advances made by the French shipping is, that their ships are manned by so much greater a number of men than those of either Britain or the United States. The British shipping by which the trade between Great Britain and France is carried on amounted in 1830 to 110,766 tons, and they were navigated by 10,029 seamen, being a proportion of nine men for a hundred tons. The whole British shipping employed in

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the foreign trade outwards amounts to 2,180,042 tons, navigated by 122,103 seamen, which gives five and a half seamen for 100 tons. Of the French shipping which entered France in 1831, the tonnage employed in the trade with all foreign countries amounted to 372,931 tons, navigated by 34,355 men, being a proportion of above nine men for 100 tons. The navigation of the United States is carried on by a proportion of four and one third seamen per 100 tons. In the coasting trade of France 1,618,896 tons of shipping were employed in 1831, and 209,831 men, making an average of about thirteen men per 100 tons. In the coasting trade of the united kingdom 8,777,921 tons were employed, and 513,109 men, or an average of five and seven eighths men per 100 tons. The ship-owners complain that one of the great obstructions to the progress of shipping in France is the high price of iron. The whole shipping of France, they say, consists of 11,000 vessels, in which there are 1,122,000 cwts. of iron. Estimating the annual waste at ten per cent. the iron consumed by the shipping of France will cost 6,283,200 francs (L.261,800 sterling), of which, they say, more than one half is sacrificed to the interests of the iron masters; besides that, the monopoly which they enjoy, and the duty imposed on foreign coals, raise enormously the value of timber, and thus also tend to obstruct the progress of navigation.

VIII. RELIGIOUS AND CHARITABLE ESTABLISHMENTS.

The condition of the church and clergy forms a most important feature in the history and present situation of France. In former times, the Gallican church, without desiring a separation from the holy see, had often advanced a claim to independence, and maintained long and animated discussions, or rather controversies, familiar to those readers of the French annals who have attended to the history of the Jansenists and Molinists. The result of these, and of the general progress of knowledge in France, was an exemption from a part at least of the interference in ecclesiastical affairs, exercised so despotically by the court of Rome in Spain, in Portugal, and in Italy. As to pecuniary means, though the income of the lower ranks of the clergy was extremely small, the church of France was on the whole richly endowed; the rent of land and houses appropriated to abbeys, priories, bishoprics, archbishoprics, and benefices of every description, being computed at five millions sterling, exclusive of the tithes levied, with more or less strictness, throughout the whole kingdom. As a political body, the French clergy were differently situated from the English, having no voice in legislating, but aiming at, and frequently attaining, the highest offices in the executive government.

In 1789 a number of the clergy, both in the upper and lower ranks, participated in the general wish for a political reform, and evinced that disposition by their readiness in coalescing with the *tiers état*, at a time when the majority of the noblesse refused to do it, until compelled by the call of the people, and the positive order of the court. In the highly interesting discussions that ensued during the years 1789 and 1790, several of the leading orators were Catholic clergymen, nor did they in general take the alarm, until the menacing aspect given to public affairs by the too rapid progress of the Revolution. The National Assembly stripped the church of her lands, and declared them the property of the public, providing, indeed, for the income of the clergy, but making the payment of it dependent on government. All this might have passed and been forgiven in the ardent hopes of national benefit from the Revolution; but the assembly did not stop here. Considering both the court of Rome and the court of France inveterately hostile to the Revolution, they determined to detach the clergy from both, and sought to compel their adherence, by imposing on them an oath of fidelity to the new constitution, on pain of forfeiture of their livings. The sincerity of the clerical body was now put to the test, and a striking proof was given of their being actuated by that conscientious feeling for which the public in Protestant countries are so little disposed to give them credit. In every rank, whether prelates, curates, vicars, or the humble *desservants*, the majority preferred the hazard of losing their livelihood to taking an oath at variance with their conscience. The violent party continued to triumph at Paris, and the non-conforming clergy had no alternative but to fly their country. Hence the clouds of emigrants who, in 1791 and 1792, sought refuge in Italy, Germany, and, above all, in England. Those who remained in France were exposed to all the atrocities of the Jacobins. Hundreds of them were sacrificed in the massacres of September 1792, and hundreds more were brought to the guillotine in the dreadful years 1793 and 1794. With the fall of Robespierre (July 1794) the executions ceased; but a tone of hostility to the church was still kept up, and accounted an indispensable part of the policy of the revolutionary government. The only class allowed to remain in quiet were the *curés*, whose humble station and scattered position created no political alarm. It was not till the established sway of Bonaparte (in 1801) that circumstances admitted of cooler calculation, and enabled that skilful usurper to seek in a hierarchy a prop to his own power, and an engine of opposition to the liberal party, which still hoped to secure to France advantages from the Revolution. With this view he affected great respect for the Catholic church, concluded a concordat with the pope, and made a pecuniary provision for a specified number of sees. His next step was to frame and circulate throughout all France a catechism, calculated to impress the rising generation with a profound veneration for a sovereign who had been "anointed by the pope, and received his mission from the Almighty." The power of Bonaparte received in this manner a most substantial support, and would have taken deep root with the lower orders, had he not counteracted it by his subsequent quarrel with the pope, which assumed an angry aspect in 1809, and became more and more aggravated during the remainder of his reign.

On the restoration of the Bourbons in 1814, the Catholic clergy hailed the change with enthusiasm; but the public, at least the great majority of the middling classes, soon showed a marked distinction between their cause and that of the king. The conduct of Louis in regard to the clergy was marked by moderation and judgment. Religious himself, he sought to revive similar impressions among his subjects, to enforce the observance of the Lord's day, and to relieve from indigence the *desservants* or country curates. But he placed no clergymen in political situations, nor made any attempt to give the bishops or archbishops seats in the House of Peers.

Concordat.

A concordat or compact between the pope and the king is a transaction of high importance in a Catholic country, where the public are impressed with the belief, that in all that relates to religion, reference ought to be had to the court of Rome, and that their temporal sovereign possesses authority in such affairs only as far as it is delegated by the holy father. The object of a concordat is to define the respective powers of the pope and king. In France the aim of the executive government has long been to secure the patronage of the church, and to stipulate that no bulls, briefs, decrees, or other acts of a nature to agitate the public mind, should be promulgated without the royal sanction. Three centuries ago, when the alarm of the Reformation, and some urgent political considerations, made it of importance to the court of Rome to attach to its cause the reigning sovereign of France, there was passed between Leo X. and Francis I. a concordat, declaring that

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the power of nominating the archbishops and bishops of France resided in the crown, the sanction of the pope being required only for their inauguration (*institution canonique*). This compact was considered a kind of charter or standard document in the long discussions which afterwards ensued about the independence of the Gallican church, until the whole sunk into insignificance before the storm of the Revolution. During the ferment of that convulsion, the Jacobins, and even the Directory, made no proposition for accommodation with the holy see, and bade, or affected to bid, it defiance. Bonaparte, more politic, concluded a concordat, which, though it reinstated only fifty of the 130 sees existing before the Revolution, stamped him in some measure a restorer of the church. That he did not afterwards augment their number, is to be accounted for solely by a dread of alarming the revolutionists. The Bourbons, on their restoration, appear to have felt all the delicacy of such a measure; and nothing favours the probability of the charge of their intending to restore the lands, the tithes, or temporal influence of the clergy. Negotiations for a concordat were early begun with the court of Rome, but its conclusion was delayed till 1817; and the interest with which it was received in France can be comprehended only by persons resident among a people still agitated by political division, and dreading the influence of the clergy as an engine for the revival of all past abuses. From this, and from differences with the court of Rome that are foreign to our subject, the execution of the new concordat has been very tardy. Of the forty-two additional sees appointed by it, a considerable part are still vacant.

The prelates of the church of France are as follows:—

Cardinals, at present five in number, with an annual income of nearly	L.1300 sterling.
18 archbishops, average income about	800
74 bishops, do. about	600

The next in rank are the vicars-general, to the number of more than a hundred; and the chanoines or canons, who also exceed a hundred; after which come the *curés* or established curates, in number nearly 3000, and divided into three classes (first, second, and third), with incomes of only L.40, L.50, or L.60, but with certain emoluments, from surplus fees, which vary according to the population of their respective districts. Lastly come the *desservants*, or acting curates, of whom there is one in almost every country *commune* or parish in the kingdom, amounting in all to above 23,000, but with incomes of only between L.20 and L.30 a year; a pittance equal to about L.40 in England, but still too small to provide for even the limited wants of a state of celibacy. There are also a number of *succursales*, or chapels, appended to large parishes; but of these a considerable number (at present about 2000) are vacant from want of funds, bad repairs of the building, and other causes. These various appointments are all paid out of the public treasury. The expense of the Catholic church to the nation is L.1,100,000 sterling a year; but as there are other heads of disbursement, particularly salaries to Protestant ministers, the total ecclesiastical charge is about L.1,300,000.

The nomination of all clergymen, whether Catholic or Protestant, is vested in the crown. As to political feeling, the Catholic clergy are, almost without exception, hostile to the interests produced by the Revolution, and attached to the Bourbons.

Convents.

Female convents have all along existed in France, with the exception of a few years of the worst part of the Revolution, when their inmates were obliged to forsake their establishments, and to seek an abode with their relations. Monasteries are, with very few exceptions, abolished, and no idea is entertained of re-establishing the abbeys, priories, and other endowed establishments; the Bourbons and the court of Rome having repeatedly pledged themselves not to disturb the revolutionary purchasers of the church-lands, and to appropriate to ecclesiastical purposes only that portion of these lands that remains unsold.

Effects of the Revolution on religion.

What, it may be asked, have been the effects of the Revolution on the state of religion in France? It has subverted the power of the church, and, what is much more serious, the belief of Christianity in the minds of the young and the middle-aged of the male part of the population; but with the elders of that sex, and with almost all females, the Catholic creed preserves undiminished sway; a sway which extends much farther than can readily be conceived by Protestants. The extent of this influence is owing to various causes; in part to commendable conduct in the clergy, who in general act the part of careful pastors, and attentive visitors in sickness or distress; but in part also to that blind credulity with which the tenets of the church are received both by the hearers and their spiritual guides, whose education has by no means kept pace with the general progress of knowledge; for it does not embrace the philosophical course of the universities of France, but is conducted in separate seminaries, and upon a much more confined plan.

Protestants in France.

The Protestants in France amount to above 2,000,000, and are most numerous in the south, particularly at Nismes and its vicinity. They are almost all adherents of the Revolution; and a political change, such as that which twice took place in 1815, could not be accomplished in a divided community without a contest; but the alarm which was then so loudly raised in England in their behalf was founded on exaggeration. The Bourbon government received with attention the applications of the Protestants, whether for increase of pastors or repair of churches. On the whole, the Protestants of France form an industrious and valuable portion of the population; but they are animated by a strong *esprit de secte*, by a feeling approaching to animosity towards the Catholics; and have all along evinced considerable distrust of the reinstated government.

Charitable establishments.

Before the Revolution the poor in France, as in Italy and other Catholic countries, were supported chiefly by the abbeys, priories, or other beneficed establishments. On the absorption of these sources of income by the revolutionary government, a provision for the poor became a subject of legislative inquiry; and, after long investigation, it was decidedly determined to avoid a poor-rate on the English plan, but to provide for the aged and helpless an annual fund to the proposed amount of L.2,000,000 sterling. Several years elapsed before this was acted on, and the fund eventually provided consisted of a revival of part of the old *octrois*, or dues levied on wine, cider, spirits, and other articles of consumption, on their entrance into towns; a tax from which the Revolution had relieved the public, and which was now disguised under the specious name of *octroi de bienfaisance*. These dues, however, were soon extended and applied to the general expenditure of the government, after retaining a portion, which at present constitutes the only regular fund for the poor. Further sums are collected by subscription in the depth of winter, or on the occurrence of extraordinary distress. From the public treasury, likewise, there are made occasional issues, in a season of hardship, on the application of the mayors or local magistrates. There are at Paris a number of hospitals, of which by far the largest is the Hôtel Dieu. In the provincial cities there are in general two hospitals for the poor, one for the sick, the other for the aged. Of other charitable institutions, the principal are the *sociétés de charité maternelle*, or associations on a large scale, at Paris and some of the chief towns, for the aid of indigent women in child-bed. Mendicity is not restricted in France, and prevails in many places to a reprehensible degree.

IX. ESTABLISHMENTS FOR EDUCATION.

Establishments for Education.

The organization or framework of the system of public instruction in France is one of the happiest applications which has yet been made of the principle of centralization. It is due to the genius of Napoleon. In 1808 he promulgated his decree for establishing the University of France, the provisions of which, being full of the wisdom and foresight so characteristic of his *civil* acts, have engrafted themselves on the institutions of the country, and, with a few slight modifications suggested by experience or by the course of events, are now in full operation, and producing the happiest effects. By this decree the establishments for education throughout France, whether endowed or not, from the village school, through all the gradations of grammar schools, academies, and colleges, up to the faculties and universities, were comprehended under one great central administration, called *l'Université Impériale* (now *Royale*) *de France.* The term *University*, therefore, in the sense first introduced by Napoleon, and now naturalized and generally adopted in France, does not describe, as in Britain and elsewhere, an institution for liberal education, but a branch of the administration or government of the state. It has, nevertheless, so much of the nature of a corporate body, that it possesses large disposable funds of its own, consisting, partly of real property, partly of pecuniary endowment secured on the public revenue, and partly of the produce of a tax levied on every institution for educating the children of the wealthier classes, which is called *retribution universitaire.* All professors, public teachers, and schoolmasters are necessarily members of this vast body, called the University, the control and direction of which reside in the following authorities:

1. The grand master, who is also minister of public instruction, with a seat in the cabinet. At the moment we write (September 1834) M. Guizot holds this important office, in virtue of which he not only appoints all the officers of university administration, but fills up all the vacancies in colleges and schools, only, however, upon the recommendation of the inferior local authorities, and after rigorous examinations and comparative trials by them.

2. The second university authority is the royal council of public instruction, composed of ten members, selected from the names most eminent in the various branches of science and literature. They hold their sittings in Paris, and are generally distinguished members of the Institute, as at present, for example, Villemain, Cousin, Orfila, Thénard, &c. This council, with the grand master *ex officio* president, is the fountain-head of authority, and the supreme court of appeal in all that regards education. Their province is to suggest and sanction improvements in the method of teaching; to direct and superintend the compilation of books to put into the hands of youth, and to see that they be adopted in schools and colleges; to judge and remove incompetent teachers, upon the reports of general inspectors; in short, to watch over the concerns and interests of public instruction in all its branches.

3. The University, or, in other words, the whole territory of France, as far as regards the purposes of education, is divided into *twenty-six academies*, each comprehending three or more departments; for the term *academy*, like *university* itself, no longer designates a local institution for the training of youth, but a certain territorial extent of educational jurisdiction. In the central town of each academy resides a rector, whose business it is to superintend all the schools, colleges, and faculties within the departments which form his district, to promote their moral and intellectual improvement, to collect the reports of the inspectors who are employed to visit and examine all places of education under his jurisdiction, to transmit the result to the central administration at Paris, and to serve as the organ of communication with the minister of public instruction. He is assisted and controlled in the exercise of his functions by an academical council of ten, who are, partly official persons connected with the university, with the department, and with the municipality, and partly respectable inhabitants of the town which is the seat of the academy. This council stands in the same relation to the academy as the *conseil royal* at Paris does to the university, except that in most cases an appeal lies to the latter from the decisions of the former.

4. Attached to the *conseil royal* are ten inspectors-general of the university. Amongst these France is divided into ten districts, each of which is visited once a year by a different inspector, who makes a survey of the principal establishments, controls their administration, and reports to the minister of public instruction.

Besides these inspectors, who are the agents of the central administration, each rector has, acting under him, two or more *inspecteurs d'academie*, who examine more minutely every primary school or college within the limits of his jurisdiction, and report to him on the general condition of the establishments, on the progress of the pupils, and on the conduct and character of the teachers.

Such is the general constitution of the administrative body by which appointments are made, abuses prevented or remedied, the finance department conducted, and the general efficiency of the system of practical instruction secured. With regard to that system itself, the constituent parts of the great *corps enseignant* may be thus enumerated, beginning with the highest:

1. First, then, we have *les facultés;* a term which has superseded the use of the word *université* in its local and separate meaning, and which corresponds to the Scottish use of the words college and university. The faculties in France are reckoned five; that of the sciences, mathematical and physical, of letters, of law, of medicine, and of theology; and all these faculties, with their complement of professors, a dean at the head of each, and a resort of students more or less numerous, are found established in eight different towns of France, which in Scotland we should call seats of universities. They are the following: Paris, Caen, Toulouse, Strasburg, Dijon, Poitiers, Rennes, and Metz.

It is by the faculties alone that degrees can be conferred, and these degrees are of three kinds: Bachelor's (*le baccalauréat*), which cannot be obtained before sixteen years of age; licentiate's (*la licence*), which presupposes the former, and at least one additional year of age and study; and doctor's degree (*le doctorat*), granted to licentiates when still further advanced in age and acquirement.

2. Subordinate to the faculties, and intended to be a preparation for them, are the colleges; institutions which resemble a good deal those known by the same name in England, when the term College is applied, not to the universities, but to the schools of Eton, Harrow, Westminster, &c. The French *collèges* are either royal or communal. Of the former there are at present thirty-nine, of the latter 320. Of these 320, by far the greater number are in a very imperfect and inefficient state; and the minister Guizot has announced his intention of bringing in a bill to put them on a better footing. In many of the *collèges royaux*, such as those of Caen and of Rouen, the work of reformation is already begun, by having conjoined with the old course of instruction, which was too exclusively classical, what are called *cours spéciaux*, in history both natural and civil, in mathematics and physics, and in geography and modern languages.

3. The third and lowest stage of national instruction is that of the *écoles primaires*, corresponding to our parochial and village schools. The law of the 28th of June 1833 has new-modelled and added greatly both to the number

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and value of the *écoles primaires.* It ordains that there shall be a school in every one of the 37,187 *communes* or parishes into which France is divided; and this ordinance is advancing rapidly to its full accomplishment.

Still more important and commendable are the provisions contained in this memorable law, for making the course of instruction in these schools, and the methods of imparting it, such as to bestow on the great mass of the population that amount of religious, moral, and intellectual training which is best adapted to their condition in life and the duties they have to discharge. This law provides also for a somewhat fuller and more comprehensive education of the children of the middle class and wealthy burghers in considerable towns, by ordaining that in every commune which contains above 6000 souls (the number of these in France is 273) there shall be an *école primaire supérieure*, corresponding to and borrowed from the Burger- or Mittel-schule of Germany, in which a considerable extension is given to the list of subjects taught in the primary schools. Of these schools, intermediate between the primary schools and the colleges, forty-five had been established at the date of March 1834.

The educational system of France, as we have briefly sketched it, may be considered as now happily established, with a fairer prospect of success, and less risk of failure, than in any former attempt in that country. This result is rendered probable, above all, by two other parts of the system, which deserve particular mention, on account of their tendency to give permanence and efficiency to any system whatever of national instruction. One of these is the *école normale*, established at Paris by Napoleon in 1808, for the purpose of maintaining 300 pupils, and training them not only to great acquirements in literature and science, but to the art of communicating their knowledge to others in an attractive and interesting form, and thus to become able regents in the *collèges royaux*, and professors in the faculties. None are admitted into this institution who are under the age of seventeen complete, and who have not distinguished themselves in the previous stages of their education. The pupils are divided into two sections, that of the sciences and that of letters, and remain three years in the one or the other. The first two years are employed in confirming and extending their acquirements by a rigorous and effectual discipline under the best professors and teachers that Paris can afford. During the last year they are regarded as future teachers or professors, and trained particularly, both by theory and practice, to the art of communicating instruction.

The other security we spoke of is an extension and application of this noble conception of Napoleon, so as to embrace a preparatory course of discipline for the teachers of the primary schools. This idea, though originated and even acted upon long before the revolution of 1830, never was followed out with energy and effect till after that event, and above all since M. Guizot was minister. Even so late as 1828 there existed only three *écoles normales primaires*, as these seminaries for schoolmasters are called. According to the last account rendered to the king and the chambers by M. Guizot in April 1834, sixty-two of these seminaries were in full activity, providing able and accomplished teachers for the primary schools of no less than seventy-three out of the eighty-six departments of France; and there can be no doubt that in a very short time the law of 1833, which ordains that there shall be a normal school in every department, will be executed to the letter.

When this and all the other measures, either actually voted by the chambers or contemplated by the minister, for giving effect to the system of public instruction which has been described above, shall have received their full and final accomplishment, and shall have taken root universally in the habits of the people, we may congratulate France on possessing the strongest of all securities for good government, and against the recurrence of revolutionary changes.

Establishments for War.

X. ESTABLISHMENTS FOR THE PURPOSES OF WAR.

Army.

The French army first assumed a regular form under Henry IV.; but its peace establishment, including both horse and foot, did not then exceed 10,000 men, whilst the whole charge for the war department, including ordnance and half pay, was L.500,000. In 1610 Henry carried his army to a war establishment of 40,000 men. In 1640, under the able administration of Richelieu, France took an active part in the war of Germany, carrying her force at one time to 100,000 men, and her expenditure to the then unexampled sum of L.4,000,000 sterling in one year. In 1659, Louis XIV., already full of ambitious projects, kept up a peace establishment of 70,000 men; and the war of 1672 having brought Germany, Holland, and Spain, into the field against France, the force of the latter country was carried to the number of 160,000 men. From 1679 to 1688 there was peace; but Louis passed the interval in preparing for war, and the introduction of the funding system now enabled France, England, and Holland, to surpass all their former exertions. The contest begun in 1688 required on the part of France a force of between 200,000 and 300,000 men. The peace of Utrecht gave a long repose to exhausted France, and the war of 1741 did not, until conducted in its advanced stage by Marshal Saxe, call forth a military force equal to that of Louis XIV. In the war of 1756 the French army was less numerous, and far less ably commanded. During the continental peace of thirty years (from 1762 to 1792) its establishment was kept, with little fluctuation, at 100,000 men.

The war of the Revolution began with a force on the part of France[1] of only 140,000 men; but this was speedily augmented by the compulsory levies of February 1793, and by the still more comprehensive operation of the requisition in September. The republican spirit was now at its height, and the unlimited issue of assignats led to the maintenance of a force hitherto unexampled in the annals of any country, ancient or modern. In 1794, the Frenchmen in *actual service* in the Netherlands, on the Rhine, in Piedmont, the Pyrenees, and La Vendée, appear to have amounted to between 500,000 and 600,000; a force which, though imperfectly disciplined and officered, baffled the greatest confederacy that had at that time been formed in Europe. In 1795 the assignats lost their efficacy, and France was obliged to reduce her army by a third; but its discipline was now greatly improved. During the campaigns of 1795, 1796, and 1797, as well as in those of 1799 and 1800, the force maintained by France and Holland was between 300,000 and 400,000. At the peace of Amiens, Bonaparte kept up a peace establishment of 300,000 men; and after the renewal of war it was raised to 400,000;[2] a force with which he triumphed in 1805 over the united arms of Austria and Russia. His annual levy of French conscripts, though apparently only 80,000, amounted (see Declaration of the Minister at War, 18th September 1809) to 100,000; a supply which, joined to the recruits of his allies in Germany and Italy, kept up his numbers, and even increased them, notwithstanding the wasteful campaigns of 1806 and 1807 in Poland, followed by the no less wasteful campaigns of Spain. In 1812 the force of France and her allies reached their *maximum*, Bonaparte having led against the Russian empire a mass of 360,000 men, whilst there remained in Spain, Germany, and France, a number which carried the aggregate to between 500,000 and 600,000. Need we then wonder that, even after the almost total loss of his troops in Russia, there remained a force competent, with the aid of fresh levies, to withstand the efforts of the allies during two campaigns?

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[1] Jomini, *Traité des Grandes Operations Militaires.*

[2] *Tableau Historique des Guerres de la Revolution.*

In 1815 Bonaparte, in returning from Elba, found under arms in France about 120,000 men, all of whom, with the exception of a few thousands, rejoined his standard. But so sick were the French of war, that the greatest efforts during the next three months added only 60,000 to this number, and the loss of one battle exposed all the hopelessness of resistance to the allies.

On the second restoration of the Bourbons in 1815, the army had fallen into a very disorganized state, the disciplined soldiers being dispersed, and the ranks slowly filled by new levies. This led to the legislative act of the 10th March 1818, which revived the conscription, but in a mitigated form, and allowing a great latitude in providing substitutes. A recurrence to this method of raising levies was held to be the only effectual method of filling the ranks with men of steady habits; for the army in France, never a receptacle for the refuse of the populace, has in general been composed of young peasantry and labourers of good character. Such was its constitution in the war of the Revolution, and its discipline was exemplary, until Bonaparte adopted the unprincipled practice of making war without magazines, and obliged the soldiers to live at free quarters on the inhabitants. The new conscription is indeed greatly modified, the numbers annually required being limited to 40,000, and the term of service to six years; still the measure is compulsory, and falls heavily on the middle and lower classes; the alternative for a youth, when drawn, being either to give up his intended profession, or to pay L.40 or L.50 for a substitute. In 1832, the French army amounted to 411,816 men, including 19,036 officers and 3794 children. The infantry, including the guards, amounts to 264,141 men, including 9505 officers; the cavalry, consisting of various denominations of chasseurs, dragoons, cuirassiers, and hussars, to 51,235 men, including 2805 officers; and the artillery to 32,594 men, including 1190 officers; besides gendarmerie, engineers, &c.; the latter being a numerous and well educated body of officers.

The gradations of rank in the French service are *sous-lieutenant, lieutenant, capitaine, chef d'escadron, colonel, maréchal-de-camp, lieutenant-général, maréchal de France.* The number of the marshals of France will henceforth be limited to twelve; the number of the other ranks, even that of *lieutenant-général*, is very large; for the *état major*, or staff of the army, after a reduction in 1818, consisted of 430 *lieutenants-généraux*, and 260 *maréchaux de camp.* There are on full pay twice as many officers as are necessary for the duty; but the number of half-pay officers exceeds all proportion; for this part of Bonaparte's vast machine has remained, whilst most of the private soldiers have sunk tranquilly into the occupations of the lower classes.

Promotion in the French army never takes place by purchase, and not often by special order; seniority at present determines more than half the appointments, a course which, whilst it renders promotion extremely slow, will eventually give employment to almost all the half-pay officers. Of the soldiers in service, there is still a part of the army of Bonaparte, but the majority are recent levies.

Of the military seminaries of France, the one of highest repute is the *Ecole Polytechnique;* a school for the instruction of young men in mathematics, and drawing for the engineer and artillery corps. None but candidates of talent are admitted; and it is well entitled to the name of a nursery (*pepinière*) of intelligent officers.

Establishments for War.

Expense of the army.

The charge to government of a foot soldier in France does not, in time of peace, exceed L.20 a year; that of the cavalry soldier is nearly double. The pay for either officer or soldier is little more than half the rate in England, and its inadequacy is much complained of. The whole charge of the war department under Bonaparte was about L.20,000,000 sterling. In the year 1833 it amounted to L.8,564,470.

Gendarmerie and gardes nationales.

The gendarmerie are not a part of the regular army, but a corps charged with the police duty, and scattered in small divisions throughout all France; their total number, including officers, is 18,000. The *gardes nationales* correspond to our yeomanry and volunteers; and every town of consequence has a corps of this description.

Fortifications.

The chief fortifications of France, on the side of Flanders, are the well-known towns of Lisle, Valenciennes, Condé, and Douai; on the side of the Alps, Embrum, Grenoble, and Antibes; on the side of the Pyrenees, Perpignan, Bellegarde, Mont-Louis, and Bayonne. The fortified sea-ports are Brest, Toulon, Cherbourg, Rochefort, and Boulogne. France is, without question, the first military power on the Continent, being nearly equal to Russia in population, and greatly superior in pecuniary resources, as well as in the intelligence of the individuals who compose her army.

Navy.

The superiority of the English navy over the French existed in ages when our pecuniary means were far inferior; and though, during the middle of the reign of Louis XIV. the French, by financial sacrifices, obtained a numerical superiority, one great battle, that of La Hogue, in 1692, was sufficient to restore our ascendency. The war of 1741, however successful on the part of France by land, was, particularly towards its close, unfortunate to her at sea. In the succeeding interval of peace, great efforts were made to reinstate the French navy; but the war of 1756 proved doubly disastrous, and at last swept it almost entirely from the ocean. A very different scene opened in the war of 1778, when France, unembarrassed by a continental struggle, was enabled to direct all her disposable resources to her marine. She was then enabled to keep in an effective state about seventy sail of the line, the crews of which, added to those of the frigates and corvettes, formed a total of 60,000 seamen. The blows given to this force by our navy, towards the end of the war, were repaired with great diligence in the peace; and to prepare young officers for the sea in preference to the land service, became a favourite object in several of the government schools. In 1791, an official report stated the effective French navy at seventy-four sail of the line, sixty-two frigates, and twenty-nine corvettes; a state of preparation which accounts for the resistance made to our navy by the revolutionary government under all the disadvantages of an unparalleled continental struggle. This proud force, however, disappeared progressively at the capture of Toulon, the victory of the 1st June 1794, and still more in the victory of Aboukir; so that Bonaparte, on his accession to power, found the French marine in a very reduced state. He laboured, however, to reinstate it; the years of continental peace, 1801, 1802, 1803, and 1804, were favourable to his efforts; and in 1805 he boasted of having in equipment sixty sail of the line, a force destined to an early diminution at Trafalgar and St Domingo. The Bourbons, on recovering their crown, found little more than half the force which existed previously to the Revolution. It has since been augmented, and in 1831 it amounted to thirty-five ships of the line, forty frigates, twenty-three corvettes, fifty-seven brigs, twenty-

Revenue and Expenditure.

nine galliots and cutters of eight and four guns, twelve steam-boats, sixteen armed store-ships, thirty-two armed transports, two yachts; total, two hundred and eighty-four. There were at the same time building twenty ships of the line, twenty-six frigates, seven corvettes, ten brigs of seventeen guns, five steam-boats, nine store-ships; total, seventy-seven. Other three ships of the line, two frigates, three corvettes, and five steam-boats, were put on the stocks in 1832.[1]

XI. REVENUE AND EXPENDITURE.

Revenue.

In France the ancient system of taxation and finance was extremely unequal and oppressive. Her various provinces, though they were united under one head, retained nevertheless many of their own peculiar laws and privileges, which were absurd in themselves, and were, besides, opposed to the general interests of the empire. Amongst these privileges was an exemption from certain imposts, to which some were subjected, and consequently over-taxed; and others, again, contributed a certain quota of revenue to government, which they raised by taxes imposed by their own local authorities. The consequence was, that no uniform system of taxation could be established throughout the country. The taxes on many commodities were higher in one province than in another; and custom-houses were accordingly established on their respective frontiers, to prevent the importation of goods until they had paid the duties. In this manner, owing to the inequality of taxation, commodities could not freely pass from one district of the country to another; and the kingdom was thus broken into separate divisions, to the great interruption of trade. The partiality shown to the privileged orders was another serious grievance in the ancient system of French taxation. The taxes by which the public revenue was raised were, first, the *taille*, a tax on real property, or on income derived from commerce and industry. From this tax the lands of the noblesse and clergy were exempt. Secondly, the *vingtième* was a tax of one twentieth on property, from which the clergy alone were exempted. Thirdly, a poll tax was levied on all classes indiscriminately. Many of the taxes were farmed by rich capitalists, who paid annually into the treasury a fixed sum, and collected the taxes from the people. Those farmers-general held the monopoly of the manufacture and sale of tobacco and salt; and also the *octroi*, which was a duty on all articles entering Paris. The power delegated to these contractors was the source of grievous oppression to the people. The duties called *aides* were imposed on spirituous liquors and other articles of consumption; they also included duties on all articles wrought in gold or silver, on wrought iron, playing cards, leather, paper, starch, &c. These duties were levied by collectors for the behoof of government. The *corvée*, which consisted in so many days' labour annually, of men, horses, oxen, carriages, &c. was nominally applicable to the maintenance of roads. The tax was payable either in money or in labour. This system of taxation, so prejudicial to internal commerce, was to a certain extent reformed by Colbert, the minister of Louis XIV., who, though his views in regard to the principles of commerce were narrow and illiberal, yet improved in many particulars the system of taxation, by rendering it more uniform, and thus breaking down the barriers which obstructed the free intercourse between the different provinces. Under his administration the public revenue of France amounted in 1682 to L.5,000,000.

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The long and expensive wars of Louis XIV. produced a great accumulation of debt (nearly L.100,000,000 sterling), which, after his death, was lessened by an appeal to a singular privilege, of which advantage has often been taken in France, viz. that a new sovereign is not bound to pay the debts of his predecessor in full. During the eighteenth century the revenue of France increased progressively, but more slowly than that of England; the vicious system of farming the taxes still continued. Neckar, appointed to office in 1776, sought to teach the French court the value of publicity in financial statements, and exhibited the rare example of a war conducted for several years without new taxes, the supplies being found by loans, the interest of which was provided for by successive retrenchments in the public expenditure. His successor, M. de Calonne, pursued a very different course, and was found altogether incapable of the measures necessary to remedy an annual deficiency of L.2,000,000, which now took place. The revenue of France was then about L.22,000,000 sterling. The sum required for payment of the interest of the public debt was nearly L.10,000,000,[2] leaving only L.12,000,000 for the army, navy, civil list, and other public expenses.

Such was the state of the French finances at the era of the Revolution of 1789, which was followed by invasion on the frontier, and in the interior by all the confusion consequent on the reign of terror. In this era of confiscation and judicial murder, the national debt could hardly be respected. It was not, however, openly cancelled, but the interest was issued in assignats of no value except for purchases of national property. At last, in 1798, on an approximation to regularity in the management of public business, there was passed a law, declaring that one third of the old national debt should be sacred, and the interest on it payable in *bons*, or paper receivable in discharge of taxes. This third was called *la tiers provisoire*, but its price in the market continued very low until Bonaparte succeeded to power, and placed Gaudin, afterwards Duke of Gaeta, at the head of the treasury, when means were found to redeem the stocks from their depression, and to resume the payment of the dividends in cash. The amount of the revenue was greatly impaired by the general confusion of the Revolution. In 1799 the expenditure exceeded the receipt by L.8,000,000 sterling.[3] The continental peace, a partial reduction of expenditure, and improvements in the collection of the taxes, brought, in 1803, the receipts to L.19,500,000, whilst the expenditure was L.20,000,000. In subsequent years both received a progressive augmentation, and in 1813 the revenue derived from France, exclusive of conquered territory, was about L.27,000,000. On the restoration of the Bourbons in 1814, the public debt, funded and unfunded, did not exceed L.123,000,000;[4] its interest L.7,000,000. France had thus a fair prospect of financial prosperity, when the return of Bonaparte, and a second invasion by the allied troops, overthrew public credit, and produced a national loss and a general derangement of trade. It has been estimated that the return of Napoleon from Elba, which led to the second invasion of France by the allied troops, occasioned a loss to the country of 4,000,000,000 of francs. The direct loss, which included the expenses paid to the allied powers, and those incurred by the maintenance of their armies, placed in cantonments through-

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[1] The convicts sent to the galleys in France work under the direction of the Admiralty, and as that punishment holds in France the place of transportation, the number thus employed amounts to between ten and twelve thousand.

[2] Report of Camus to the National Assembly in September 1790.

[3] Gaudin, *Notice Historique des Finances de la France.*

[4] Bignon, *Exposé Comparatif de la France.*

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out France, may be estimated; but the indirect evils occasioned by the ravages inseparable from the invasion of a hostile army, by the confusion and derangement of all commercial relations, and the impossibility of collecting the revenue in such a time of trouble, cannot be summed up in money. At the same time there are scarcely any national difficulties which may not be overcome by the energies and industry of a free and intelligent people such as the French; and accordingly we find, that with an inconsiderable addition to her debt, France has defrayed all these heavy expenses, the contributions imposed on her by the allied powers, the expenses of the temporary maintenance of her armies, and her own warlike expenses. For this purpose, however, it became necessary in 1815 to impose additional taxes. In 1817 a loan was required of 392,989,000 francs; and in 1818, to defray the extraordinary contribution paid in that year to the allies of 575,807,197 francs, the minister had recourse to another loan of 220,510,718 francs; whilst by the taxes which had been imposed, the revenue of that year was carried to L.35,000,000. The following is the state of the receipt and expenditure for ten successive years.

Years.	Receipts.	Expenditure.	Surplus.
	Francs.	Francs.	Francs.
1819	868,312,572	863,853,109	4,459,463
1820	913,313,872	875,342,252	37,971,620
1821	888,021,745	882,327,374	5,694,371
1822	890,000,033	889,541,340	458,693
1823	915,220,900	906,565,620	8,655,380
1824	994,971,962	986,073,842	8,898,120
1825	985,673,751	981,972,609	3,701,142
1826	987,620,580	976,948,919	10,671,661
			Deficit.
1827	957,431,769	989,448,052	32,016,283
			Surplus.
1829	986,156,821	974,184,361	11,972,660

In 1828 M. Villèle, before leaving office, estimated that the receipts would be 946,483,698, the expenditure 951,631,890, being a deficit of 5,148,192. But on making up the accounts of the year, they exhibited a surplus of 4,758,000 francs.

The following is the statement of the receipt and expenditure for 1830.

RECEIPT.

	Francs.
Direct taxes, chiefly on land	290,265,819
Registration stamps, and domains	187,225,038
Custom-houses and salt	154,231,103
Liquors, sundry duties, tobacco, and gunpowder	193,081,582
Post-office	33,469,030
Falls of timber	24,060,697
Salt-works	1,200,000
Gaming houses	4,338,888
Royal lottery	10,042,799
Coinage	141,381
Sundry proceeds	11,585,418
Extraordinary resources	48,402,241
Deductions on receipts	25,900,000
	983,944,066

EXPENDITURE.

	Francs.
Civil list	27,666,666
Chamber of Peers	799,999
Chamber of Deputies	600,000
Legion of Honour	3,655,209
Sinking fund	41,665,050
Funded debt	276,356,668
Justice	19,566,020
Foreign affairs	8,778,000
Religion and public instruction	38,961,500
Interior	126,122,716
War	233,363,817
Marine	38,527,474
Finance	22,877,167
Administration of revenue	129,072,351
Repayments	46,300,808
	1,064,288,445

We subjoin the following account of the expenditure for 1833.

	Francs.
1*st*, Interest of the debt, with pensions	349,292,229
2*d*, *Dotations;* as the civil list, the expenses of the Chambers, and the Legion of Honour	17,370,660
3*d*, General administration, department of justice	18,351,365
Department of foreign affairs	7,197,700
Department of public instruction	4,985,000
Department of the interior and religion	38,375,505
Department of commerce and public works	129,580,200
Department of war	205,547,288
Department of marine and colonies	66,406,518
Finances	23,378,400
The expenses of collection	115,075,668
Drawbacks and premiums	41,910,831
	1,017,471,364

Including extraordinary grants, the total expenditure will be found to amount to 1,120,394,804 francs, equal to L.46,681,450.

Besides the public revenue of the empire, the communes raise a revenue for their own local expenses. This revenue partly arises from *octrois*, which amount throughout France to forty millions of francs per annum, and from other sources, being altogether about two hundred millions of francs; which, added to the public revenue of a thousand millions, amounts to about 1,200,000,000 francs for the whole revenue of France, equal to fifty millions sterling, or L.41,666,666 if we deduct the local revenue. During the administration of M. Villèle, the five per cents. in France were converted into a three per cent. fund, at the rate of 133·33 cents. for every hundred of the five per cent. stock; so that the whole five per cent stock, bearing an annual interest of 30,574,116 francs, was converted into a three per cent. fund, of which the capital was increased one third. The effect of this transaction by M. Villèle was in reality to reduce the interest on the five per cent. stock to four per cent., by which he saved annual interest to the amount of six millions, though by a very useless complexity in his operations. It could serve no end to commence a three per cent. fund, when he was in reality paying four per cent.; the nominal reduction of interest being compensated to the stockholders by the increase of the capital stock. The interest on the public debt of France, thus reduced, may be stated as follows:

The public debt of France amounts to 4,988,738,000 francs, equal to L.207,864,000. The annual interest of the debt is about 10,812,000, whilst the sinking fund amounts to 1,120,541,828 francs, and yields an annual interest of 44,053,005 francs, equal to about L.1,835,542, which is nearly one fourth part of the whole debt.

System of taxation.

The ancient system of taxation in France was subverted by the National Assembly in 1791, and new taxes were substituted in lieu of those formerly in force. These consisted of direct and indirect taxes. The direct taxes are, 1. *Contribution foncière* or land-tax; 2. *Contribution personelle et mobilière;* 3. A tax on doors and windows; 4. *Droits de patente*, or a license duty on particular trades and professions, and a duty on mines.

The *contribution foncière* is raised equally on all lands and houses in proportion to their nett revenue. There are no longer any exemptions in favour of the nobility since the Revolution. The royal domains and the property of the state are alone exempted. The *contribution personelle et mobilière* is divided into two parts. The first is a species of poll-tax, rated at three days' labour, and levied on all males above eighteen years of age. The *contribution mobilière* is a house-tax levied on all rents from 200 to 2500 francs. For the *contribution personelle*, the *octroi*, which is a custom-duty on all goods entering a town, is substituted in Paris and other large cities. The tax on street-doors and gateways, and windows, varies in proportion to the size of the town in which the house is situated, and also in proportion to the size and value of the house and the number of windows. The *droits de patentes* or license-duty is levied on every person following a profession, trade, or business; and is divided into two heads; the proportional tax, which amounts to ten per cent. on the rent of the persons dwelling; or the fixed tax, which depends on the extent and population of the town where he exercises his profession. A merchant pays from forty to 500 francs per annum, according to the population of the place where he resides, and an additional ten per cent. on the rent of his dwelling-house. Bankers in all cases pay 500 francs a year; and there is in like manner a fixed rate for other inferior trades and professions. The duty on mines is in proportion to the extent of the surface, and also to their nett produce.

The law which fixes the amount of the direct taxes also determines the quota which each department is required to pay. This is announced by the minister of finance to the prefect of the department, who communicates it to his sous-prefect and to the mayors. The sum thus assigned by the prefect to each arrondissement is subdivided by the councils of the arrondissement and by the communes; and the amount allotted to each is apportioned among the inhabitants by persons appointed for that purpose, called *repartiteurs* or assessors. These assessors regulate the amount of taxable property, and they fix the scale. The land-tax is however very unequally assessed, amounting in some departments to six per cent., whilst in the department of the Seine it is seventeen per cent. The equalization of the land-tax has always been accounted a capital object in the financial policy of France; and with this view a minute survey and measurement of all the landed property in France (termed the *cadastre*) was begun in 1803, and is still going on. Not above one third of this survey is yet completed. The inequality of the land-tax has long been a subject of loud and just complaint; and various plans have been adopted for a more accurate classification of the land. But these have generally proved inefficient and unsatisfactory. It is only by an exact survey of the land that the burden of the tax can be equalized; and the survey which is at present in progress, when it is completed, will no doubt effect this desirable object. But, in the mean time, the unequal assessment of this tax, the many overratings on the one hand, and omissions on the other, are loudly and justly complained of; and the slow progress of the *cadastre* affords but a tardy remedy for so great an evil.

The indirect taxes consist chiefly of the *droits réunis* or excise duties on articles of consumption, of stamp duties, registration duties, duties on carriages, on canals and ferry boats, on gold and silver plate, lotteries, and gaming houses. A revenue is raised from the monopoly of tobacco and gunpowder; from the post-office; the *octroi*, or custom duty on all articles entering large towns, one tenth of which goes to the royal treasury, and the remainder is applied to local expenses. The customs form an important branch of the French revenues.

The *droits réunis* or excise duties are laid on wine, brandy, &c. which pay one and a half franc per hectolitre, of 120 English quarts, on being removed from one place to another. Wine in bottles pays ten francs on its removal. Cider, perry, and mead pay eighty cents. per hectolitre. A duty of ten per cent. on the above duty is paid on their removal from the wholesale warehouse. Prior to 1830 a duty distinct from the octroi was levied on the entry of all wine or spirituous liquors into communes the population of which amounted to 1500 and upwards. All communes whose population does not amount to 4000 are exempted from this tax; and a new tariff has been established, rising progressively from 4000 to 5000 inhabitants, in proportion to the estimated wealth of the departments, which are divided into four separate classes; a very vague, as we should suppose, and uncertain standard of taxation. There is a further duty on wine and liquors sold by retail, which since 1830 has been reduced from fifteen to ten per cent. A reduction of three per cent. on this duty is made to dealers, and of twenty-five per cent. if the wine be grown by the retailer himself. Strong beer pays a duty of three francs, and small beer a duty of fifteen sous, per hectolitre. Retailers of liquors must take out a distinct license, which varies, in proportion to the size of the town, from twenty to six francs. Proprietors of public carriages pay one tenth of the price of each place for passengers, a third being deducted for vacant places, and one tenth of the price received for merchandise. Private carriages are subjected to a moderate duty, according to their size, of forty francs per annum for a carriage with two wheels, and holding two persons; and of 150 francs per annum for a carriage with four wheels, and holding nine persons. The *enregistrement*, or registration duties, embraces a variety of transactions, where property is conveyed or given away by marriage-settlement or otherwise. There is a duty on gifts *inter vivos*, which increases with the distance of the relation between the parties. It was modified by an ordonnance of the king in 1832. The duties payable on registry are either fixed or *ad valorem;* the fixed or certain duties apply to common certificates, those of life or residence, account books, bills of lading, appointments of arbitrations, valuations of furniture, and the like. The *ad valorem* duty applies to all bonds or obligations, discharges, judgments, deposits or releases of sums of money, and for every transfer of property, contract or engagement arising from real or personal property, whether between persons living, or given by way of bequest. It is also applicable to leases, annuity deeds, deeds of gift during life, negotiable securities with the exception of bills of exchange; to policies of assurance, copies of the judgments of civil and criminal courts, &c. These duties are either fixed, varying from fifty centimes to twenty-five francs, or they are in proportion to the property conveyed, and vary from seven francs to twenty centimes per cent. The stamp duty applies to receipts, bills of exchange, newspapers, handbills, playbills, admission cards to public places. It is also payable upon all paper used for civil and judicial *actes*, and upon all writings which may be required in evidence in courts of justice, &c., and varies either in proportion to the size of the paper, or to the amount of the sum specified in bills, promissory notes, &c. The tax does not amount on an average to above 1s. 3d. on

Revenue and Expenditure.

L.100. Lotteries and gaming-houses form one of the miserable resources of French finance. The latter are farmed out to a company, and paid, previous to the year 1830, five and a half millions annually; and for this sum the government of France degrades itself by thus trafficking with its subjects in iniquity.[1]

The duty on doors and windows commenced in its present form on the 1st of January 1833; and it is regulated partly by the amount of the population of the town or commune in which it is situated, a circumstance which seems to afford a very uncertain standard of taxation. This tax is very trifling, averaging, where there is only one door, from thirty centimes to one franc, as the population increases from 5000 to 100,000; where there are more doors than one the duty is increased. A house with five doors (*ouvertures*) pays from 2 francs 50 cents. (2s. 1d.) to 8 francs 50 cents. (7s. 10d.), as it is situated in a town or commune of 5000 or 100,000 souls. For houses having street-doors and gate-ways called *portes cochères* 1 franc 60 cents. (1s. 5d.) to 18 francs 80 cents. (15s. 8d.), in proportion to the amount of the commune or town in which it is situated.

Customs.

The duties levied on this branch of the French revenues produce about L.3,000,000 sterling. In Britain the customs yield about L.18,000,000 sterling. In France these duties are laid on in many cases more with a view to restriction and monopoly than to revenue. France sacrifices a large revenue for the encouragement of the colonial monopoly; paying for the produce of the colonies an exorbitant price, and afterwards, as in the case of sugar, the staple article that is imported from the colonies, giving a great portion of the duty as a bounty on its exportation to foreign countries, to indemnify the exporter for the loss that he would incur if he were selling the sugar at its ordinary price in the markets of Europe. In 1830 the gross receipts from the sugar duty amounted to L.1,397,340, of which one third, namely, L.420,903, were paid back in bounties on the exportation of the surplus. Thus the nett duty only amounted to L.976,437, when in 1822, though the quantity of sugar consumed was only 1,086,596 cwts. or 281,075 cwts. less than in 1830, the nett amount of the duty was L.1,234,653. It is by means of heavy custom-duties that the French legislators endeavour to preserve the monopoly of the home market to their own manufacturers, by which policy they compel the French community to buy at a high price the inferior articles of their own manufacture, rather than the better articles of the foreigner at a lower price. They thus lay the whole community under contribution for the benefit of a few. They exclude the produce of foreign industry because it is better and cheaper, in order to force a sale of workmanship that is inferior and dearer; and one miserable consequence of this narrow and mistaken policy is a great contraband trade in these prohibited articles, which no efforts have been able to repress. The increased numbers and superior vigilance of the custom-house officers have been still counteracted by the new expedients and persevering ingenuity of the smuggler. The frontier of France is the scene of this persecution against commerce, where all the illegal, daring, and ingenious resources of the contraband traders are called into activity. Amongst other expedients, they have trained packs of dogs to carry prohibited goods across the frontier. These dogs being conducted to the frontier, are kept without food for many hours; they are then beaten and laden with goods, and are started on their travels when it begins to grow dark, and reach the abodes of their masters as soon as they can, where they are well treated, and receive a full meal. According to the accounts of the French custom-house, 40,278 of these dogs were destroyed in the year 1830, on which account premiums were paid to the custom-house officers to the amount of 40,278 francs. The great objects of this illicit trade are tobacco, sugar, and colonial produce generally; also British cotton manufactures, quiltings, cambrics, muslins, fine cutlery, &c. That the trade, though it may be obstructed, is not prevented, is evident from the circumstance that there are regular rates of insurance on the conveyance of contraband goods into France, varying from ten to seventy per cent. A revision, and if possible a reduction, of these heavy duties would be the true policy of France. Monopoly was never yet the source of commercial greatness in any country. These special encouragements rather tend to deaden ingenuity; while it is animated by a free competition, in which all parties are on an equal footing, and in which the prize is the sure reward only of merit and talent.

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XII. NATIONAL INCOME AND CAPITAL; POPULATION.

Cadastre.

Of the official surveys of the French territory, by far the most minute and accurate is the *cadastre*, a survey which became indispensable from the time it was determined to exchange the taxes on consumption for taxes on produce. A return of the rent of land, such as was made under the property-tax act in England, would not have answered, or indeed have been practicable in France, where so many thousands of petty lots are cultivated by their proprietors. At first the *cadastre* proceeded on the plan of an estimate *par masses de culture*, or continuous valuation of extensive tracts; but this proving unsatisfactory, it has been conducted since 1807 on a plan of such minute detail, as to give the value of every separate *parcelle* or patch of land. The progress of this minute survey of the landed property in France has been retarded by many causes; and in 1830 not above two thirds of the land had been surveyed. It was estimated in the report of one of the committees of the chamber in 1832, that it would still require from that period about eight years, and an expense of above L.2,000,000 sterling, to complete it. They had only surveyed thirty-one millions of hectares, or sixty-eight millions of acres. The annual expense of the survey is L.120,000.

It is common to dwell on the advantages of France, as situated in the centre of civilized nations, as raising within herself a great variety of products, and as capable of conducting her manufactures with comparatively few imports. Those, however, who have studied the subject thoroughly, will pronounce her real advantages to consist in a temperate climate, in a territory upon the whole fertile, in a considerable extent of sea-coast, and in the possession of military strength sufficient to protect her from aggression. As yet neither the capital nor labour of the French have been skilfully directed; but the disposition to industry exists, and needs only a judicious impulse.

France and Britain compared.

The taxation of France, computed by the individual, hardly exceeds L.1. 11s. (English value) per head, whilst that of Britain and Ireland is not less than L.3. 10s. per head. This, however, is a very inconclusive comparison, the question being not the relative number of the inhabitants, but the result of their productive industry. M. Chaptal computes (vol. i. p. 225) the value of the land and farming capital of France at fifteen hundred millions sterling, to which making an addition for the difference of money, and a further addition for the capital employed

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[1] Okey's *Concise Digest of the Law, Usage, and Custom, affecting the civil and commercial intercourse of the subjects of Great Britain and France*, p. 259.

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in manufacture and commerce, we arrive at an amount not unlike the very large sum which Mr Colquhoun gives (see the article ENGLAND, page 149) for the collective capital of Great Britain and Ireland. But we fix, by preference, the attention of our readers on the annual produce.

	Britain and Ireland.	France, after making an addition for the Difference of Money.
Gross produce of agriculture (see the preceding section on Agriculture)	L.187,000,000	L.270,000,000
Manufactures, including mines and minerals	100,000,000	76,000,000
Commerce, inland and foreign	70,000,000	40,000,000
	L.357,000,000	L.386,000,000

But the conclusive return, that which leads to a correct calculation of political strength, is the nett produce of the year.

	Britain and Ireland.	France, after making an addition for the Difference of Money.
Rent of land and farmers' profit	L.60,000,000	L.75,000,000
Rent of houses	16,000,000	18,000,000
Taxable incomes arising from commerce, manufactures, and professions, that is, incomes of L.50 and upwards	30,000,000	not known, but probably not above 20,000,000
	L.106,000,000	L.113,000,000

The commercial calculation is taken from the property-tax return of 1810, deducting twenty-five per cent. and making an addition for Ireland. Neither the income from the public funds, nor the wages of labour, are reckoned in either country.

Price of labour.

In France, the lower orders, from the moderate price of provisions, are placed above distress by wages which to us appear very low. Those of the country labourer in France (Chaptal, vol. i. p. 245) are only 1s. or 1s. 1d. a day; of masons, 1s. 3d. and 1s. 4d.; of mechanics in towns, 1s. 6d., 1s. 8d., 1s. 10d.; the whole without victuals, or any additional allowance. The wages of the women are a full third lower.[1]

According to official returns for 1827, in Paris, the following is the average price of labour in different mechanical trades:

Tobacco manufacturers, from 2s. 9d. to 1s. 3d. per day.
Fan-makers; men, 2s. 1d.; women, 1s. 0½d.; children, 6d.
Paper-stainers; men, 2s. 6d. to 3. 4d.; women, 1s. 3d. to 1s. 8d.; children, 8d. to 10d.
Lapidaries, 3s. 4d.
Working jewellers, 2s. 1d. to 3s. 9d.
Marble-workers and statuaries, 2s. 1d. to 5s.
Glass-manufacturers, 3s. 4d.
Lithographic printers, 1s. 3d. to 4s. 1d.
Gas-work labourers, 2s. 3½d.

On an average of twelve years, the wages of labour in the following trades are represented as follows, from 1817 to 1828, from official returns:

Stone-cutters	lowest, 2s. 8½d.	highest, 3s. 6½d.	last rate, 2s. 11d.
Brick-layers	—— 3s. 1½d.	—— 4s. 2d.	—— 3s. 7d.
Ditto (assistants)	—— 2s. 1d.	—— 2s. 11d.	—— 2s. 8½d.
Day-labourers	—— 1s. 8d.	—— 2s. 6d.	—— 1s. 11d.
Masons	—— 2s. 8½d.	—— 3s. 9d.	—— 2s. 11d.
Mortar-makers	—— 2s. 1d.	—— 2s. 8½d.	—— 2s. 3½d.
Boys (employed by builders)	—— 1s. 7d.	—— 2s. 0d.	—— 1s. 9d.
Carpenters	—— 2s. 8½d.	—— 3s. 4d.	—— 2s. 10d.

The price paid to sawyers was:

Sawing oak, per 100	lowest, L.9. 11s. 8d.	highest, L.10. 16s. 8d.	last rate, L.10. 0s. 0d.
Ditto fir, per ditto	—— 6. 13s. 4d.	—— 8. 15s. 0d.	—— 7. 1s. 8d.

Expense of living.

The difference in the expense of living between France and our country is about a third, that is, L.100 in France is equivalent to L.130 or L.140 in the southern, and to L.120 or L.130 in the northern part of our island. The difference, as far as regards provisions, is somewhat greater; but it receives a counterpoise in the cheapness of our fuel. The proportion now mentioned will be found applicable to the expense of the middle, as well as of the lower ranks. It will be found equally general in the sense of locality, being applicable to France and Britain at large, provided the parallel be made between towns or districts at a similar distance from either capital, Paris being as expensive compared to the rest of France, as London is compared to the rest of England. Fortunately for us, the French have not paid much attention to the price, either of labour or fuel, in the places, such as Paris and Rouen, where they have established their rival manufactures. Another remarkable circumstance is, that various kinds of work, when performed by the piece, are nearly as dear in France as in England; so unaccustomed are our neigh-

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[1] These returns apply not to Paris, but to provincial towns of ten, fifteen, or twenty thousand inhabitants. The want of canals causes a partial difference in the price of provisions, but in no degree to the extent asserted by those who (*Edinburgh Review*, No. 64, p. 362) adopt too readily the loose allegations so general in France. The cheapness of land carriage would speedily counteract it.

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bours to simplify a task by the application of method, or and the division of employment.

In the end of the seventeenth century, the territory of France, when equal, or very nearly equal, to its present extent, appears, from the report of the intendants or provincial governors, to have contained about 20,000,000 of inhabitants. This number was found, by the census made by order of the National Assembly, to have increased nearly a third in the course of a century; the amount, in 1791, being 26,363,600, a number which, by the latest computation, made in 1817, had further increased to above 29,000,000. In the year 1820 the population was 30,451,187; and, according to the ordonnance of January 1832, it amounted to 32,560,934. The marriages are annually about 236,996, and the deaths about 785,268, of which 395,250 are males, and 388,018 females. The births are 967,533, of which there are 498,707 boys and 468,826 girls. The number of illegitimate children is 68,081. The average population of France is 144 inhabitants to the square mile.

Population of France in 1832, distinguished by Provinces and Departments.

Ancient Provinces.	Departments.	Population.
Flanders	North	989,938
Artois	Pas de Calais	655,215
Picardy	Somme	543,704
Normandy	Lower Seine	693,683
	Calvados	494,702
	Manche	591,284
	Orne	441,881
	Eure	424,248
Isle of France	Seine (containing Paris)	935,108
	Seine and Oise	448,180
	Oise	397,725
	Seine and Marne	323,893
	Aisne	513,000
Champagne	Marne	337,076
	Ardennes	289,622
	Aube	246,361
	Upper Marne	249,827
Lorraine	Meuse	314,588
	Moselle	417,003
	Meurthe	415,568
	Vosges	397,987
Alsace	Upper Rhine (reduced by the cessions in 1815 to)	424,258
	Lower Rhine (reduced by the cessions in 1815 to)	540,213
Brittany	Ille and Villaine	547,052
	Côtes du Nord	598,872
	Finisterre	524,396
	Morbihan	433,522
	Lower Loire	470,093
Maine	Mayenne	352,586
	Sarthe	457,372
Anjou	Maine and Loire	467,871
Touraine	Indre and Loire	297,016
The Orleannois	Loiret	305,276
	Eure and Loir	278,820
	Loir and Cher	235,750
Berry	Indre	245,289
	Cher	256,059
Nivernois	Nievre	282,521
Burgundy	Yonne	352,487
	Côte d'Or	375,877
	Saône and Loire	523,970
	Ain	346,030
Franche Comté	Upper Saône	338,910
	Doubs	265,535
	Jura	312,504
Poitou	Vendée	330,350
	Two Sèvres	294,850
	Vienne	282,731
La Marche	Creuse	265,384
	Upper Vienne	285,130
Limousin	Corrèze	294,834
Bourbonnois	Allier	298,257
Saintonge and Angumois	Charente	362,531
Aunis and Saintonge	Lower Charente	445,249
Auvergne	Puy de Dôme	573,106
	Cantal	258,594
Lyonnois	Rhone	434,429
	Loire	391,216
Dauphiny	Isère	550,258
	Upper Alps	129,102
	Drôme	299,556
Guienne	Dordogne	482,750
	Gironde	554,225
	Lot and Garonne	346,885
	Lot	283,827
	Tarn and Garonne	242,509
	Aveyron	359,056
	Gers	312,160
	Landes	281,504
	Upper Pyrenees	233,031
Bearn	Lower Pyrenees	428,401
County of Foix	Arriège	253,121
Roussillon	Eastern Pyrenees	157,052
Languedoc	Upper Garonne	427,856
	Aude	270,125
	Tarn	335,844
	Herault	346,207
	Gard	357,383
	Lozère	140,347
	Upper Loire	292,078
	Ardèche	340,734
Provence	Lower Alps	155,896
	Mouths of the Rhone	359,473
	Var	317,501
County of Venaissin	Vaucluse	239,113
	Corsica	195,407

The estimates of population in France subsequently to 1791 are formed, not, like our population returns, on an actual survey, but by adding for the period which has intervened, the births, and deducting the deaths, of which an accurate record is kept in the public offices. It is thus difficult to compute the relative number engaged in different occupations; a late publication (by Count de Laborde) contains the following estimate:

	Persons.
In agriculture	17,500,000
In manufactures	6,200,000
Indigent	800,000
Various employments	4,500,000
Total	29,000,000

Large as is this proportion of agriculturists, it does not

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exceed, nor indeed equal, the proportion returned in the official census of 1791.

	Population of the principal Towns.		Population of the principal Towns.
Paris	774,338	Nancy	29,000
Marseilles	102,000	Rennes	29,000
Lyons	101,000	Besançon	28,000
Bordeaux	92,000	Troyes	27,000
Rouen	81,000	Aix	27,000
Nantes	75,000	Dunkirk	26,000
Lisle	60,000	Versailles	26,000
Strasburg	50,000	Brest	24,000
Toulouse	48,000	Montauban	24,000
Metz	41,000	Avignon	23,000
Nismes	39,000	L'Orient	22,000
Amiens	39,000	Tours	22,000
Caen	36,000	Grenoble	21,000
Montpellier	32,000	Poitiers	21,000
Clermont in Auvergne	30,000	Limoges	21,000
Rheims	30,000	Havre de Grace	21,000
Toulon	29,000	St Omer	20,000
Angers	29,000	Dieppe	20,000

That the proportion of our population inhabiting towns is greater than in France, is at once ascertained by taking the aggregate of twenty of the largest cities in each. For France, that aggregate is about 1,700,000; for Britain and Ireland, 2,300,000.

The ratio of the increase of population in France is greatest in the lower classes; the middling and upper ranks have seldom large families. Men in such stations in France are much less habituated to steady industry than in England; the openings in trade to respectable employment and eventual competency are comparatively fewer; and, in many situations, the incomes are adequate to the support of an individual only. In that country, as with us, the population evidently increases faster since the adoption of vaccine inoculation. The climate and soil are in general not less salubrious than those of Britain, and the advantages attendant on agricultural habits are enjoyed by a much greater proportion of the population; but a considerable waste of health, and even of life, takes place from the crowded nature of the towns, and the damp position of many of the cottages. A want of comfort on the part of the lower orders tends, along with their deficient cleanliness, to the same result; but, on the other hand, the general activity, temperance, and cheerfulness of the people, are all in favour of health and longevity.

XIII. GOVERNMENT.

The charter in virtue of which Louis XVIII. ascended the throne of his ancestors is the basis of the present government of France. The following are the leading provisions of this memorable and solemn compact, concluded between the sovereign and the people.

The king is declared the supreme head of the executive power, in whom is vested the power of declaring war and making peace; the command of the national force, whether by land or sea; and the nomination of all ministers, ambassadors, and other public functionaries, civil and military. He has the power of granting pardons and commuting punishments; and by the original charter he might issue ordonnances and regulations, such as the orders in council in England, for the benefit and security of the state; but this clause has been annulled by the chamber, as it was made the pretext for the arbitrary proceedings which produced the revolution of 1830. The person of his majesty is declared to be sacred and inviolable; and his ministers alone are held responsible for all acts of administration.

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The legislative power is exercised by two chambers, the Chamber of Peers and the Chamber of Deputies, in conjunction with the king, without whose concurrence no measure can have the authority of law. He has the power of convoking, proroguing, and dissolving the Chamber of Deputies; with this provision, however, that in the latter case a new chamber must be re-assembled within three months after the dissolution. It is further declared in this charter of French freedom, that all Frenchmen, either by birth or naturalization, are to be considered as equal in the eye of the law; that the Roman Catholic and apostolic faith shall be considered as the established religion of the state; and that all persons, whatever may be their religious faith, shall be protected in its exercise, and admissible to all civil and military offices. The clause respecting the national religion was altered after the expulsion of Louis XVIII., on Napoleon's return from Elba, it being declared, merely as a matter of fact, that the Catholic was the religion of the majority of the French, but not the religion of the state, which gave not its sanction to one particular mode of faith more than another.

Chamber of Peers.

The two chambers form an important part of the French constitution. The Chamber of Peers consists of no definitive number, as the king has the unlimited power of creating peers. The number of peers in 1826 was 214, and in 1827 it was increased to 290 by the creation of seventy-six new peers. But this great and sudden addition to the peerage being considered as an unconstitutional exercise of the prerogative by Charles X., was declared null and void after his abdication; and in 1833 the number of peers, including five princes of the blood and several new creations, only amounted to 262. Louis XVIII. could by his prerogative convoke this chamber when that of the Deputies was not sitting. But this power was withheld in the new charter of 1830, excepting in the case of the chamber sitting as a court of justice; and on such occasions it is strictly confined to its judicial functions. No meeting of the chamber can take place except by an express order of the king; and it is convoked by his majesty at the same time as the Chamber of Deputies, the session of the one commencing and finishing at the same time with that of the other. A peer of France may be admitted into the chamber at the age of twenty-five; but he is not admitted to the exercise of any prerogative until he has completed his thirtieth year. Members of the royal family and princes of the blood are peers by birth, and sit and vote in the house after the age of twenty-five. Every peer receives a summons from the king to attend the chamber, without which authority he may be refused admittance by the usher. The chamber takes cognizance of high treason, and of all crimes committed against the security and peace of the state; and on these high occasions the peers are convened by a special summons from the king. No peer can be arrested except by the authority of the chamber. Those who were members of the senate during Bonaparte's reign were created peers after his abdication, and their pensions of L.1500 a year were confirmed. By an ordonnance of Louis XVIII. no person could be created a peer unless he possessed a certain entailed property in trust or in the funds, producing, in order to enable him merely to support the title of a duke, a clear income of 15,000 francs, or L.625 per annum; for the title of a marquis, 10,000 francs; and for viscounts and barons, 5000 francs. In order to exercise the privileges of a peer of France, double the amount of clear income is required. Several members of the present chamber who were created by Louis XVIII. receive pensions equal to the amount required. Others of the ancient regime, as well as of those lately created, possess a larger revenue than the law requires for the maintenance of their rank, and of course receive no pensions. The sum annually disbursed for the support of peers, or their widows, amounts to 1,654,000 francs. The chancellor of France, formerly appointed by the king, was president of the Chamber of Peers, and received an annual salary of 100,000 francs. Since the revolution of 1830 this office has been abolished, and a speaker or president is now appointed by the chamber.

hamber of Deputies.

This popular branch of the French legislature consisted, according to the original provisions of the charter, of 258 members, who were elected by a committee of voters (*collége électoral*), each paying direct taxes to the amount of L.40 per annum, and who were delegated to elect a deputy by a lower class of electors, whose qualification was the payment of L.12 per annum of direct taxes. One fifth of the chamber was to be renewed every year; so that every five years the whole would be re-elected anew. In 1817 a law was passed abrogating the intermediate class of electors, and giving to all the voters the right of immediately electing the deputy; and in 1821 the plan of renewing the chamber by one fifth at a time was also abrogated, and a law was passed for dissolving and re-electing the whole assembly at once. It was at the same time provided that 172 members should be added to the chamber, thus making the whole number 430; and in order to counteract the democratic influence which was supposed to predominate in the chamber, the right of electing those members was confined to the departmental college, or the fourth part of the voters, who paid the highest amount of direct taxes, and who, besides this exclusive right of voting for these 172 members, had a right to vote along with the other electors of the arrondissement for the other members of the chamber. In 1831 a new electoral law was passed, reducing the qualification of the electors to 200 francs (L.8. 6s. 8d.), and also the age from thirty to twenty-five years, and reducing the qualification of deputies from forty to thirty years of age, and the pecuniary qualification from 1000 to 500 francs. The privileges of the departmental colleges are also abolished; all who are qualified by the payment of direct taxes to the amount of two hundred francs, voting at once for the deputy. It was estimated, that by thus lowering the pecuniary qualification of electors, the number would be increased from 100,000 to 190,000.

In the colleges, the president, formerly appointed by his majesty, is now chosen by the electors. If there be more than 600 electors in an inferior college, it is divided into sections, with not less than 300 electors in each. These sections elect a vice-president. In the few instances where the total number of electors does not exceed 600 in the whole department, they assemble in one college only. The presidents and vice-presidents have the supreme rule and authority over the regulations and internal police of their respective colleges and sections, whose sittings are restricted to ten days at most. The military are not allowed to interfere in any case.

The votes are collected with the utmost care and accuracy. Each elector must write his name, qualification, and residence, and hand it, previous to giving his vote, to the president, who deposits it in an urn along with all the other suffrages of the electors, whose names are inscribed on a register by the secretary, or by one of the scrutineers; and it is not seen by any person before it is thrown into the general urn. The names are then taken out, read, counted, and a list made, specifying the number of votes given to each candidate. The papers on which are written the names of the candidates are then committed to the flames. All possible means are thus employed to secure secrecy; and no public functionary can incur the least hazard though he were to vote against the minister under whom he is employed.

The prefect of the department decides, in the first instance, on the validity of the qualifications claimed by the electors, and makes out and publishes annually a list of all whom he considers as entitled to vote. Those who are rejected by the prefect, from whatever cause, have their appeal to the *cour royale;* and if any dispute arise relative to the payment of their contributions, or their civil or political residence, their case is decided by the *conseil d'état.* An order from either of these courts is binding on the prefect; and if he afterwards refuse to insert the name in the list of electors, he incurs a penalty of from 300 to 500 francs, and is interdicted from exercising his functions for twenty years. No prefect, sub-prefect, or general officer commanding a military division, can be elected for the department in which he exercises his functions.

The French Chamber of Deputies, consisting of 430 members, chosen for 86 departments, is equivalent in its power, influence, and privileges, to the House of Commons in the legislature of Britain. They are both the representatives of the people, whose influence, when it is exerted through this legitimate organ, is and must ever be irresistible. The original charter of Louis XVIII. assigned to the monarch the exclusive right of proposing all public measures; and it was necessary, in proposing any new law, to move an address to his majesty, praying that it might be presented to the chamber for its adoption. The charter of 1830 dispenses with this form, and gives the right of initiating laws to all the branches of the legislature, with the exception of taxation bills, which must originate, as in Britain, with the representatives of the people. The proceedings of the chamber are regulated by a president, who was formerly chosen by the king out of five members, presented to him by the assembly; but is now chosen by the deputies themselves at the commencement of each session. The session is always opened by a speech in the Chamber of Deputies from the throne; but the minister of the interior prorogues the session by the command of his majesty. When the session commences, *bureaux*, or special committees, nine in number, are formed, and they are periodically renewed; and when any new law is presented to the chamber on the part of the king, it is referred in the first instance to these special committees; if the law be approved by two or more of them, it is reported by the chamber, when the principle of the measure is considered and discussed by the chamber, and the clauses are afterwards voted article by article; which proceedings correspond to the second reading and the committal of a bill in the British parliament. The decision of the *bureaux* is reported by the chairman or *rapporteur*, to the whole chamber; which, so far from being guided by this report, very frequently pronounces an opposite decision. The special clauses of a law are voted by *assis et levée;* those who are for the law, the *ayes*, rising, and those who are against the law, the *noes*, keeping their places. The vote on the whole measure is by secret scrutiny, the ayes being indicated by white balls, and the noes by black ones, thrown into an urn placed on the tribune of the chamber. The sittings of the chamber are public; but on the demand of any five members, all strangers are excluded, and the house forms itself into a private committee. To form a chamber, the presence of half the members is necessary. No deputy can be arrested for debt during the sitting of the chamber, nor within six weeks previous to its assembling, or six weeks subsequent to its prorogation; and if arrested at any other period, he must be liberated during the session; nor can any deputy be arrested or prosecuted for a criminal charge, except he be detected in the act, unless by permission of the chamber. The senators of Bonaparte received each a salary of 10,000 francs per annum. The deputies to the chamber receive no salary. The president, the secretaries, and the officers attached to the chambers, such as *questeurs, huissiers,* &c. are the only persons paid. The salary of the president was, under the Bourbon regime, 100,000 francs per annum, besides a furnished hotel, horses, equipage, &c. But it has been reduced by the stern economy of these reforming times to 4000 francs per month, payable only during the session.

Executive government.

The executive department of the government is administered by the king and his cabinet council, consisting of nine ministers, viz.

1. The minister of finance, whose business it is to receive the taxes from the receivers-general, and all the other revenues of government. He disburses the payments for the other departments of the state, for the interest of the public debt, and all pensions, &c. To this ministry are attached certain other offices, the chiefs of which are called directors; namely, directors-general of taxes, customs, registries and domains, ports, lottery, woods and forests, and the mint. The salary of the minister of finance was reduced by the Chamber of Deputies from 150,000 to 120,000 francs per annum, and the salaries of the directors vary from 40,000 to 50,000 francs per annum. The revenue is conveyed to the treasury through various subordinate offices. There is a *percepteur* or collector in each commune, who pays his collections to the special receiver for each arrondissement, who transmits the revenue to the general receiver of taxes for the department, by whom it is, lastly, remitted to the office of the finance minister.

2. The minister of the interior. This minister is one of the most important functionaries of the state. He is in direct correspondence with all the civil authorities of the kingdom; no local tax can be imposed, nor any disbursements made, in any of the departments, districts, or communes, without his authority. The general police of the kingdom, with all its various details, is under his superintendence, as well as all public roads and bridges, mines, public buildings, all poor-houses, charities, and hospitals, the national guard of France, the censorship of the theatre, the royal institute, the public libraries and government archives, the examination of all passports, and all reports from prefects and sub-prefects of departments. He takes cognizance also of the press. He has directors under him, who relieve him from the trouble of details. His salary is 120,000 francs.

3. Minister of justice and keeper of the seals. He is at the head of the law department, though he seldom presides in any court of justice. He corresponds with the law officers of the crown throughout France, and takes cognizance of all cases of criminals after conviction, and of all applications for royal mercy. His salary is 120,000 francs.

4. Minister of marine, who has the direction of the navy and the colonies of France. His salary is 120,000 francs.

5. Minister of foreign affairs. His duties are expressed in his designation. All passports to cross the frontiers must be nominally countersigned by him. His salary is 150,000 francs.

6. Minister of war. He superintends of course the whole service of the army and navy. He has also the sole control of the gunpowder and saltpetre manufactories, barracks, military hospitals, &c., and the government founderies and manufactories of small arms. He has also the charge of organizing and inspecting the corps of gendarmerie or garde municipale of Paris, as well as in all the departments. Salary 120,000 francs.

7. Minister of ecclesiastical affairs. His salary is 120,000 francs.

8. Minister of public instruction. His functions are strictly confined to secular education. He nominates the different functionaries in the public academies and faculties, authorizes the opening of private boarding-schools for both sexes, and regulates the works to be used in these seminaries; he grants diplomas in law and medicine, superintends the receipts of colleges, fixes the pensions of retired functionaries, grants aids and indemnities to collegiate corporations, and generally takes cognizance of all institutions for public instruction. He has a council of nine members, of which he is president. His salary is 100,000 francs.

9. Minister of commerce and manufactures. This is a new office, of which the business partly belonged to the minister of finance and the minister of the interior. He corresponds with the chambers of commerce; nominates exchange-brokers, with the exception of those in Paris, who are nominated by the minister of finance; examines all demands made for the establishment of assurance offices, their rules and regulations; grants patents for inventions, establishes or suppresses fairs or markets, judges of the qualifications of candidates for the office of judges in any of the commercial courts, and has an especial jurisdiction over all that may be deemed necessary for the prosperity of commerce and manufactures. His salary is 120,000 francs.

Besides these cabinet ministers, the king has a privy council, the members of which are seldom summoned; the public business being entirely managed by the cabinet council. The king formerly presided at the meetings of this council; but since the last revolution, the presence of the king has not been so frequent, and is now usually dispensed with.

Each of these ministers presents to the Chamber of Deputies his own budget of expenses, which is examined by a committee specially appointed for the purpose. It is competent for these committees to propose a reduction in the items of these ministerial budgets, which may be adopted by the chamber, as in 1828, when the salaries of ministers were reduced 30,000 francs per annum, besides other modifications that were proposed. After these various budgets have been considered and discussed, the general account of the national expenditure is considered and put to the vote.

Ministers of state. These are nominal functionaries, and the appointments are generally given to retired cabinet ministers, as a reward for past services. The pension was formerly 20,000 francs per annum, but since the revolution of 1830 it has been restricted to 12,000 francs a year.

Council of state (*conseil d'état*). The councillors of state are appointed by the king either for ordinary or extraordinary service, or as mere honorary members of the council, at which, since the restoration, the keeper of the seals always presides. This council deliberates, in the first place, on all bills or *projets de loi*, which are laid before them by the ministers before they are submitted to the chambers. The ministers, as well as the directors of the several administrations, have a seat in this council, which for ordinary affairs is limited to twenty-four members, and is divided into four sections. 1. For legislation and litigation, which is by far the most important in the council of the state, as it deliberates on all law projects and regulations respecting civil, criminal, and ecclesiastical affairs, brought under its consideration by the respective ministers. It is in fact a tribunal which decides all matters in dispute between individuals and officers of the state; and its decisions are final. 2. The section of the interior takes cognizance of all matters connected with internal and colonial commerce, public roads, bridges, canals, mines, departmental police, &c. 3. and 4. The section of finance, and the section of war and marine, take charge of all matters connected with their respective departments. The councillors of state on actual or ordinary service receive a salary of 12,000 francs a year, a deduction being made if they enjoy any other situation of emolument under government. Those who are employed on extraordinary service have generally other situations, and receive no salary whatever. To the council of state are attached the *maîtres de requêtes*, appointed likewise for ordinary and extraordinary service, but some are merely honorary. Their business is to draw up all acts of council, for which

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they receive a salary of 6000 francs a year. The office of *maître de requêtes* may be considered as the first step towards the rank of councillor of state. There are also *auditeurs*, who are merely present at the discussions of the council, for the purpose of initiating themselves in the routine of business, and who receive no salary.

Audit office, or *cour des comptes*. It is the business of this court to receive and examine all the accounts of the different ministers, and those of the receivers-general and prefects of the departments; and to certify the correctness of the general accounts published every year by the minister of finance. The ordinary business of this court is managed by three chambers, each having a president; and there is also a chief president, who sits when these chambers are united. There is also a councillor of reference in each chamber (*referéndaire*), whose duty is the verification of the accounts; also a procureur-general, whose office corresponds to that of solicitor of some of the public offices in England, and who sees that all the necessary accounts are delivered into this office within the period fixed by law, and who, in case of neglect, proceeds against the offending parties for the penalties they have incurred. There is likewise a chief registrar, in whose custody remain all the accounts and vouchers transmitted to his office.

The revenue of the king, or the civil list, was fixed at the restoration, by the budget of 1814, at 15,510,000 francs per annum; and a further grant was made to the other branches of the royal family of four millions a year. By the budget of 1816 the income of the king was augmented to thirty millions; but at the accession of Charles X. it was fixed at twenty-five millions, whilst the allowances to the other branches of the royal family were increased to seven millions a year. The royal household, as it is designated, includes the following appointments:

Lord steward (grand maître)	140,000 fr.
One maître d'hôtel	40,000
Four chamberlains of the household	40,000
Nine stewards	72,000
Four under stewards	20,000
Four cooks	12,000
Chief purveyor of fish	3,000
Ten assistants	20,000
Wine	172,000
Kitchen consumption	585,000
Charcoal	65,000
Which, with other expenses, amount to	1,697,700 fr.
In the department of the king's chamberlain the expenses amounted to	988,000

There were, besides, thirteen palaces, each with a separate and expensive establishment; a large sum was annually paid in pensions; and, under the heads of music, the wardrobe, medical establishment, stables, the annual disbursements amounted to between two and three millions of francs. The support of the magnificent manufactory of porcelain at Sèvres, and the manufactory of tapestry at Gobelins in Paris, cost a large annual sum; the expenses connected with the *garde meuble*, where the crown jewels and royal insignia were kept, and the expense of coining medals, were considerable; the establishments for the support of the museum of painting and sculpture at Paris amounted to nearly three millions of francs a year; an annual sum of 80,000 francs was allowed for the support of the Italian opera, and a sum of 45,000 francs for the encouragement of sacred music. After the revolution of 1830, the civil list of Louis Philippe was settled in 1832; and in fixing his allowances the chamber had two matters to deal with; the royal domains, which had hitherto been appendages of the crown, and the money-grant of an annual allowance. The real property of the crown consisted of the Louvre, the Tuileries with their dependencies, the Elysée Bourbon, the chateaux, houses, buildings, manufactories, lands, meadows, farms, woods and forests, composing the domains of Versailles, Marly, Saint Cloud, Meudon, St Germain-en-Laye, Rambouillet, Compiegne, Fontainebleau, Strasburg, Bordeaux, Pau, and others. Of these, the chateau of St Germain-en-Laye, and those of Strasburg and Bordeaux, with several other items, amounting to L.626,000, were taken from the crown, and made applicable to the purposes of the state. The money allowance to the king was fixed at twelve millions of francs, or L.500,000 per annum; and the annual sum of one million of francs, or L.41,666, was allowed to the prince royal; and the allowances to the daughters were to be regulated by special laws.

Provincial government.

The system of provincial government throughout France is simple and effective. The kingdom is at present divided into eighty-six departments, with their capital towns. These departments are subdivided into 362 arrondissements or districts, 2842 cantons, and 39,381 communes. In each department the prefect is the chief magistrate, and, as well as the sub-prefect, is paid by government in proportion to the population and the extent of his jurisdiction, the salary varying from 40,000 to 10,000 francs a year, whilst that of the sub-prefect is 4000 francs. The prefect of the department of the Seine has 100,000 francs a year. To each prefecture and sub-prefecture are attached councillors (*conseillers de préfecture*, and *conseillers d'arrondissement*), who are likewise paid by government; and he has, besides, a general council, composed of the most opulent and respectable persons in the department, appointed by the king, which he convokes when necessary; and before this council he lays all public matters for its approbation. He is at the head of the police and of the national guard within his prefecture. It is his business to superintend all necessary repairs of public buildings, bridges, fortresses, walls and barriers of close towns, &c.; to fix the seat of *voiries* (for the reception of rubbish, offal, &c.), slaughter-houses, and manufactories considered as dangerous to health; to direct the cleaning and paving of streets and high-roads; to inspect all ports, quays, common sewers, fountains, poor-houses and hospitals, prisons, &c. He superintends public libraries, museums, primary schools; fixes the price of bread; and grants passports. He is in correspondence with all the subordinate functionaries in his department, as well as with the minister of the interior, from whom he receives instructions to settle the question of all general taxes, and to provide for the public expenses of the department. He receives the produce of the *octroi*, a custom-duty levied on all articles of general consumption as they enter the town; and of all the rents of government entrepôts; of stalls and shambles in public markets; of slaughter-houses; of the proceeds from the sale of manure; as well as fines of police, and other imposts. One tenth of the octroi is only paid to the government; and out of the remainder, and from other funds, he defrays all the local expenses of police, lighting and cleaning streets. All his accounts are transmitted to the minister of the interior, who sends them to the *cour des comptes*. The functions of a sub-prefect are the same as those of a prefect. A *juge de paix* is at the head of every canton, who has also similar duties, and is, besides, employed in deciding civil suits to a certain amount. The mayors of the communes possess similar powers to those of the prefects of departments; and their receipts and expenses are provided for in a similar manner. In case of their requiring any extra funds for local expenses, they have the authority of the legislature to raise a contribution called *centimes communaux* from the inhabitants of the commune. To the office of mayor are attached municipal councillors, who have the same functions as the general council of the prefecture. The mayor may celebrate marriages, and at

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the *mairie* of the commune a marriage register is kept, as well as one of births and deaths; a notice of which the relatives of the parties are obliged to deposit at the office of the mayor, under a penalty of a fine in case of neglect. There is in every town a commissary of police, who is paid according to its population. Paris is divided into twelve *mairies*, called municipal arrondissements, in each of which is a mayor with two assistants. It is also distinguished from all other cities by having a prefect of police, who has very extensive functions, exercising all the multifarious duties of police within its precincts, having under his immediate orders the whole corps of police officers, the forty-eight commissaries of police belonging to Paris, and the corps of firemen.

Orders.

The most comprehensive, though the least ancient, order, is that of the *Legion d'Honneur;* an order instituted by Bonaparte, and maintained on nearly the same plan by the Bourbons. The usual title to admission is the discharge of functions, either civil or military, with distinction; and, in time of war, the performance of an action of eclat. The gradations are, *chevaliers*, of whom the number is unlimited, and very great; *officiers*, who amount to no less than two thousand; *commandeurs*, to the number of four hundred; *grand officiers*, a hundred and sixty; and *grand croix*, to the number of eighty. A member must serve several years as a chevalier before becoming an officer, and the same progressively through the other ranks. Admissions take place once, and frequently twice a year; a specific number being allotted to each great department of the public service, the military, the judicial, and the administrative.

The other orders are, that of St Louis, which is strictly military; that of St Michel, which dates from 1469, is limited to a hundred members, and is conferred as a recompense for distinction in science, literature, or the arts. Eminent professional men and artists, and the authors of discoveries of public utility, constitute the members of this order. The order *du St Esprit*, created in 1578, and of the very highest rank, comprises princes of the blood, prelates, and members of the order of St Michel; the whole being limited to the number of a hundred.

XIV. LAW, AND ADMINISTRATION OF JUSTICE.

Law.

In this great department France shows nothing of the backwardness apparent in her situation in many other respects, but is entitled to the particular attention of other nations, and of none more than our own. Law does not rest on tradition, nor is it necessary to study it in a never-ending accumulation of decisions. It is reduced to a compact and definite form, the result of a code formed recently, and with all the benefit of the application of the knowledge of an enlightened age to the principles of jurisprudence. Nothing could be more irregular than the administration of justice in France before the Revolution. The first stage of a process took place before judges appointed, not by the king, but by the *seigneur* or lord of the district. These judges had power to impose a fine, to decree a short imprisonment or other correctional punishment, and to give, in a civil suit, a decision subject to appeal. The *seneschals* and *baillis* ranked a degree higher, and were entitled to give a verdict in cases of importance, subject, however, to an appeal to one or other of the parliaments, of which there were in all thirteen in France; and which, very different from the parliaments with which we are familiar, were composed of judges and public officers of rank. The whole of this unharmonious mass was reduced into a simple and uniform system by the National Assembly in 1791; the seignoral judges being replaced by justices of the peace, and every district of importance (*arrondissement*) obtaining its court, or *tribunal de première instance.* The higher courts were not added till afterwards, but the judges of every description were elected by the inhabitants of the province, a right which continued with them until the usurpation of Bonaparte.

Different codes.

But there remained for the National Assembly another and a much more laborious work. Each province had its peculiar code, some founded on the Roman law, others on tradition and local custom, but the whole replete with ambiguity and discrepancy. To digest a complete body of law, that might suffice for the country at large, and supersede the provincial codes, was the labour of many years, and of a number of eminent lawyers. It was not completed until the beginning of the present century, when it was promulgated under Bonaparte, and gave to the jurisprudence and judicial constitution of France nearly the form they at present bear. This body of law consists of five codes, entitled respectively, 1. *Code Civil;* 2. *Code de Procédure Civile;* 3. *Code de Commerce;* 4. *Code d'Instruction Criminelle;* 5. *Code Pénal.*

The *Code Civil*, the first and by far the most comprehensive of these divisions, defines the rights of persons in their various capacities of citizens, parents, sons, daughters, guardians, minors, married, unmarried. It next treats of property in its respective modes of acquisition and possession, as inheritances, marriage portions, sales, leases, loans, bonds, and mortgages.

The *Code de Procédure Civile* prescribes the manner of proceeding before the different courts of justice, beginning with the *juge de paix;* also the mode of carrying into effect sentences, whether for the payment of damages, the distraining of goods, or the imprisoning of the party condemned. It declares likewise the course to be followed in transactions distinct from those of the law courts; as in arbitration, taking possession of an inheritance, or a separation of property between man and wife.

The *Code de Commerce* begins by defining the duties of certain officers or commercial agents, such as sworn brokers and appraisers: it next treats of partnerships; of sales and purchases; of bills of exchange; of shipping, freight, and insurance; of temporary suspensions of payment, and bankruptcies.

The *Code d'Instruction Criminelle*, a very different but equally important division, explains the duties of all public officers connected with the judicial police, whether mayors, assistants of mayors (*adjoints*), *procureurs du roi, juges d'instruction*, &c. After prescribing the rules regarding evidence, it regulates the manner of appointing juries, and the questions which fall within their competency. Its further dispositions relate to the mode and nature of appeals, and to the very unpopular courts authorized to try state offences, termed *Cours Spéciales* under Bonaparte, and *Cours Prévotales* under the Bourbons.

Lastly, the *Code Pénal* describes the punishments awarded for offences in all the variety of gradation, from the penalties of the *police correctionnelle*, to the severest sentence of the law. All offences are classed under two general heads; state offences, such as counterfeiting coin, resisting police officers, sedition, rebellion; and offences against individuals, as calumny, false evidence, manslaughter, murder.

These codes, the first attempt to reduce the laws of a great nation to the compass of a volume, consist of a number of sections and short paragraphs, each paragraph marked by a number, as a means of reference. The style is as concise as is compatible with clearness. The arrangement is minute and elaborate. The whole is sold for a few shillings, in the shape of one octavo or of two duodecimo volumes; and copies of it are in the possession not only of all judges, pleaders, and attornies, but of agents, merchants, and persons in business generally, who, without being enabled by it to dispense with the aid of lawyers in a suit, find in it a variety of useful explanations relative to questions of frequent occurrence in their respective occupations.

The justices of the peace are very numerous, there being one for each canton, and consequently nearly three thousand in the kingdom. They never are, as in England, clergymen, and seldom country gentlemen, but persons acquainted with law, and in circumstances which make the salary, small as it is (from L.30 to L.40), an acceptable return for a portion of their time. They are not unfrequently provincial attornies, or pleaders retired from business. The justice of the peace, or *juge de paix*, is authorized to pronounce finally in petty questions (under fifty francs, or L.2); and to give, in questions of somewhat greater amount (up to a hundred francs, or L.4), a decision subject to appeal. He takes cognizance likewise of disputes about tenants' repairs, servants' wages, and the displacing of the landmarks of property. No action can be brought before a court of justice in France until the plaintiff has summoned his adversary before a *juge de paix*, with an amicable intent (*cité en conciliation*), and received from the *juge* a *procès verbal*, showing that the difference could not be adjusted. When the justice is prevented from acting, his place is taken by his first, and, if necessary, by his second substitute.

Of the *Primary Courts* there is one for every arrondissement, making above three hundred and sixty for the whole of France. Each is composed of three or four members, of two or three *suppléans* or assistant members, and of a *procureur du roi* acting on the part of the crown. In populous districts, *cours de première instance* comprehend six, seven, eight, or more members, and are divided into two or three chambers. They are chiefly occupied with questions of civil law, and hold, in the extent of their jurisdiction, a medium between the humble limits of the *juge de paix* and the wide powers of the *cour royale;* their decisions being final wherever the income from a property does not exceed forty shillings, or the principal forty pounds, but subject, in greater matters, to an appeal to the *cour royale.* The members of these inferior courts are named, like other judges, by the crown, and hold their places for life; the salary of each is only L.80 a year, equal to L.120 in England; their number, throughout all France, including *suppléans*, is not far short of 3000.

A section of the *Tribunal de Première Instance* is appropriated to the trial of offences, under the name of *Tribunal de Police Correctionnelle;* and here the English reader must be careful to distinguish between judicial and government police; the former having no reference to state offences, such as libel or treason, but comprehending a very numerous list of another kind, viz. all offences which do not amount to crimes, or subject the offender to a punishment *afflictif ou infamant.* These offences, when slight, are called *contraventions de police*, and are brought before a *juge de paix*, or the mayor of the commune; when of a graver stamp, and requiring a punishment exceeding five days' imprisonment, or a fine of fifteen francs, they are brought before the court now mentioned, whose sentences, in point of imprisonment, may extend to the term of five years. The trespasses brought before a justice of the peace or mayor are such as damaging standing corn, driving incautiously in the highway, endangering a neighbour's property by neglecting repairs. The offences referred to the *Tribunal Correctionnel* are such as assault and battery, swindling, privately stealing, using false weights or measures, &c.

We now come to the higher courts of justice, which equal in jurisdiction our courts in Westminster Hall and on the circuit, but with the material distinction, that in France the civil courts are always stationary. The *Cours Royales*, in number twenty-seven, are attached to the chief provincial towns throughout the kingdom. They are all formed on the same model, and possessed of equal power, though differing materially in extent of business and number of members. The number of the latter depends on the population of the tract of country (generally three departments), subject to the jurisdiction of the court. In a populous quarter, like Normandy, a *cour royale* comprehends twenty, twenty-five, or even thirty judges, and is divided into three or four chambers, of which one performs the duty of an English grand jury, in deciding on the bills of indictment (*mises en accusation*); another is for the trial of offences (*police correctionnelle*); and a third, with perhaps a fourth, is for civil suits. These courts are often called *Cours d'Appel*, as all the cases which come before them must have been previously tried by an inferior court. The collective number of judges in these higher courts is not short of nine hundred; an aggregate hardly credible to an English reader, and which would prove a very serious charge on the public purse, were not their salaries very moderate, viz. from L.100 to L.300 a year, according to the population of the towns where the court is held. In the financial pressure of 1816 and 1817, a reduction of this numerous body was much called for; but no diminution was made in the number of the courts, whatever gradual decrease may be allowed to take place in the members from decease or retirement.

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Paris does not, like London and Edinburgh, absorb almost all the civil business of the country. It has, it is true, a *cour royale* on a large scale (five chambers and fifty judges), but confined in its jurisdiction to the metropolis and the seven adjacent departments. There is a *procureur du roi* for every *tribunal de première instance*, and a *procureur general* for every *cour d'appel.*

Assize courts.

The Assize Courts take cognizance exclusively of criminal cases; that is, of the crimes or serious offences referred to them by the *cours royales.* They consist of three, four, or five judges, members of the *cours royales*, but never belonging to the section that finds the indictments. The grand accompaniment of a French assize court is a jury, which, as in England, consists of twelve members, and decides on the facts of the case, leaving the application of the law to the judges. Complete unanimity was at no time necessary in a French jury. At first a majority of ten to two was required; but this was subsequently altered to a simple majority, with the qualification that, in case of condemnation by only two voices (seven to five), the verdict should be re-considered by the judges, and the party acquitted, if, on taking judges and jurymen collectively, there was a majority in his favour. The assizes are the only courts in France that are not stationary. They are, however, generally held in the chief town of a department once in three months. The costs of suit are very exactly defined by a printed *tarif;* and it is a rule in criminal as in civil cases, that the party condemned is liable for all.

Cours spéciales, cours prévotales.

The *Special Courts* were constituted out of the usual course for the trial of state offences. The *Cours Spéciales* were appointed by Bonaparte, the *Prévotales* during the period of political effervescence (fortunately short lived) which succeeded the second entry of the king, and the misfortunes brought on the nation by Bonaparte's return from Elba. In both cases, the courts were considered as under the influence of government, and were of course obnoxious to the enlightened part of the public.

Tribunaux de commerce.

The name of *Tribunal*, or court, is given in France to a committee of five merchants, or leading tradesmen, appointed by the mercantile body in every town of considerable business or population. Their competency extends to all disputes occurring in mercantile business, and falling within the provisions of the *code de commerce.* Their

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decisions are founded on that code, and on the customs of merchants. They are final in all cases below L.40. The presence of three members is necessary to form a court. The duty is performed gratuitously; and the number of these courts in France is about a hundred and sixty.

Cour de cassation.

The *Court of Cassation*, the highest in the kingdom, is held at Paris, and is composed of three chambers, each of sixteen members and a president, making, with the *premier president*, a total of fifty-two. Its province is to decide definitively in all appeals from the decrees of the *cours royales;* investigating not the facts of the case, but the forms of law, and ordering, wherever these have been infringed or deviated from, a new trial before another *cour royale.* This revision takes place in criminal as well as in civil cases. The royal court chosen for the new trial is generally, for the convenience of the parties, the nearest in situation to the other. The *Cour de Cassation* has farther powers, and of the highest kind. It determines all differences as to jurisdiction between one court and another, and exercises a control over every court in the kingdom. It has power to call the judges to account before the minister of justice, and even to suspend them from their functions; acting thus as a high tribunal for the maintenance of the established order of judicature.

Ministry of justice.

The minister bearing the title of Keeper of the Seals and Minister of Justice, may be compared to the chancellor of England, though his patronage is much less extensive, and his functions much more suitable to the station of minister. He rarely acts as a judge, but exercises a general superintendence over the judicial body. He is the medium between the king and the courts of justice, in the same way as the minister of the home department is in regard to the civil authorities. The expenses of the judicial body fall under his cognizance. The *procureurs généraux* and *procureurs du roi* throughout the kingdom address their correspondence to him; and it is his province to report to the king on the alleviation of punishment, on pardons, in short, on all disputed points, whether of legislation or administration.

Juries.

Juries were introduced into France in 1791, and confined from the beginning to criminal trials; nor does there seem any wish to extend their jurisdiction to civil suits. During several years there were in France grand juries constituted as in England; but under Bonaparte their functions were transferred to the *cours royales*, on the plea that none but judges could be made to understand the difference between bringing to trial and bringing to punishment; and that the consequence frequently was a discharge, when a true bill ought to have been found. It has in fact been questioned, whether the institution of juries is advisable in a nation of which the mass is still strongly tinctured with the credulity engendered by blind submission to an absolute government. That the French can supply special jurymen of judgment and discrimination, must be admitted by all who know how eminent are many of their men of business; but by their common juries the nature of evidence is as yet little understood, and considerable experience will be necessary to form to the habit of deliberate reflection individuals so much more open to impressions of feeling than of reasoning. Adroit pleaders have been known to obtain very unexpected acquittals; and it is remarkable that all the charges against French juries turn on their bias to clemency; none on a leaning towards the prosecutor, whatever may be his wealth or rank. The very numerous party called *Liberaux* maintain, that practice only is wanting to qualify their countrymen to act on juries. They demand, therefore, the restoration of grand juries, and the exclusion of the executive power from interference with the election of common juries, or with the appointment of *juges de paix*, mayors, or other local magistrates. These encroachments on popular rights all owe their origin to Bonaparte; but they are too convenient for the executive power to be readily relinquished by his successors.

Present state of crime and punishment.

One of the chief improvements made by the French National Assembly was of the nature which now engages the deliberation of our own parliament—a general mitigation of the penal code, or rather the substitution of punishments likely to be enforced, for others of such severity as in general to put their application out of the question. Stealing privately in a dwelling-house was formerly punishable in France by the rack and death; an extreme which prevented respectable persons from bringing delinquents before a court, and tended, of course, to give frequency to the offence.

There still exists in France the singular practice of parties engaged in a law-suit visiting the judges in private; a practice originating in an age when suitors thought a personal interview the only effectual mode of explaining their case, and continued in more enlightened times from that over-complaisance which is the groundwork of several of the defects of the national character. Such interviews are little else than an exchange of compliments; nor have the judges, either before or since the Revolution, been charged with acting under the influence of such *ex parte* statements.

The salaries of French judges must appear insignificant to an English reader; but there are in that country a number of men of small patrimony but good education, who have no idea of trade or of active pursuits in private life, while they attach much importance to government employment; moreover, the functions of judges, and in general of public officers in France, engross much less time than in England.

The law style of the French is much more brief than ours; their deeds, such as leases, mortgages, and sales, being generally contained in a very few pages, and free from obscure or antiquated phraseology.

Prior to the year 1825 there existed in France no authentic documents respecting the administration of criminal justice in France; and in order to know the nature and the number of the crimes committed during the preceding years, it would have been necessary to look back into the records of every prefecture throughout the country; and such a work, besides its extreme difficulty, would have been too incomplete to be of any utility.[1] Within the last seven years, however, the statistics of crime and of criminal justice in France have been made familiar to the world by a series of official reports, in which the details of the criminal calendars throughout France are brought together and perspicuously arranged. In these reports, the crimes and offences brought under consideration are divided into three great branches; the first relating to such crimes as are tried before the courts of assize, with the assistance of a jury; the second to offences of minor importance, decided by correctional tribunals; and the third to such as are disposed of by the ordinary magistrates of police. Of 6962 persons tried in the courts of assize in the year 1830, 3910 were for crimes against property, and 1158 for crimes against the person. This latter class of offences appears to be decreasing. They amounted in 1825 to 2069, in 1826 to 1709, in 1827 to 1911, and in 1828 to 1844. The proportion between the number of persons judicially accused of offences, and the general population of the kingdom, was, in 1829, as one in 4321; and in 1830, as one in 4576. Of the 6962 brought to trial in 1830, 5608 were men, and 1354 were women.

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[1] See *Essai sur la Statistique Morale de la France*, par. A. M. Guerry, p. 5.

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With respect to the ages of the accused, 114 had not completed their sixteenth year; and 1161 were from sixteen to twenty-one years of age. The whole of the accused were natives of France, with the exception of 216. With regard to education, it appears that the great majority are ignorant; 4319 could neither read nor write, 1826 could only do so imperfectly, only 688 could read and write well, and 129 had received a superior education. It is a curious and rather a consolatory fact, that in the case of the worst crimes, the proportion of the illiterate was the greatest. Thus all that were accused of parricide were grossly ignorant; and rather less than one half of those accused of murder, of theft, &c. were in the same state. We subjoin a table containing the nature of the crimes that were tried before the court of assize by a jury, the number convicted, and their punishments.

NATURE OF THE CRIMES.	NUMBER OF PERSONS TRIED.	NUMBER OF PERSONS ACQUITTED.	PUNISHMENTS.								
			Death.	Galley Slavery [1] for Life.	Galley Slavery from Five to Twenty Years.	Solitary Confinement from Five Years and upwards.	Pillory.	Banishment.	Degradation and Dismissal from Public Service.	Fine and Imprisonment from One to Three Years.	Number of Children under Age, detained in Houses of Correction from One to Ten Years.
Attempts on personal liberty, and arbitrary arrests	1	1	...	...	...	...	...	...	...	...	...
Resistance by force of arms to the civil authorities	258	175	...	....	10	16	...	...	...	57	...
Personal insult to public officers	54	21	...	...	...	8	1	...	...	24	...
Escape from prison	3	3	...	...	...	...	...	...	...	...	...
Associations to commit crime	49	27	...	8	4	7	...	...	...	3	...
Extortion of money, accompanied with personal violence	5	1	...	...	...	3	...	...	...	1	...
Murder (*assassinat*)	469	210	49	82	9	24	...	...	...	95	...
Parricide	4	2	2	...	...	...	...	...	...	...	...
Infanticide	109	62	1	14	...	1	...	...	...	31	...
Poisoning	37	23	12	...	...	1	...	...	...	1	...
Menaces and putting in bodily fear by incendiary letters	8	7	...	...	...	...	...	...	...	1	...
Cutting and maiming	235	133	...	...	2	9	...	...	...	91	...
Do. public officers	74	33	...	...	3	33	...	...	...	5	...
Attempts at abortion	4	3	...	...	...	...	...	...	...	1	...
Rapes and attempts at rape	136	79	...	7	1	25	...	...	...	24	...
Do. on children under fifteen years of age	107	44	...	1	44	...	...	...	...	18	...
Bigamy	7	...	...	1	6	...	...	...	...	...	...
Elopements with minors, and stealing children under fifteen years of age	16	9	...	3	3	1	...	...	...	...	...
Bearing false witness and perjury	71	57	...	...	6	7	...	...	1	...	...
Libels	2	1	...	...	...	...	...	...	...	1	...
Coinage of money	48	35	6	...	...	1	...	...	...	6	...
Counterfeiting seals and stamps, &c	8	7	...	...	...	1	...	...	...	...	...
Forgery	363	189	...	3	77	83	...	...	...	11	...
Political crimes	16	8	...	...	.	...	...	...	...	8	...
Bribery and corruption	29	21	...	...	. .	1	7	...	...	...	...
Embezzlement of public money	2	2	...	...	...	...	...	...	...	...	...
Embezzling documents from public archives	4	4	...	...	...	...	...	...	...	...	...
Robbery of churches, &c	47	18	...	3	9	4	...	...	...	13	...
Highway robbery	135	45	1	36	9	17	...	...	...	25	2
Robbery by servants, &c	1016	350	...	2	45	321	...	...	...	291	7
Grand and petty larceny, picking of pockets, shoplifting, burglary, &c.	3280	1002	...	106	707	433	...	...	...	1000	31
Extorting signatures to bills, &c	28	16	...	...	9	...	...	...	...	3	...
Fraudulent bankruptcy	84	58	...	...	16	...	...	...	...	10	...
Setting fire to houses (arson)	123	84	19	2	4	4	...	...	...	7	3
Wilfully burning other property	15	11	1	...	1	1	...	...	...	1	...
Destruction of public edifices	28	26	...	...	...	2	...	...	...	...	...
Stealing and damaging of corn	48	32	...	...	6	1	...	...	...	9	...
Do. houses and furniture	37	31	...	...	2	1	...	...	...	3	...
Slave trade	1	1	...	...	...	...	...	...	...	...	...
Total	6961	2831	92	268	973	1005	8	...	1	1740	43

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[1] Women are never condemned to the galleys; for them the chief secondary punishment is solitary confinement.

M. Goldsmith is of opinion, from an attentive examination of the French establishments of criminal police, and from the character of their inmates, that crimes against property are not pursued with the same boldness and systematic combination as in England. Robbery is not regularly pursued there as a profession. "The thieves in France," he observes, "are not less than a century behind us. The skill and combination which are necessary to the perpetration of a burglary in a banking-house have hitherto been reserved among our neighbours for less objectionable objects. The ordinary incentives to crime are here the vulgar ones of hunger and want." The public peace in France is maintained by an armed police, or *gendarmerie*, partly on foot and partly mounted; and in all emergencies, whether arising from seditious meetings, popular assemblies, or any other cause, when this force is found insufficient for the preservation or execution of the laws, the national guard and troops of the line may be called in to assist, being, however, subject to the orders of the police. Since the revolution of 1830 the gendarmerie of Paris have been abolished. They have been replaced by a force termed the *garde municipale*, the duties of which are nearly the same.

Before the correctional tribunals there were tried, without the aid of juries, the same year, 209,493 persons, of whom 32,575 were acquitted, 5860 were imprisoned for one year and upwards, 20,021 were imprisoned for less than a year, and 150,603 were amerced in a penalty of sixteen francs and upwards. The petty courts have only the power of inflicting five days' imprisonment and a fine of fifteen francs on the offending party. The total number of cases disposed of were 112,114 fined, 4933 imprisoned, and 20,006 acquitted. In France, the prisons, which constitute an important department of the criminal police, are under the special direction of the minister of the interior. His delegates are the prefects; and the jailers or governors of the prisons are called directors. In every city containing a prison there is an inspector-general, who attends to the proper distribution of the provisions, and sees that they are of good quality; he daily visits the prisons, listens to the complaints of the prisoners, and attends to their comforts. The departmental prisons are for the confinement of debtors, for persons to be brought to trial for crimes, and for those who are condemned to imprisonment for a shorter period than a year. The annual expense of these prisons makes part of the budget of the minister of the interior, and amounts to 500,000 francs a year. The other prisons (*maisons centrales*) are nineteen in number, and are for the confinement of prisoners whose sentence is for a longer term than a year.

ISLE OF FRANCE, or MAURITIUS. See MAURITIUS.

FRANCHISE, in *Law*, is used as synonymous with *liberty*, and is defined "a royal privilege, or branch of the king's prerogative, subsisting in the hands of a subject." Being thus derived from the crown, a franchise must arise from the king's grant; or in some cases it may be held by prescription, which presupposes a grant. The kinds of franchise are almost infinite.

FRANCHISE is also used to denote an asylum or sanctuary, where the persons of those who take refuge in them are secure. One of the most remarkable capitulars made by Charlemagne in his palace of Heristal, in 779, was that relating to the franchises of churches. The right of franchise was held so sacred that even the less rigidly righteous kings scrupulously observed it; but in course of time it was carried to such excess, that Charlemagne reduced it, by forbidding the conveying of provisions to criminals who had fled for protection to these sanctuaries.

FRANCIS, PHILIP, an English poet and dramatic writer, but more distinguished for his translations of classical authors than for his original compositions. His father was dean of Lismore, and rector of St Mary's, Dublin, whence he is said to have been ejected on account of his principles at the Revolution. His son received his education for the church at Dublin; but, after entering into holy orders, he came over to England, and settled at Esher, in Surrey, where he opened a school. He obtained the degree of doctor of laws, and was afterwards presented to the rectory of Barrow, in Suffolk, and made chaplain of Chelsea hospital. He wrote two tragedies, *Eugenia*, 1752, and *Constantia*, 1754, neither of which, however, met with a favourable reception at the time of its appearance, and both have now fallen into oblivion. But his translation of Horace with notes was completely successful, and has been often reprinted. In 1757 he published a translation of the orations of Demosthenes and Æschines, in two vols. 4to. Dr Francis was also a considerable political writer, and was said to have been employed by government. He died at Bath in the year 1773, leaving a son, who having distinguished himself as a politician, rose to considerable eminence, held several official situations under government, and in 1773 went out to the East Indies, where he became a member of the council of Bengal. After his return to England he came into office under the whig administration, and was honoured with the order of the bath. He published several political pamphlets, and died in 1818. Since his death the authorship of the Letters of Junius has been ascribed to him, on evidence which certainly creates a strong presumption in his favour.

FRANCIS, *Cape*, a town on the north coast of Hispaniola. See HISPANIOLA.

FRANCISCANS, in *Ecclesiastical History*, are the members of the religious order established by St Francis in the year 1208. Francis was the son of a merchant of Assisi, in the province of Umbria. After leading for some time a dissolute life, he was reclaimed by a fit of sickness, and fell into the opposite extreme of devotion. Soon after this event, hearing the passage repeated (Mat. x. 9, 10), in which Christ addresses his apostles, *Provide neither gold, nor silver*, &c. he was led to believe that a voluntary and absolute poverty was the essence of the gospel, and to prescribe this poverty as a sacred rule both to himself and to his followers. This new society, which appeared to Innocent III. extremely well adapted to the state of the church at the time, and calculated to restore its declining credit, was solemnly approved of and confirmed by Honorius III. in 1223, and had made considerable progress before the death of its founder, which took place in 1226. Francis, through an excessive humility, would not suffer the monks of his order to be called *fratres*, brethren or friars, but *fraterculi*, little brethren, or friars-minor, by which denomination they still continue to be distinguished. They were also called *gray friars*, on account of the colour of their clothing, and sometimes *cordeliers*. The Franciscans and Dominicans were zealous and active friends of the papal hierarchy, and, in return for their devotion to its interests, were distinguished by peculiar privileges and honourable employments. The Franciscans, in particular, were invested with ample and extensive indulgences, the distribution of which was committed to them by the popes, as a means of subsistence, and a rich indemnification for their voluntary poverty. In consequence of this grant, the rule of the founder, which absolutely prohibited both personal and collective property, so that neither the individual nor the community were to possess either fund, revenue, or any worldly goods, was considered as too strict and severe, and dispensed with soon after his death. In 1231 Gregory IX. published an interpretation of this rule, mitigating its rigour; and it was further confirmed by Innocent IV. in 1245, and by Alexander IV. in 1247. But these mitigations were zealously opposed by a branch of the Franciscans called the *spiritual;* and their complaints were attended to by Nicholas III. who, in 1279, published a constitution, confirming the rule of St Francis, and containing an elaborate explanation of the maxims which it recommended, and the duties which it prescribed. In 1287, Matthew of Aqua Sparta, being elected general of the order, discouraged the ancient discipline of the Franciscans, and allowed his monks to abandon even the appearance of poverty. This conduct inflamed the indignation of the spiritual Franciscans; so that from the year 1290 seditions and schisms arose in an order that had been distinguished, in appearance at least, for its disinterestedness and humility. Such was the enthusiastic frenzy of the Franciscans, that they impiously maintained that the founder of their order was a second Christ, in all respects similar to the first; and that their institution and discipline were the true gospel of Jesus. Accordingly, in 1303, Albizi, a Franciscan of Pisa, published a book, with the applause of his order, entitled *The book of the Conformities of St Francis with Jesus Christ.* In the beginning of the fourteenth century the whole Franciscan order was divided into two parties; one of which embraced the severe discipline and absolute poverty of St Francis, and were called *spirituals;* and the other, who insisted on mitigating the austere injunctions of their founder, were denominated *brethren of the community.* The latter wore long and loose, but good habits, with large hoods; the former were clad in a strait, coarse, and short dress, pretending that their habiliments were enjoined by St Francis, and that no power on earth had a right to alter them. But neither the moderation of Clement V. nor the violence of John XXII. could appease the tumult occasioned by their contentions; their rage, however, subsided after the year 1329. In 1368 these two parties were formed into two large bodies, comprehending the whole Franciscan order, which subsist to this day; namely, the *conventual brethren,* and the *brethren of the observance,* from whom sprung the Capuchins and Recollects. The general opinion is, that the Franciscans came into England in the year 1224, and had their first house at Canterbury, and their second at London; but there is no certain account of their being here until King Henry VII. built two or three houses for them. On the dissolution of the monasteries, the conventual Franciscans owned about fifty-five houses, which were under seven custodies or wardenships, namely, those of London, York, Cambridge, Bristol, Oxford, Newcastle, and Worcester. In the eighteenth century the whole number of Franciscans and Capuchins amounted to 115,000 monks, who occupied 7000 convents. At present, however, their number is not nearly so great, as the order has been suppressed in various countries.

FRANCISCO, ST, the name of a small island on the coast of Brazil. Its situation is low, and it is watered by various small rivers. On its eastern side there is a narrow lake, ten miles long from north to south, denominated the river Acarhy; and contiguous to it there is another small lake. The town of St Francisco, which gives name to the island, consists of houses mostly built of earth, and a stone church. Only two of the streets are paved. The inhabitants are almost all white, and of a pale complexion. They are chiefly occupied in the cultivation of mandioc; and as the town is said to be well supplied with fish, some have accounted for their cadaverous appearance by supposing it to arise from their meagre diet. The adjacent country, though rich, is swampy, and of course unhealthy. The port of St Francisco appears to want depth of water for large vessels, a circumstance which considerably detracts from its value. Lat 26. 15. S.

FRANK LANGUAGE, *Lingua Franca,* a kind of jargon spoken on the Mediterranean, and particularly throughout the coasts and ports of the Levant, composed of Italian, Spanish, French, Romaic Greek, and other languages.

FRANK, or *Franc,* an ancient coin, either of gold or silver, struck and current in France. The value of the gold franc was something more than that of the gold crown; but it has been long out of use, though the name is still retained as the name of a money of accounts, in which sense it is equivalent to the livre, or twenty sols.

FRANK, or *Franc,* meaning literally *free* from charges and impositions, or exempt from public taxes, has various significations in the ancient English customs.

FRANK-Almoigne (*libera eleemosyna*), or free alms, a tenure of a spiritual nature, by which a religious corporation, aggregate or sole, holds lands of the donor granted to them and their successors for ever. The service which they were bound to render for these lands was not definitively stated; but only in general they were to pray for the souls of the donor and his heirs, dead or alive. Hence they did no fealty, which is incident to all other services, because this religious service was of a higher and more exalted nature. This is the tenure by which almost all the ancient monasteries and religious houses held their lands, and by which also the parochial clergy, and many ecclesiastical and eleemosynary foundations, hold them at this day. But the nature of the service was altered at the Reformation, and made conformable to the reformed doctrines of the church of England. It was an old Saxon tenure; and continued under the Norman domination, from the veneration paid to religious institutions. This was also the reason why tenants in frank-almoigne were exempted from all other services except the *trinoda necessitas,* of repairing the highways, building castles, and repelling invasions, just as the Druids, amongst the ancient Britons, had *omnium rerum immunitatem.* And even at present this is a tenure of a very different nature from all others, being not in the least feudal, but merely spiritual; for, if the service be neglected, the law gives no remedy by distress, or otherwise, to the lord of whom the lands are holden, but merely enters complaint to the ordinary or visitor to correct it.

FRANK-Chase is defined to be a liberty of free chase, by which persons who possess lands within the compass of the same are prohibited from cutting down wood, &c. out of the view of the forester.

FRANK-Fee signifies the same thing as holding lands and tenements in fee simple; that is, to any person and his heirs, and not by such service as is required by ancient demesne, but is pleaded at common law.

FRANK-Law, a word applied to the free and common law of the land, or the benefit which a person has by it.

FRANK-Marriage, in *Law,* is where tenements are given by one man to another, together with a wife, who is the daughter or cousin of the donor, to hold in frank-marriage. By such a gift, although nothing but the word *frank-marriage* is expressed, the donees have the tenements to themselves and the heirs; that is, they are tenants in special tail. For the word *frank-marriage* not only denotes *ex vi termini,* an inheritance, like the word *frank-almoigne,* but likewise limits that inheritance, supplying not only words of descent, but also of procreation. Such donees in frank-marriage are liable to no service but fealty; for a rent reserved therein is void until the fourth degree of consanguinity be past between the issues of the donor and donee.

FRANK-Pledge, in *Law,* signifies a pledge or surety for the behaviour of freemen.

FRANKED LETTERS. See POST OFFICE.

FRANKEN, Franciscus, usually designated *Old Frank*, a famous Flemish painter, supposed to have been born about the year 1544. Although his works are well known, very few of the circumstances of his life have been ascertained. This master painted historical subjects from the Old and New Testaments, and was remarkable for introducing a great number of well-grouped figures into his compositions. Vandyck commended his works, and thought them worthy of a place in any collection.

Franken, *Franciscus*, distinguished by the name of *Young Frank*, was the son of the former, and born in the year 1580. He was instructed by his father, whose style he adopted so closely that their works are frequently mistaken. He travelled into Italy to improve his colouring; and upon his return his works were much sought after. The best works of this painter are, a scriptural performance in the church of Notre Dame at Antwerp; and an excellent picture, in a small size, of Solomon's idolatry. Young Frank died in 1642.

FRANKENHAUSEN, a city of the duchy of Schwartzburg-Rudolstadt, in Germany, the capital of the principality and of a bailiwick of the same name. It stands on the river Wipper, is surrounded with walls, and contains the ducal palace, 630 other houses, and 3100 inhabitants. It possesses a salt spring, from which is made culinary salt, the revenue derived from which is divided between the two branches of the sovereign family of Schwartzburg.

FRANKENSTEIN, a city, the capital of the circle, in the Prussian province of Siberia. It stands on the river Pausebach, 877 feet above the sea, and contains 618 houses, with 5200 inhabitants. It is a place of brisk trade in cloth, hosiery, tannery, and other articles. It is situated in long. 16. 44. 10. E. and lat. 50. 52. 30. N.

FRANKENTHAL, a city of Bavaria, in the circle of the Rhine, and the capital of a small canton. It is situated on a canal which joins the Rhine, is an industrious city, containing 448 houses and 4109 inhabitants, who make silk, linen, and woollen cloths, and other goods, especially excellent porcelain.

FRANKFORT-on-the-Maine, an independent republic in Germany, consisting of the city and a small district around it, containing two market-towns, five villages, 896 houses, and about 7000 inhabitants. The system of government is somewhat complicated, being partly of the aristocratical and partly of the democratical kind. The city is surrounded by promenades formed out of the ancient walls. The fine river Maine passes close to it, and on its banks are some of the best dwellings of the city. There are within it 3600 houses, and about 50,000 inhabitants. The antiquities of the city attract much attention, especially the Römer, and the electors' hall, where the emperors were chosen, and the cathedral. The situation of Frankfort, between France and Germany, makes it a place favourable for the exchange of the commodities of England, the Netherlands, France, Italy, and Germany; and at two large fairs, in the spring and autumn, a vast portion of business is transacted. Much trade is carried on by the Maine and the Rhine with Holland, especially for the German wines, and the woods of its vast forests. The greatest business in amount is that of exchanges, as the bills of all countries can be negotiated with facility at Frankfort, by the rich bankers, owing to their extensive transactions with the several states of Europe.

Frankfort-on-the-Oder, a city, the capital of the circle of that name, in the kingdom of Prussia. It is the seat of the provincial government, is regularly built, and has broad streets and good public buildings. It contains four Lutheran, two Reformed, and one Catholic church, with 1409 houses, and 15,540 inhabitants. It is a very considerable manufacturing place for silk and linen goods, gloves, hosiery, and other articles. The largest fairs of any on the Continent, except those of Frankfort-on-the-Maine and of Leipsic, are held here. Long. 14. 28. E. Lat. 52. 22. N.

FRANKFORT, the political metropolis of Kentucky, one of the United States of North America. It is situated on the northern bank of the river Kentucky, at about sixty miles above its junction with the Ohio. The environs of the plain upon which the town is built are beautiful, and remarkable for their romantic scenery. The town is divided by the river into Frankfort and South Frankfort, each of which contains about 2000 inhabitants. The two divisions are connected by a bridge across the Kentucky, which here flows between banks of from four to five hundred feet in height. The state-house of the town is entirely built of marble, with a front presenting a portico of Ionic columns, and the whole has an aspect of imposing magnificence. It contains the halls of the legislature, and apartments for the court of appeals and the federal courts. The other public edifices of Frankfort are three churches, an academy, and county court-house. The houses are singularly neat, many of them being built of a beautiful species of marble, which is found on the banks of the river. It possesses a number of manufacturing establishments, and is a place of considerable commercial enterprise, being the head port of steam-boat navigation. Vessels have been built at Frankfort, and floated to New Orleans, from which it is distant 806 miles.

FRANKLAND'S Islands, a cluster of small islands on the north-east coast of New Holland, about six miles from the land. Long. 146. E. Lat. 17. 12. S.

FRANKINCENSE. See Incense.

FRANKLIN, Thomas, D.D. chaplain in ordinary to his majesty, was born in London in the year 1721, and was the son of Richard Franklin, well known as the printer of an anti-ministerial paper called *The Craftsman;* in conducting which he received great assistance from Lord Bolingbroke, Mr Pulteney, and other writers, who then opposed Sir Robert Walpole's measures. By the advice of the second of these gentlemen, young Franklin was devoted to the church, with a promise of being provided for by the patriot, who, however, forgot his undertaking, and entirely neglected him. He was educated at Westminster School, whence he removed to the university of Cambridge, where he became a fellow of Trinity College, and in 1750 was chosen Greek professor. In 1757 he was instituted vicar of Ware and Thundridge, which, with the lectureship of St Paul, Covent Garden, and a chapel in Queen Street, were all the preferments he held till he obtained the rectory of Brasted in Surrey, which he held till his death. He first appeared as an author in a translation of The Epistles of Phalaris in 1759, and of Cicero's tract De Natura Deorum. About this period he is said to have published An Inquiry into the Astronomy and Anatomy of the Ancients, reprinted in 1775, in 8vo. In 1759 appeared his translation of Sophocles, in 2 vols. 4to. This work is allowed to be a fair and forcible version of that great tragic poet. It was followed by A Dissertation on Ancient Tragedy. In 1765 Dr Franklin published a volume of Sermons on the Relative Duties, which met with considerable attention. In the year following he produced the Earl of Warwick, a tragedy, borrowed without acknowledgment from the French of Laharpe. Notwithstanding his clerical preferments and duties, he continued to write for the stage, and on one occasion descended so low as to bring out a farce. In 1780 appeared his excellent translation of Lucian, in 2 vols. 4to. Dr Franklin died on the 15th of March 1784, leaving behind him the character of a learned, able, but jealous and peculiar man. Besides the works above enumerated, he was the author of a humorous piece entitled A Letter on Lectureships, An Ode on the Institution of the Royal Academy, three volumes of posthumous sermons; and he is also supposed to have aided Smollett in the Critical Review, and in the translation of the works of Voltaire.

Franklin, *Benjamin*, one of the most distinguished men whom America has produced, was born at Boston in New England, North America, on the 17th of January 1706. His ancestors were petty freeholders at Eaton in Northamptonshire, and he was the youngest but two of a family of seventeen children. About the year 1682 his father emigrated to America, and commenced soap-boiler and tallow-chandler in the town of Boston.

Franklin, from his earliest years, discovered the strongest propensity towards literary pursuits, which determined his father to qualify him for the ministry; but he was thwarted in his designs by a numerous and increasing family, and therefore Benjamin was taken from the more learned seminary, and placed under a teacher of reading and writing, preparatory to his being bound to some handicraft trade. At ten years of age he was withdrawn from school to take part in the drudgery of his father's trade. This greatly mortified the aspiring mind of young Franklin, who would have preferred a seafaring life to such an employment; but from this he was dissuaded by the influence of his father, who was a man of considerable penetration and judgment. He made it his chief aim to inspire his children with the love of knowledge and the principles of moral rectitude. He had few books; yet from amongst these Benjamin selected a number of voyages and travels, as well as different histories, a species of reading for which he had a strong predilection. By going through a course of controversial divinity in this unaided manner, he greatly strengthened his argumentative powers, which was most probably all he had in view. Defoe upon Projects, according to his own account, made impressions upon his mind which in a great measure influenced the principal events of his subsequent career.

He was now chosen to an employment which accorded much better with the natural bent of his mind than the business of a tallow-chandler. A brother of his own had a printing office in Boston, and to him Benjamin was bound apprentice at twelve years of age. With the mechanical part of the business he was soon acquainted; and the opportunities thus afforded him of procuring new books to read were eagerly seized, and the greater part of the night frequently spent in the perusal of them. He soon became anxious to imitate the works which he most admired, and his first attempts were of a poetical nature. He composed and printed ballads, which were well received by those who love this species of reading; yet his father had the address to convince him that nature never designed him for a poet. He accordingly turned his whole attention to the cultivation of prose composition, in which he made great progress. He had a young friend with whom he kept up an epistolary dispute, which afforded him an admirable opportunity of exercising his pen. He also read with avidity and attention various works, particularly Xenophon's *Memorabilia*, which enabled him either to confute or confound an adversary by a number of questions. It is also certain that he became a sceptic as to the religion in which he had been educated, and propagated his unbelief with zeal and assiduity. The fatal consequences which this produced on the deportment of some of his intimate companions at length happily convinced him that it is extremely dangerous to destroy the salutary influence of religion, without being able to substitute anything in its place of equal importance and efficacy. He seems, however, to have continued a sceptic in his own mind; yet he still retained a love for moral rectitude, which led him to adopt honourable means in the prosecution of valuable ends. Much to his honour be it spoken, he acquired, at a very early period of life, that triumph over his sensual appetites, which is so essentially necessary to a life of dignity, usefulness, and virtue. Having read Tyron's recommendation of a vegetable diet, at sixteen years of age, he abandoned the use of animal food; and on offering to his brother to support himself on half the money which was paid for his board, he was allowed to adopt his own plan, by which means he was enabled to save a considerable sum for the purchase of books. Although he relaxed considerably as to a vegetable diet, yet he thus acquired the habit of being satisfied with little; and a contempt of the gratifications of the palate was frequently of singular advantage to him throughout the whole of his life.

His brother having commenced a newspaper, Benjamin sent a number of pieces on various topics to be inserted, which met with the approbation of the most competent judges; a satisfaction he enjoyed without being known, as they were all anonymous. His brother treated him with the harshness of a master, which he bore with the utmost impatience, as the public had already pronounced him to be possessed of merit. The states of America having prohibited James Franklin from publishing this paper, on account of some political offence, the name of Benjamin was employed as publisher, in consequence of which he procured his indentures, although he agreed privately with his brother to serve out his time. But having been harshly treated by his brother, he went to New York by sea, and from that place to Philadelphia, in the seventeenth year of his age. He himself acknowledges this to have been a fault, and has therefore averted that censure which he would otherwise have deserved. At Philadelphia he engaged with a printer of the name of Keimer, whose affairs he soon placed on a more respectable footing; and here also he became acquainted with several young men of a literary turn of mind, by whose company his taste was greatly improved.

Shortly after his arrival he became acquainted with Sir William Keith, at that period governor of the province, who was struck with the composition and penmanship of young Franklin, and strenuously advised him to commence business on his own account, promising to use his influence in his favour. Encouraged by this gentleman to adopt such a plan, he set out for Boston on a visit to his parents, in order to procure from them some pecuniary aid; but a welcome reception was all he could obtain. Having returned to Philadelphia without accomplishing his object, Sir William offered to take the whole burden upon himself, and advised Franklin to make a voyage to England in order to procure every thing necessary for establishing a printing-office. He accordingly set sail in the year 1725, and took with him his intimate companion Ralph, who has been celebrated in the *Dunciad*. Unfortunately for Franklin, Sir William Keith, on whose letters of recommendation and credit he entirely relied, deceived him, and he was compelled to work as a journeyman in London for his immediate subsistence. His friend Ralph could only live by his head, and his income of consequence was extremely circumscribed, as well as precarious, which made him a heavy burden upon Franklin. In the dissolute metropolis the one forgot his wife and child in America, and the other the solemn promises of fidelity which he had made to a Miss Read prior to his departure, another step of his conduct which he himself severely censures. By a dissertation on liberty and necessity, pleasure and pain, he acquired considerable reputation; and it was the means of introducing him to the celebrated Dr Mandeville, author of the *Fable of the Bees*. In the second printing-office in which he worked, he laboured incessantly to convince his fellow-workmen that a pint of porter does not contain half so much nourishment as a penny roll, for which he obtained the ludicrous epithet of the *American aquatic:* yet he was finally enabled to make many converts to his doctrine;

a proof that he possessed strong persuasive powers, when we consider the deep-rooted attachment of those with whom he had to treat to their favourite beverage.

After eighteen months residence in London, he returned to Philadelphia in the year 1726, and became clerk to a Mr Denham, a man of respectability, who had opened a warehouse in that city. He soon became acquainted with the principles of commerce, and led a very happy life in this new situation, till the connection was dissolved by the death of Mr Denham, which happened the following year. This again obliged him to become journeyman printer, and he was afterwards overseer in the office of Keimer his former master.

Keimer having engaged Franklin solely with the view of having his apprentices so far initiated in the art that he could dispense with their instructor's services, took the first occasion to quarrel with him when he thought he had sufficiently attained his object. Upon their separation, one of Keimer's apprentices, named Meredith, who, like all the others, had conceived a great veneration for Franklin, proposed that they should enter into partnership together, Meredith's friends undertaking to furnish the capital necessary for purchasing the materials, &c. This offer was too advantageous to be refused; and types, a press, and other things, were forthwith commissioned from London; but whilst preparing to put their plan into execution, Franklin was induced, during the interval, to return again to Keimer, at the urgent solicitation of the latter. The motive for this humble entreaty was that individual's having taken a contract for the printing of some paper-money for the state of New Jersey, requiring a variety of new cuts and types, which he knew well nobody in that place but Franklin could supply. This also presents us with a very striking instance of Franklin's remarkable gift of invention. " To execute the order," says he, " I constructed a copperplate printing-press, the first that had been seen in the country. I engraved various ornaments and vignettes for the bills, and we repaired to Burlington together, where I executed the whole to the general satisfaction, and he (Keimer) received a sum of money for this work which enabled him to keep his head above water for a considerable time longer."

At Burlington, Franklin formed acquaintance with all the principal personages of the province, who were attracted by his superior abilities and intelligence. Amongst these was the inspector-general, Isaac Decon, " who," says Franklin, " was a shrewd and subtile old man. He told me that his first employment had been that of carrying clay to the brick-makers; that he did not learn to write till he was somewhat advanced in life; that he was afterwards employed as underling to a surveyor, who taught him his trade; and that, by industry, he had at last acquired a competent fortune. ' I foresee,' said he, ' that you will soon supplant this man (speaking of Keimer), and get a fortune in the business at Philadelphia.' He was wholly ignorant at the time of my intention of establishing myself there, or anywhere else."

Immediately after Franklin's return from Burlington, the types arrived from London, and the partners commenced business. They were at once successful, and by his unwearied industry Franklin obtained great credit amongst his townsmen, and at last found himself in circumstances to attempt a newspaper, always a favourite speculation of his. The intention of the partners, however, having been incautiously divulged, their old master Keimer took steps to establish a paper of his own, and issued a prospectus to that effect. Franklin defeated his object by the strenuous support which he gave to the paper which was then in existence. He published in it a series of amusing articles, in which Keimer's proposals were burlesqued and ridiculed. The paper, however, was published, but after a short time it passed into the hands of Franklin, by whom it was very ably conducted. In the mean time the partnership between him and Meredith was dissolved; but, by the generous aid of friends, Franklin was enabled to take the whole business upon himself, to which he added that of a stationer. When the increase of paper-money engaged the attention of the American government, Franklin wrote an anonymous pamphlet in defence of the measure, by which he acquired considerable reputation, and the countenance of men in power. In the mean time, Miss Read, the person to whom he had been engaged, was married to another individual, in consequence of his neglect. But a report having gone abroad that the lady's husband was married to another woman, he retired to the West Indies, where he died, and Franklin at last espoused the object of his first love.

To him we are to ascribe the establishment of a public library at Philadelphia, which he accomplished in the year 1731. His *Poor Richard's Almanac* was begun in 1732, and became remarkable for the many prudential maxims with which it abounded; and the proverbial manner in which they were expressed made them take fast hold on the memory. His political career commenced in 1736, when he was chosen clerk to the general assembly of Pennsylvania, to which he was re-elected for several years; and at last became a representative. In 1737 he was made postmaster of Philadelphia; and in the subsequent year he greatly improved the police of the city, by the formation of a fire-company, and afterwards an insurance-company against losses by fire. In the war with France, which broke out in 1744, when the best means of defending the province against the inroads of the enemy were in discussion, and when the militia bill was thrown aside from its being obnoxious to the people, Franklin suggested the idea of a voluntary association for defence, which was instantly signed by 1200 persons, and 10,000 subscriptions were obtained in a short time by circulating the proposal through the province. By this and similar means America had an opportunity of ascertaining her own strength, and how to make use of it with advantage in cases of emergency.

About this time he began his interesting experiments on electricity, by the result of which he gained an immortal name in the annals of science. The library society of Philadelphia having received from Mr Peter Collinson, in the year 1745, an account of the facts respecting electricity, which at that time engrossed the attention of philosophers in Europe, Franklin set about studying the subject with the greatest assiduity. He gave the account of his researches the title of *New Experiments and Observations on Electricity, made at Philadelphia in America*, and addressed it to Mr Collinson, in the form of letters, bearing date from 1747 to 1754. They were everywhere read with avidity, and universally admired, though not at first very generally in England. Dr Priestley speaks of them in the following terms. " It is not easy to say whether we are most pleased with the simplicity and perspicuity with which the author proposes every hypothesis of his own, or the noble frankness with which he relates his mistakes when they were corrected by subsequent experiments." It is unnecessary to enter into a detailed account of all his discoveries; we shall therefore content ourselves with mentioning the most interesting of them all, namely, that lightning and electricity are identically the same. This identity had begun to be suspected, and experiments had been made in France to ascertain the fact; but it was reserved to Franklin to demonstrate it by his own experiments. He obtained his first decisive proof in the month of June 1752, by setting up a silken kite into the air with a point of iron, and a key fastened to the end of the hempen string by which he held it. In this manner he drew down from a thunder-cloud a sufficient quantity of electric fire to emit sensible sparks from the key. By means of an insulated iron rod which he fixed upon his house, he drew down the lightning, and was thus furnished with an opportunity of discovering whether it was positive or negative. As he firmly believed that philosophical discoveries were only valuable in so far as they could be productive of benefit to man, he made them subservient to the protection of buildings from the effects of lightning, which are frequently alarming in North America. He applied physics to the purposes of common life; and in 1745 invented his Pennsylvania fire-places, in which the qualities of an open grate were combined with that of a stove.

Politics also engaged a considerable share of his attention. He was chosen a representative of the city of Philadelphia for the provincial assembly in 1747. At this time a contest subsisted between the assembly and the proprietaries, as to the claim of the latter to be exempted from public burdens. Franklin took the popular side of the question, by which he acquired great influence, and was regarded as the head of the opposition. This was not the offspring of eloquence; for he seldom spoke, and never in the form of a harangue: but his pointed observations, and his unadorned good sense, frequently destroyed the effect of elaborate orations.

He drew up the plan of an academy to be founded at Philadelphia, from a conviction that education is of the utmost importance. It was carried into effect in the year 1750, by virtue of a subscription, to which the proprietors afterwards liberally contributed. He discharged the duties of his office as postmaster of Philadelphia with so much punctuality that he was appointed deputy postmaster-general for the British colonies in 1753, and the revenue was greatly augmented by his exertions. A plan for conciliating the Indians, and forming an alliance with them, was drawn up by Franklin in 1754, to which the commissioners at Albany agreed; and a copy of it was transmitted to the British privy council. It is a singular circumstance that this plan was rejected by the assemblies, as giving too much power to the crown; while the British ministry declared that it gave too much influence to the representatives of the people. In the year 1757 Franklin set sail for London, as agent for Pennsylvania, the assembly of that province being involved in disputes with the proprietary. It was agreed by the privy council that landholders should pay their share of the public burdens, on condition that Franklin would engage they should be fairly proportioned. He continued at the British court as agent for his province, and acquired so great reputation that the same trust was reposed in him for Massachusetts, Maryland, and Georgia. His merit as a philosopher was now justly appreciated in Europe; and he was made a fellow of the Royal Society of London. The degree of LL.D. was also conferred upon him at St Andrews, Edinburgh, and Oxford.

In the year 1762 he returned to America, where he received the thanks of the assembly of Pennsylvania, and a handsome recompense in money, for his services. When the stamp-act occasioned so much disturbance in America, Dr Franklin was summoned to the bar of the House of Commons to give evidence respecting the dispositions of the people, whether he thought they could be induced to submit to it; and the energy and clearness of his representations were instrumental in procuring the repeal of that obnoxious measure.

On the commencement of hostilities between Great Britain and the colonies in 1775, he returned to America, and was chosen a delegate to congress by the legislature of Pennsylvania. In 1776 he treated with Lord Howe on the subject of a reconciliation; and in one of his letters described in strong terms the temper of the British nation, to which he imputed the fatal extremity which had arrived. When the question of independence came to be discussed, he was decidedly in favour of the measure, and was highly instrumental in bringing over the public mind to the same opinion. When a negotiation with France was opened, he was chosen one of the personages to reside at that court. His political abilities eminently qualified him for such a station; and his character as a philosopher gained him great esteem in a country where science was revered. He brought about a treaty with France of an offensive and defensive nature in 1778, the immediate consequence of which was a war with Britain. He was one of those who signed the provisional treaty the year following. Prior to his leaving Europe he concluded a treaty with Sweden and Prussia. He was recalled from this station in 1785, and chosen president of the supreme executive council. His increasing infirmities made him withdraw from all public business in 1788; and on the 17th of April 1790 he terminated his active and useful life, in the eighty-fifth year of his age.

Perhaps no man ever exceeded Dr Franklin in that solid practical wisdom which consists in pursuing valuable ends by the most appropriate means. His cool temper and sound judgment secured him from unreasonable expectations. He saw things in their true light, and predicted consequences with nearly a prophetic spirit. He said of himself, "I have always set a greater value on the character of a *doer of good*, than any other kind of reputation." In 1779, his *Political, Miscellaneous, and Philosophical Pieces* were published in 4to and 8vo. His Essays, humorous, moral, and literary, were published after his death, in two small volumes, and have frequently been reprinted.

He was by no means inattentive to his own interest, of which his advancement in life furnishes an ample proof; yet he never neglected the interest of his country, or the good of mankind in general. The delicate situations in which he frequently stood unavoidably exposed him to the censure of enemies; but his general conduct has long ago received the approbation of his countrymen. When we view him as a philosopher, we must ascribe his chief merit to his electrical discoveries; yet on many other topics, such as meteorology and mechanics, he evinced himself a man of great penetration. As a political writer, his chief merit is clearness, energy, and simplicity; and as a miscellaneous author he possesses a fund of humour which cannot fail to be at once both entertaining and impressive, and a sagacity which never fails to instruct.

Franklin is the name of several counties in America, which will be found noticed under the heads of the different states in which they are situated.

FRANKS, Francs, Frankis, or **Franquis**, a name which the Turks, Arabs, Greeks, &c. give to all the people of the western parts of Europe. The appellation is commonly supposed to have had its rise in Asia at the time of the crusades, when the French made the most considerable figure among the crusaders; from which time the Turks, Saracens, Greeks, Abyssinians, &c. used it as a common term for all the Christians of Europe; and called Europe itself *Frankistan*. The Arabs and Mahometans, says M. d'Herbelot, apply the term *Franks* not only to the French (to whom the name originally belonged), but to the Europeans in general.

FRASCATI, or **Frescati**, a town of Italy, in the papal dominions, about ten miles from Rome. It is near the ancient Tusculum, but not quite so elevated, though sufficiently so to command a fine prospect over the Campagna di Roma. The town has an ecclesiastical seminary, founded by the late Cardinal York. It contains about 8500 inhabitants. Long. 12. 41. 33. E. Lat. 41. 48. 21. N.

FRASERBURGH, a small sea-port town in the county of Aberdeen, situated on the point of land called *Kinnaird's Head*, which is the southern extremity of the Murray Frith. During the last war a large harbour was constructed here, to serve as a place of shelter for British ships of war which might suffer from stress of weather in the north seas; this being the first point of land which can be reached. In consequence of this, Fraserburgh has risen from comparative obscurity to a port of some importance. Opposite the harbour there is a spacious road for vessels, formed by the bay of Fraserburgh. The town is neat and regularly built, the streets being generally broad and commodious. The herring fishing is here carried on to a great extent, and also the manufacture of linen yarn, considerable quantities of which are exported. Fraserburgh is situated 42 miles north of Aberdeen, and 151 from Edinburgh. The population of the town and parish amounted in 1821 to 2831, and in 1831 to 2954.

FRATERNITY, Brotherhood, the relation or union of brothers, friends, partners, associates, and the like.

Fraternity, in a civil sense, denotes a guild, association, or society of individuals, united into a body for one common interest or advantage.

Fraternity, in Roman Catholic countries, signifies a society for the improvement of devotion. Of these there are several. 1. The fraternity of the rosary, founded by St Dominic. It is divided into two branches, called the *common rosary*, and the *perpetual rosary*; the former are obliged to confess and communicate every first Sunday in the month, and the latter to repeat the rosary continually. 2. The fraternity of the scapulary, whom the blessed Virgin, according to the sabbatine bull of Pope John XXII. has promised to deliver out of hell the first Sunday after their death. 3. The fraternity of St Francis's girdle; these are clothed with a sack of a gray colour, which they tie with a cord, and in processions walk barefooted, carrying in their hands a wooden cross. 4. That of St Austin's leathern girdle comprehends a great many devotees. Italy, Spain, and Portugal, are the countries where we see the greatest number of these fraternities, some of which assume the name of *arch-fraternities*. Pope Clement VII. instituted the arch-fraternity of charity, which distributes bread every Sunday among the poor, and gives portions to forty poor girls on the feast of St Jerome, their patron. The fraternity of death buries such dead as are abandoned by their relations, and causes masses to be celebrated for them.

FRATRIAGE, the partition among brothers, or coheirs, coming to the same inheritance or succession.

FRATRICELLI, in *Ecclesiastical History*, an enthusiastic sect of Franciscans, which rose in Italy, and particularly in the marquisate of Ancona, about the year 1294. The word is an Italian diminutive, signifying *fraterculi*, or little brothers; and was here used as a term of derision, as most of those who composed the body were apostate monks, whom the Italians call *fratelli*, or *fratricelli*. For this reason the term *fratricelli*, as a nick-name, was given to many other sects, such as the Catharists, the Waldenses, and the like, however different in their opinions or in their conduct. But this denomination, applied to the austere part of the Franciscans, was considered as honourable.

The founders were P. Maurato and P. de Fossombroni, who obtained of Pope Celestin V. permission to live in solitude as hermits, and to observe the rule of St Francis in all its rigour. They were joined by several idle vagabond monks, who, living after their own fashion, and making all perfection to consist in poverty, were soon condemned by Pope Boniface VIII. and his successor, and the inquisitors were ordered to proceed against them as heretics. This commission was executed with the usual barbarity. They were compelled to flee into Sicily, where Peter John Oliva de Serignan had published his Comment on the Apocalypse, and they adopted his errors. They predicted the reformation of the church, and the restoration of the true gospel of Christ, by the genuine followers of St Francis, and declared their assent to almost all the doctrines which were published under the name of the abbot Joachim, in the *Introduction to the everlasting Gospel;* a book published in 1520, and explained by one of the spiritual friars of the name of Gerhard. Among other enormities inculcated in this book, it is pretended that St Francis was the angel mentioned in Rev. xiv. 6, and had promulgated to the world the true and everlasting gospel of God; that the gospel of Christ was to be abrogated in 1620, and to give place to this new and everlasting gospel, which was to be substituted in its room; and that the ministers of this great reformation were to be humble and bare-footed friars, destitute of all worldly employments. It is mentioned by some writers that they even elected a pope to be head of their church; at least they appointed a general, with superiors, built monasteries, and made other arrangements for the new faith. They were condemned anew by Pope John XXII. in consequence of whose cruelty they regarded him as the true antichrist; but several of them returning into Germany, were sheltered by Lewis duke of Bavaria, the emperor.

There are accounts bearing that no less than two thousand persons were burnt by the Inquisition from the year 1318 to the time of Innocent VI. for their inflexible attachment to the poverty of St Francis. The severities against them were again revived towards the close of the 15th century, by Pope Nicolas V. and his successors. However, all the persecutions which this sect endured were not sufficient to extirpate it; for it subsisted until the times of the reformation in Germany, when its remaining votaries adopted the cause and embraced the doctrine and discipline of Luther.

FRATRICIDE, the crime of murdering a brother.

FRATTA-MAGGIORE, a city of the province of Naples, in the kingdom of the Two Sicilies, containing 8464 inhabitants.

FRAUENBURG, a city of the province of East Prussia, in the government of Konigsberg, on the Frische Haff, at the foot of a hill on which stands the cathedral of which Copernicus was a canon, and where he was buried in 1545. It contains 195 houses, and 1720 inhabitants. Long. 19. 49. 20. E. Lat. 54. 21. 54. N.

FRAUSTADT, a town of the Prussian province of Posen, the capital of the circle of the same name, with 607 houses, and 6850 inhabitants, who carry on considerable trade in cloth, corn, wool, oil, and timber, and conduct distilleries and breweries.

FRAY literally signifies to fret; as cloth or stuff does by rubbing, or too much wearing. Among hunters, a deer is said to fray his head when he rubs it against a tree to cause the skins of his new horns to come off. Fray likewise signifies a battle, broil, or quarrel.

FREA, or Frigga, the wife of Odin, was, next to him, the most revered divinity among the Saxons, Danes, and other northern nations, during the reign of heathenism. As Odin was believed to be the father, Frea was esteemed the mother, of all the other gods. In the most ancient times, Frea was the same with the goddess Herthus, or Earth, who was so devoutly worshipped by the Angli and other German nations. But when Odin, the conqueror of the north, usurped the honours due only to the true Odin, his wife Frea usurped those which had been formerly paid to mother Earth. She was worshipped as the goddess of love and pleasure, who bestowed on her votaries a variety of delights, particularly happy marriages and easy child-births. To Frea the sixth day of the week was consecrated, which still bears her name.

FREATS, or Freits, a term used in Scotland for *ill* *omens*, and sometimes denoting accidents supernaturally unlucky.

FRECKLES, Lentigines, spots of a yellowish colour, of the size of a lentile seed, scattered over the face, neck, and hands.

Frederick.

FREDERICK II. king of Prussia, one of the greatest warriors of the age in which he lived, was the son of Frederick-William, then hereditary prince of Brandenburg, and Maria Dorothea, a princess of the house of Brunswick. He was born in 1712, the year before his father Frederick I. mounted the throne of Prussia. The latter was so far from being a patron of literature, that he regarded nothing but what related to the military art; and most of his generals, whatever their merits in their own line might be, scarcely knew how to sign their names. So great indeed was the ignorance of the monarch himself, that he banished from his dominions a philosopher of the name of Wolf, merely because he maintained the doctrine of pre-established harmony; a theologian named Lange having asserted, that on that doctrine his majesty's grenadiers were not culpable when they deserted, it being only the necessary consequence of the impulse their machine had received from their Creator. His son was of a disposition the very reverse of his father. Being put from his birth under the care of Val de Recoule, a French lady of great merit and understanding, he acquired, in his early years, not only a taste for literature in general, but a predilection for the French language, which he retained through life.

It is not to be supposed that a prince of the disposition above mentioned would allow his son for any length of time to indulge in literary pursuits. At seven years of age Frederick was taken out of the hands of Madame de Recoule, and put under the care of military tutors. General Count de Finkestein, an old warrior, was appointed his governor; his sub-governor was Colonel de Kalkstein, an officer celebrated for his courage and experience. He was taught mathematics and fortification by Major Senning; Han de Jendun, a Frenchman, instructed him in other branches of knowledge; and a cadet of the name of Kenzel taught him his exercises. At eight years of age he was furnished with a small arsenal stored with all sorts of arms proportioned to his age and strength, of which his father left him absolute master. In a short time he was named captain and chief of the corps of cadets; and the young prince performed every day in miniature, with his little soldiers, all the evolutions with which his father exercised his tall regiment. At length he received the command of a company in his father's regiment, famous throughout all Europe, and which was composed of men of whom scarcely one was short of seven French feet.

Born, however, with a taste for the arts, he devoted to their cultivation every moment he could steal from the vigilance of his guardians. He was more particularly fond of poetry and music, and when he could find a moment's leisure, he read French authors or played on the flute; but his father, as often as he surprised him playing or reading, broke his flute, and threw his books into the fire. The prince, chagrined at such injurious treatment, and having a great desire to visit Germany, England, France, and Italy, desired permission to travel. This, however, his father would not allow, but permitted him to accompany himself in the journeys which he made from time to time into Germany; and, in 1728, took him to Dresden to see the king of Poland. By these little expeditions, the desire of the prince to visit other countries was strengthened; and at last he formed a resolution of setting out without his father's knowledge. The design was intrusted to two of the prince's young friends, named Kat and Keit; money was borrowed for the occasion, and the day of their departure was fixed, when unluckily the whole project was discovered. The old king, implacable in his resentment, and considering his son as a deserter, determined to put him to death. He was shut up in the fortress of Custrin; and it was with the utmost difficulty that the Count de Seckendorf, sent for the purpose by the Emperor Charles VI., was able to alter the king's resolution. Vengeance, however, was decreed against the intended associates in Frederick's journey. Keit escaped the danger by flying into Holland; but Kat had not that good fortune. The king first directed that he should be tried by a court-martial; but as they, contrary to his expectation, only sentenced the criminal to perpetual imprisonment, the revengeful monarch ordered him to be beheaded. The execution was performed under the windows of the prince royal, whose head was held towards the scaffold by four grenadiers; but no sooner did he approach the window, and see his friend in the hands of the executioner, than he stretched out his arms towards him, crying out, "Kat! Kat!" and instantly fainted away. During the remainder of his life he considered capital punishments with horror, and they were rare throughout the Prussian dominions while he continued to reign. When the emperor had succeeded in preventing the execution of Frederick, the king remarked that "Austria would one day see what a serpent she had nourished in her bosom." The royal prisoner remained a year at Custrin, during which time his father wished him to learn the maxims of government and finance. For this purpose M. de Munchow, president of the chamber of domains and finances, was ordered to make him assist at all their assemblies, to consider him as a simple counsellor, and compel him to work like others. The young counsellor, however, though he assisted at their meetings, did not trouble himself with reading acts or copying decrees. Instead of this, he amused himself sometimes with reading French pamphlets, and at others with drawing caricatures of the president or members of the assembly. M. Munchow himself was likewise very useful to the prince at this time, by furnishing him with books and other articles of amusement, notwithstanding the express prohibition of his father.

Frederick, after having passed in confinement the time above specified, was recalled to Berlin, on pretence of being present at the celebration of his eldest sister's marriage with the hereditary prince of Bareith; but the real reason was, that the king had now prepared a match for the prince himself. This was the Princess Elizabeth Christina of Brunswick, niece to the empress. Frederick, who was not only totally indifferent to the fair sex in general, but particularly prejudiced against this princess, made some objections; his father, however, overcame all obstacles with his usual arguments, his cane, and a few kicks.

On the celebration of this marriage, Frederick received from his father the county of Rupin. He resided in the capital of this county, named also Rupin, for some time; but afterwards chose Rheinsberg for his place of abode. This town, built on the sands on the confines of Mecklenburg, at that time contained only a thousand inhabitants; but it was soon greatly improved by Frederick. Having put over the great gate of the castle the following inscription, Frederico Tranquillitatem Colenti, his father was displeased with it, and hurried him from his peaceful retreat into the noise and tumult of a camp. At this time the succession to the crown of Poland had kindled a general war throughout Europe; and the king of Prussia was to send ten thousand auxiliaries to the imperial army, then commanded by Prince Eugene. The king conducted his troops in person, and resolved to take this opportunity of giving his son an idea of war. At this time, however, he learnt but little; and only saw, as he himself expresses it, the shadow of the great Eugene. That consummate general, nevertheless, did not overlook his merit, but predicted that he would one day be a great captain. Frederick having gone to reconnoitre the lines at Philipsburg, in his return through a very open wood, was exposed to the cannon of the lines; but this neither caused him to quicken his pace nor change his attitude in the least. The balls broke a number of branches on every side of him. He continued to converse with the generals who attended him, without showing the smallest sign of apprehension. Being one night at supper with Field-marshal Grumkow, the conversation turned on the young Prince Eugene, who died on the Rhine; and he was asked whether that prince would ever have become a great man. Frederick decided in the negative, on account of young Eugene's not having known at any period of his life how to choose a friend who dared to tell him the truth.

During this campaign the health of the old king was so much impaired that he was obliged to leave the army; and Frederick was for some time intrusted with signing all the orders in his father's name. On the king's recovery the prince was sent to Stettin, under the care of the Prince of Dessau, that he might see the fortifications of that town. He was afterwards permitted to go to Konigsberg to see the unfortunate Stanislaus, who had taken refuge in that place, and who was no less remarkable for his philosophy and constancy than for his misfortunes. With him Frederick remained for some weeks, and contracted a friendship which was only dissolved by the death of Stanislaus. At last he was allowed to return to his peaceful mansion at Rheinsberg, where he remained till the death of his father. In this place his time was occupied alternately in the study of the sciences, the cultivation of the arts, and the pleasures of friendship. Philosophy, history, politics, the military art, poetry, and music, agreeably succeeded each other, and had each its stated period. The prince passed the greater part of the day in his library, and the remainder in the society of a select company of agreeable and learned men.

It was in this place that he composed his refutation of the principles of Machiavel, under the title of *Anti-Machiavel;* of which he sent the manuscript to Voltaire to correct and to get printed.

The old king, now almost worn out with infirmity, saw with regret the predilection of his son for men of letters; and, in his peevish fits, often threatened the whole society with confinement in the fortress of Spandau. These threats frequently occasioned a violent alarm among the joyous society assembled at Rheinsberg, which it required all the eloquence of Frederick to quiet. Their apprehensions on this account were at last removed, for the old monarch expired upon the 31st of May 1740, leaving the throne to Frederick.

The acquisition of a kingdom did not abate Frederick's passion for literature, though now obliged to perform the duties of a king. A consideration of his transactions in this character belongs to the article Prussia, to which the reader is referred. These, indeed, so totally engrossed the remaining part of his life, that little more remains to be said than to relate some anecdotes by which we may be able to illustrate the character of this very remarkable individual.

It has already been mentioned, that in the early part of his life Frederick had conceived a great inclination to travel. This passion seems not to have been extinguished by the splendour of his new situation; for having, soon after his accession, gone into Westphalia to receive the homage of the inhabitants, he formed a resolution of proceeding *incognito* as far as Paris. Being discovered at Strasburg, however, he laid aside the design of proceeding to Paris, and exchanged it for a visit to his states in Lower Germany. Here he wrote to Voltaire, informing him that he should come *incognito* to visit him at Brussels; but becoming indisposed in the little palace of Meuse, two leagues from Cleves, he wrote again to that philosopher, informing him that he expected he should make the first advances. The following curious account is given by that celebrated writer of his reception. "The only guard I found at the gate was one soldier. The privy counsellor Bambonet was cooling his heels in the court; he had large ruffles of dirty linen; a hat full of holes; and an old magisterial peruke, one end of which descended as low as his pockets, and the other scarcely reached his shoulder. I was conducted into his majesty's apartment, where there was nothing but bare walls. I perceived in a cabinet, by the glimmering of a taper, a truckle bed, two feet and a half wide, on which lay a little man muffled up in a night-gown of coarse blue cloth. This was the king, in a strong perspiration, and even trembling, under a wretched blanket, in a violent fit of the ague. I bowed to him; and began by feeling his pulse, as if I had been his first physician. The fit over, he dressed himself and sat down to table. Algarotti, Keyserling, Maupertuis, the king's minister to the States General, and myself, composed the party; and we conversed profoundly on the immortality of the soul, on liberty, and the androgynes of Plato."

As Frederick had espoused his princess entirely contrary to his inclination, it was imagined that on his accession to the throne he would embrace the opportunity of setting himself free from an engagement so disagreeable to himself. The queen was not without suspicions of this kind, insomuch that she was on the point of fainting away when he made his first visit to her. To the surprise of all parties, however, he made her a very affectionate speech, apologizing for his indifference, and inviting her to participate with him the throne of which she was so worthy. In the first year of his reign he restored the Academy of Sciences at Berlin, which had been founded in 1700; but he soon became disgusted with its members, whom he endeavoured at all times to ridicule rather than encourage. His war with the queen of Hungary, however, which took place almost immediately after his accession, for some time prevented him from taking such an active part in literary matters as he was naturally inclined to do. After the peace, being at liberty to follow his inclination, he gave full scope to his passion for literature; and in the interval betwixt the conclusion of the first war and beginning of that of 1756, he composed most of the works which are now ascribed to him. At this time he wrote his *History of his own Times,* afterwards announced among his posthumous works. In writing history he acquired a taste for historians, and justly gave the preference to the ancients, the most celebrated of whose works he perused every year. Voltaire was his principal literary correspondent, whom he invited to reside with him. Afraid of losing his liberty, however, that philosopher hesitated, excused himself, and entered into pecuniary treaties, first for himself, and afterwards for his niece, Madame Dennis, whom he wished to accompany him. At last he was determined by seeing a poem from Frederick to M. d'Arnaud, in which the latter was compared to the rising, and Voltaire to the setting sun. By this Voltaire was so much piqued, that he set out for Berlin without delay, and arrived there in June 1750. He was received in the most magnificent and affectionate manner, and for some time his situation was very agreeable; but the disputes and rivalship which took place betwixt him and Maupertuis soon threw every thing into confusion. In these the king interfered in a manner which was certainly below his dignity; and he often exercised himself in making a jest of the other men of letters in a way exceedingly disgusting, and which induced many of them to leave him. The squabbles with Voltaire ended at last in a final quarrel with that wit, and his departure from the kingdom. The restless disposition of Frederick showed itself after his departure, by his attempts to provoke the literati who remained at his court to quarrel with him as Voltaire had been accustomed to do. But they were of too passive a disposition to gratify him in this respect; choosing rather to suffer the most mortifying strokes of raillery, or to leave the kingdom altogether, than to contend with him. This proved so uneasy to the king, that he one day exclaimed, " Shall we have no more quarrels, then?" The breaking out of the war in 1756, however, put a stop to his diversions, and afforded him as many enemies as he could wish. The exploits he performed during the seven years which this unequal contest lasted are almost incredible; and it is amazing how the fortitude and resolution of any person could enable him to sustain the difficulties which, during this period, he had to encounter. In one fatal moment, indeed, even the resolution of Frederick was on the point of giving way. This happened after the battle of Colin, when his affairs seemed altogether desperate, till they were retrieved by the victory at Rosbach. At this time he wrote to his sister at Bareith that he was on the point of putting an end to his own life; but as this resolution did not extinguish in him the love of glory, he wished to have it said that he made verses on the brink of the grave. With this view he wrote a long poetical epistle to the Marquis d'Argens, in which he communicated to him his design, and bade him farewell.

Happily at last the king's affairs took a better turn, and these desperate thoughts were abandoned. His constitution, however, was irreparably injured by the excessive fatigues which he had undergone. Soon after the conclusion of the peace his body began to bend, and his head to incline to the right side. By degrees he became very infirm; he was tormented with the gout, and a victim to dyspepsia. All his distempers, however, were borne with invincible patience; and, till a very short time before his death, he never ceased to attend his reviews, or visit the different provinces of his dominions. He has been known to review his troops, and gallop through the ranks as if he felt no pain, notwithstanding that an abscess, which had approached to suppuration, frequently touched the saddle. In August 1785 he impaired his health still further by assisting at a review, where he was exposed, without even a cloak, to a heavy rain for four or five hours. On his return to Potzdam he was seized with a fever, and, for the first time, became unable to assist at the military exercises which took place in September. His malady, however, did not prevent him from dictating the disposition of these exercises during the three days which they occupied, and he always gave the word in presence of his generals and the foreigners of distinction then at Potzdam. About the end of autumn the fever left him, but was succeeded by a violent cough; and he continued free from the gout, which had usually attacked him at this season. He was greatly weakened by the cough, which prevented him from sleeping; but this did not in the least interrupt him in the execution of his duties. Every morning, at four or five o'clock, he ordered the three cabinet secretaries to enter his apartment, where he dictated answers to their papers. It was not till after the dispatch of all his affairs that he saw a surgeon, or sometimes a physician, though he had a bad opinion of the physicians in general, whom he consulted on his distemper. In the evening he amused himself from five to eight with some of his society; and after that hour he passed the remainder of the time before he went to rest in hearing some ancient authors read to him; and thus he continued to employ himself till the day preceding his death. On the 17th and 18th of May 1786, he was unable to assist at the ordinary reviews, but still he hoped to be present at those of Silesia. He several times attempted to mount his horse to go to the parade at Potzdam; but finding his powers insufficient, he was obliged to return, after having proceeded a few paces. He made other attempts, but with as little success; and at last his disorder terminated in a dropsy. Being now no longer able to remain in bed, he sat day and night in an arm chair with springs which could be moved at pleasure. For near a month before his death the swelling of his feet gave him violent pain, so that he wished an incision to be made; but the surgeon refused to perform the operation, suspecting that it might hasten his death. Nature, however, accomplished his desires; his right leg opened, and discharged such a quantity of matter, that he was greatly relieved; and those unacquainted with the medical art began to entertain hopes of his recovery. The physicians, however, were of a very different opinion; and the event justified their apprehensions. On the 16th of August 1786 his throat began to rattle violently, and his attendants expected every moment that he would breathe his last. In this situation his three secretaries entered the room for the dispatch of business as usual. Even then Frederick made an effort to collect his force, giving them a sign to wait, as if he would speak with them in a short time. This, however, was the last he could make, for he soon fell into a stupor, though from this he recovered so far as to be able to speak. In the evening he asked what o'clock it was, and on being answered that it was nine, he said, " Well, then, I am going to rest." His respiration and voice became gradually more feeble; and he expired on Thursday, at nineteen minutes after two in the morning, without any convulsion or symptom of pain.

This great monarch was of the middle size, had large blue eyes, and a piercing look. He spoke German incorrectly, and in a very rough manner; but talked French very fluently, and his voice was then mild and agreeable. His constitution was naturally feeble, but he had greatly improved it by his activity and laborious life. He had the art of relieving every one from that embarrassment which frequently occurred in accosting such a celebrated monarch; and it seems probable that he himself considered on what he should say to any illustrious person who happened to come to his court. His universal knowledge enabled him to converse on all subjects; and thus he talked of war with military men, of verses with poets, of agriculture with farmers, jurisprudence with lawyers, commerce with merchants, and politics with Englishmen. He had a very retentive memory, was attached to gardening, and likewise took great pleasure in dogs, of which animals he constantly kept a number about him. In company he was fond of asking questions and jesting, in which last he proceeded such lengths as undoubtedly was unbecoming in a superior towards his inferiors, who would not have failed to resent such jokes from persons more on an equality with them. In military affairs he was excessively severe, not to say cruel; of which the following anecdote may serve as an instance. In the first war of Silesia, wishing to make some alterations in his camp during the night, he forbade every person, under pain of death, to keep, after a certain hour, a fire or other light in his tent. He himself went the rounds; and in passing the tent of a Captain Zietern he perceived a light. Entering the tent, he found the captain sealing a letter to his wife, for whom he had a great affection. " What are you doing there?" says the king. " Do you not know the order?" The captain fell on his knees and asked pardon, but did not attempt to make any excuse. " Sit down," says Frederick, "and add a few words which I am going to dictate to you." Zietern obeyed; and the king dictated, "To-morrow I shall perish on a scaffold." The unfortunate man wrote them, and next day he was barbarously executed. In matters of domestic legislation he was more arbitrary than just; of which we have a notable example in the famous case of Arnold the miller. The man had refused to pay the rent of the mill which he possessed, on pretence that the stream which turned it had been diverted into a fish-pond. This was evidently a frivolous excuse, because the water which ran into the pond also ran out of it into the same channel as before, so that little or nothing could be lost. The judges therefore gave sentence against the miller; but the king not only reversed their sentence, but disgraced them. For this he was celebrated through all the newspapers in Europe; and yet he was in the wrong, and afterwards even acknowledged himself to have been so; but, notwithstanding that he knew his error, he not only made no reparation to the parties whom he had injured, but allowed them to lie in prison at Spandau during his life, and they were only released at the commencement of the succeeding reign.

The literary pieces of this monarch cannot be considered as extraordinary, although they are undoubtedly remarkable as the production of a monarch, a considerable portion of whose life was spent in war. Voltaire boasts of having corrected his works, and others of having furnished him with materials for his history. In the former part of his life he entertained a great partiality for the French learning and language; but as he advanced in years he entirely lost this predilection, and inclined much more to favour the English and Germans. Towards the close of his career, indeed, he affected a contempt for the French, without whom, it is said, he would scarcely ever have made any figure except in military affairs.

His works are voluminous, and embrace a variety of subjects. Those on which his fame as an author principally rest are, his History of his own Times; The History of the Seven Years' War; The Art of War, a poem; An Essay on Forms of Government, and on the Duties of Sovereigns; Considerations on the State of Europe; and Memoirs of the House of Brandenburg. He also compiled the Frederician Code with skill and judgment. Many editions of his writings have been published. Of these, the best are the Berlin edition of 1788, in 15 vols., and another of 1790, with his life prefixed, in 25 vols. 8vo.

Frederick, a post-town of Maryland, and capital of the county of Frederick, North America. It is pleasantly situated on Carrol's Creek, a branch of the Monocasy. The town is regularly laid out and well built, and contains a court-house, a jail, a bank, a market-house, an academy, and seven places of public worship. Frederick enjoys an extensive trade with the surrounding country, and transports great quantities of wheat and flour to Baltimore. It is distant forty-four miles north-north-west of Washington, and forty-five west of Baltimore. The population in 1830 amounted to 4427.

FREDERICKSBURGH, a post-town of Virginia, in North America, and capital of a county. It is situated on the south-west side of the Rappahannoc, about a hundred and ten miles from its mouth, and fifty-seven miles south-west of Washington. It is regularly laid out, well built, and contains eight public buildings and four churches. It is a great depot for grain, flour, and tobacco, and numerous flour mills are situated in the vicinity of the town. Being in the centre of a fertile and well-cultivated country, it is flourishing and healthy. The population in 1830 was 3307.

FREDERICKSHAM, one of the circles into which the province of Finland is divided. It extends over 798 square miles, and contains 25,029 inhabitants. It is on the Gulf of Bothnia, and generally a level district. The chief town has the same name, is built on an isthmus between the mouths of two rivers, is fortified, and contains 1270 inhabitants, who carry on foreign trade. Long. 26. 58. E. Lat. 60. 35. N.

FREDERICKSTAD, a strongly fortified city of Norway, in the province of Aggerhuus and bailiwick of Mos. It stands at the mouth of the river Glommen. It contains 420 houses, with 2352 inhabitants, who carry on an extensive trade in deals and in other timber, and are extensively employed in the fisheries.

FREE, in a general sense, is used in opposition to whatever is constrained or necessitated. When applied to things endowed with understanding, it relates in a particular manner to the liberty of the will.

Free Bench signifies that estate in copyhold which the wife, being espoused a virgin, has, after the decease of her husband, for her dower, according to the custom of the manor.

Free or *Imperial Cities*, in Germany, are those not subject to any particular prince, but governed, like republics, by their own magistrates.

There were free cities (*liberæ civitates*) even under the ancient Roman empire; such were those to which the emperor, by the advice or consent of the senate, gave the privilege of appointing their own magistrates, and governing themselves by their own laws.

Free Stone. See Mineralogy.

FREEBOOTER, or Flibuster, a name given to the pirates who scour the American seas, particularly such as make war against the Spaniards. It is also applied, in a general sense, to robbers and other plunderers.

FREEDOM, in general, the state or quality of being free.

Freedom of a Corporation, the right of enjoying all the privileges and immunities belonging to it.

Freedom of Conscience. See Toleration.

Freedom of the Will, that power or faculty of the mind by which it is capable of acting or not acting, choosing or rejecting, whatever it judges proper. See Metaphysics.

FREEHOLD, Frank Tenement (*liberum tenementum*), is land or tenement which a man holds in *fee-simple*, *fee-tail*, or for a term of life. Freehold is of two kinds, in *deed* and in *law*. The first is the real possession of land or tenement in fee, fee-tail, or for life; the other is the right a man has to such land or tenement before his entry or seizure.

Freehold is sometimes taken in opposition to villenage. Lambard observes, that land, in the time of the Saxons, was distinguished into *bockland*, that is, holden by book or writing; and *folkland*, that is, held without writing. The former, he says, was held on far better condition, and by the better sort of tenants, as noblemen and gentlemen, being such as we now call *freehold*; the latter was for the most part in possession of peasants, being the same with what we now call *at the will of the lord*.

FREEWILL Islands, three small islands in the Eastern Seas, discovered by Captain Carteret in 1767, and almost entirely surrounded by a reef, except on the east, where there is a narrow passage that will admit a canoe. Long. 137. 51. E. Lat. 0. 50. S.

FREEZE, in *Architecture*. See Architecture.

FREEZING. See Cold and Congelation.

FREIBERG, a bailiwick in the circle of the Erzgeberg, in the kingdom of Saxony. It is combined with the bailiwick of Grillenburg, and contains five cities, one market-town, eighty-one villages, with 55,000 inhabitants. It is a mountainous and woody district, watered by the Mulda, the Flohe, and various smaller streams. The chief support of the population is mining and preparing the metals for use. Agriculture is also pursued, but does not produce sufficient food to supply the consumption. There is also much employment for females in making thread lace, and in weaving cotton goods. The capital of the bailiwick is a city of the same name. It is about 1200 feet above the level of the sea, in a most romantic district on the river Munzbach. It is surrounded with walls, contains five churches, 1377 houses, and about 10,000 inhabitants. The chief employment is mining; and the operations of extracting the several ores, of separating the valuable from the useless particles, and of adapting the machinery and the chemistry to the best purposes, have made this city a school whose pupils have benefited all mining countries. The mining academy is a valuable institution, conducted by six professors, and containing from 300 to 400 students, who have cabinets of minerals, a museum of models, and a public library. The silver mine of Himmelsfurst, in the valley of Mulda, yielded, between the years 1740 and 1801, 3,064,000 ounces of silver. Silver is however by no means the most valuable product of these mines, which yield more in lead, copper, iron, and vitriol.

FREIGHT, in *Navigation* and *Commerce*, the hire of a ship, or a part of it, for the conveyance and carriage of goods from one port or place to another; or the sum agreed on between the owner and the merchant for the hire and use of a vessel.

FREIND, John, a learned English physician and writer of the eighteenth century, was born at Croton, Northamptonshire, in 1675. In 1696 he published, in conjunction with Mr P. Foulkes, an edition of two Greek orations, one of Æschines against Ctesiphon, and the other of Demosthenes *De Corona*, with a new Latin version. In 1699 he wrote a letter concerning an *Hydrocephalus*, published in the *Philosophical Transactions;* and another letter in Latin, *De Spasmis rarior. Historia*, printed in the same Transactions. In 1703 his *Emmenalogia* appeared, which gained him a high reputation. In 1704 he was chosen professor of chemistry in the university of Oxford. In 1705 he attended the Earl of Peterborough to Spain as physician to the army there; and, upon his return in 1707, published an account of the earl's expedition and conduct. In 1709 he published his *Chemical Lectures*. In 1712 he attended the Duke of Ormond in Flanders as his physician. In 1716 he was admitted a fellow of the College of Physicians in London. This year he published the first and third books of Hippocrates *De Morbis popularibus*, with a Commentary on Fevers. He sat member for the borough of Launceston, in Cornwall, in 1722, when he distinguished himself by his opposition to the administration. In March 1722 he was committed to the Tower on a charge of high treason; and, during his confinement, he wrote a Latin epistle to Dr Mead, *De quibusdam Variolarum Generibus.* He also commenced his History of Physic, the first part of which was published in 1725, and the second in 1726. Upon the accession of George II. to the throne, he was appointed physician in ordinary to the queen, who showed the utmost regard and esteem for him. He died at London in 1728. His works were published in Latin at London in 1733, in folio, and dedicated to the queen.

FREISING, a bailiwick of the circle of the Isar, in the kingdom of Bavaria, extending over 143 square miles. It contains one city, one market-town, 164 villages, and 151 hamlets, with 16,840 inhabitants. The chief place is the city of the same name on the river Isar. It is a walled town, containing 534 houses and 3900 inhabitants. It is the seat of an archbishop. There is some trade in making beer, snuff, vinegar, and in refining saltpetre. Long. 12. 40. 8. E. Lat. 48. 23. 56. N.

FREJUS, a town on the shore of the Mediterranean, in the department of the Var, in France. It is in a district rich in citrons, oranges, figs, and pomegranates, but marshy and unhealthy. It was enlarged, if not built, by Julius Cæsar, who gave it the name *Forum Julii*. It has been since celebrated as the landing-place of Bonaparte on his return from Egypt. It contains at present a cathedral and 1934 inhabitants, who are chiefly occupied in sardinia fishery. Long. 6. 38. E. Lat. 43. 25. N.

FRESCO Painting is a method of painting in relievo on walls. It is performed with water-colours on fresh plaster, or on a wall laid with mortar not yet dry. This species of painting has a great advantage by its incorporating with the mortar, and drying along with it; thus becoming very durable, and capable of resisting the weather. The Italians, from whom we borrow the term, call it *fresco*, because it is frequently used for walls, alcoves, and other buildings in the *open air*. Vitruvius, lib. vii. cap. 4, calls it *udo tectorio*.

Painting in fresco is a very ancient art, having been practised in the earliest ages of Greece and Rome. It is chiefly performed on walls and vaults newly plastered with lime and sand; but the plaster is only to be laid in proportion as the painting goes on, no more being to be executed at one time than the painter can dispatch in a day, while it dries. Before he begins to paint, a cartoon or design is usually made on paper, to be chalked and transferred to the wall about half an hour after the plaster is applied.

The ancients painted on stucco; and we may remark in Vitruvius what infinite care they took in making the incrustation or plastering of their buildings, to render them beautiful and lasting; though the modern painters find a plaster of lime and sand preferable to it, both because it does not dry so hastily, and because, being a little brownish, it is fitter to lay colours on than a ground so white as stucco.

In this kind of painting, all the compound and artificial colours, and almost all the minerals, are set aside, and scarcely any thing is used but earths, which are capable of preserving their colour, defending it from the burning of the lime, and resisting its salt, which Vitruvius calls its bitterness.

For the work to come out in all its beauty, the colours must be laid on quick, while the plaster is still moist; nor should they ever be retouched dry with colours mixed up with the white of an egg, or size, or gum, as is sometimes done; because such colours grow blackish, and soon tarnish.

The colours used are white made of lime slaked some time previously, and white marble dust, ochre, both red and yellow, verditer, lapis lazuli, black chalk, and other similar substances. These only require to be ground and mixed up with water, and then laid on.

The brushes and pencils for this work ought to be long and soft, otherwise they will rake and raise the painting. The colours should be full and flowing from the brush, and the design perfect; for in this work you cannot alter or add upon any colour.

FRESHES, in sea language, denotes the impetuosity of an ebb tide, increased by heavy rains, and flowing out into the sea, often discolouring it to a considerable distance, and forming a line that separates the two colours, and which may be distinctly perceived for a great length along the coast.

FRESNOY, Charles Alphonse du, a poet and painter, was born at Paris in 1611. He was instructed by Perrier and Simon Vouet in painting; but he did not long adhere to Vouet's manner of colouring; for as soon as he had fixed himself at Rome, he made the works of Titian the models for his imitation. He was, however, more celebrated as a poet than as a painter, and gave more attention to the theory than to the practice of the pencil. Accordingly he is better known by his celebrated poem *De Arte Graphica* than by his performances on the canvass; and on this work he bestowed so much labour that he died in 1665, before it was published. It was printed afterwards with a French prose translation and notes by M. de Piles, and was translated into English by Dryden, who prefixed to it an original preface containing a parallel between painting and poetry.

FRET, or FRETTE, in *Architecture*, a kind of knot or ornament, consisting of two lists or small fillets variously interlaced or interwoven, and running at parallel distances equal to their breadth.

FRET-Work, that which is adorned with frets. It is sometimes used to fill up and enrich flat empty spaces, but it is mostly practised in roofs which are fretted over with plaster work.

FRETTS, in *Mineralogy*, a term used by our miners to express the worn side of the banks of the rivers in mine countries, where they search for the shoad stones or grewts washed down from the hills, in order to trace out the running of the shoad up to the mine.

FREUDENBURG, a market-town, now of the province of Hoya, in Hanover, being, with the canton around it, recently acquired by exchange with Hesse-Cassel. The canton contains about 4500 inhabitants. The capital has 250 houses and 1560 inhabitants.

FREUDENSTADT, a bailiwick in the circle of the Neckar, in the province of the Black Forest, belonging to Wirtemburg, extending over 204 square miles, comprehending two cities, three market-towns, and sixty-six villages, with 21,005 inhabitants. The capital, of the same name, is on the river Murg, contains 299 houses, with 3164 inhabitants, who make nails, cloth, and potash, aquafortis, and some other chemicals. Long. 8. 20. 2. E. Lat. 48. 27. 7. N.

FREYBURG, a bailiwick of the circle of the Treisam, in the grand duchy of Baden, comprehending one city and eighteen villages, with 1650 inhabitants. The capital, of the same name, is in the Black Forest, on the river Treisam. It contains 980 dwelling-houses and 10,450 inhabitants. It is the seat of a university with eighteen professors and betwixt 300 and 400 students, and of other well endowed institutions of education. It is a considerable manufacturing place for every kind of clothing, and of domestic articles and handicraft tools, as well as for musical and mathematical instruments, and many smaller articles. The cathedral is an object of great attention to the admirers of Gothic architecture.

FRIABLE, among naturalists, an appellation given to bodies that are easily crumbled to pieces, such are pumice and all calcined stones.

FRIAR, or FRIER, by the Latins called *frater*, the Italians *fra*, and the French *frère*, that is, *brother*. It is a term common to the monks of all orders, founded on the circumstance that there is a kind of fraternity or brotherhood presumed between the several religious persons of the same convent or monastery. Friars are generally distinguished into these four principal branches: 1. Minors, grey friars, or Franciscans; 2. Augustines; 3. Dominicans, or black friars; 4. White friars, or Carmelites. In these four the rest of the orders originated.

FRIAR, in a more peculiar sense, is restrained to such monks as are not priests; for those in orders are usually dignified with the appellation of *father*.

FRIARS Observant (*fratres observantes*) were a branch of the Franciscans; so called because they are not combined together in any cloister, convent, or corporation, as the conventuals are; but they only agree among themselves to observe the rules of their order more strictly than the conventuals did, from whom they separated out of a singularity of zeal, living in certain places of their own choosing.

FRICASSEE, a dish or mess hastily dressed in a frying pan, and seasoned with butter, oil, or the like. The word is French, formed of the Latin *frixatura*, frying.

FRICTION, the act of rubbing or grating the surface of one body against another. It is likewise called *attrition*.

FRICTION, in *Mechanics*, denotes the resistance which a moving body meets with from the surface on which it moves. Friction arises from the roughness or asperity of the surface of the body moved on and that of the body moving; for such surfaces consisting alternately of eminences and cavities, either the eminences of the one must be raised over those of the other, or they must be both broken and worn off; but neither can happen without motion, nor can motion be produced without a force impressed. Hence the force applied to move the body is either wholly or partly spent on this effect; and consequently there arises a resistance or friction, which will be greater, *cæteris paribus*, according as the eminences are the greater and the substance the harder; and as the body, by continual friction, becomes more and more polished, the friction diminishes. See MECHANICS.

FRIDAY, the sixth day of the week, so named from *Freya*, a Saxon deity. By the Romans it was called *dies Veneris*.

FRIDERICA, a fortified city of Denmark, in the province of Jutland, on a promontory on the Little Belt, where a toll is collected on such vessels as pass through that strait. It contains 600 houses, and about 3700 inhabitants. The harbour is only calculated for small vessels, and the commerce is considerable. Long. 9. 41. E. Lat. 55. 32. N.

FRIDSTOL, mentioned, in our ancient writers, among the immunities granted to churches, signifies a seat, chair, or place of peace and security, where criminals might find safety and protection. Of these there were many in England; but the most celebrated were that at Beverley, and that in St Peter's church at York, granted by charter of Henry I.

FRIEDBERG, a bailiwick in the circle of the Upper Danube, in the kingdom of Bavaria, extending over 178 square miles. It contains one city, eight towns, and 111 villages and hamlets, with 14,949 inhabitants. The capital, a city of the same name, stands on the Acha, with 330 houses, and 1871 inhabitants, among whom are watchmakers and ribbon weavers.

FRIEDLAND, a town of the province of East Prussia, in the circle of the same name. It stands on the river Alle, contains 263 houses, and 1916 inhabitants employed in tanning and weaving. It is celebrated for the battle fought near it in June 1807, between the united Russian and Prussian troops and the French. Long. 20. 55. 40. E. Lat. 54. 27. N.

FRIEDRICHSBORG, a small city of Denmark, in the northern part of the island of Zealand. It is surrounded with extensive woods, and stands on the border of a lake of the same name. It contains 1600 inhabitants; but is only remarkable for the royal palace built on an island on the lake, which is a fine specimen of the architecture of the seventeenth century.

FRIENDLY ISLANDS, a cluster of islands in the Pacific Ocean, so named by Captain Cook in the year 1773, on account of the friendship which appeared to subsist among the inhabitants, and from their courteous behaviour to strangers. Abel Jansen Tasman, an eminent Dutch navigator, first landed on these islands in 1643, and gave names to most of them. Captain Cook explored the whole cluster, which he found to consist of above sixty. See POLYNESIA.

FRIENDSHIP may be defined a mutual attachment

Friendship.

subsisting between two persons, and arising not merely from the general principle of benevolence, from emotions of gratitude for favours received, from views of interest, or from instinctive affection or animal passion, but from an opinion entertained by each of them that the other is adorned with some amiable or respectable qualities.

The object of the general principle of benevolence is *mankind*, not any particular individual. Gratitude regards the person from whom he who feels its emotions has received a favour, whether that person be a virtuous or a vicious, a respectable or a contemptible character; it prompts the person obliged to make some suitable return to his benefactor, but not to enter into any particular intimacy with him merely on account of the favours which he has received. Many connections are formed and dignified with the name of *friendship*, upon no other principle but the sordid hope which one or perhaps each of the parties entertains of accomplishing some selfish purpose through the assistance of the other. The instinctive affection which a parent entertains for his child, as well as that which the child feels for his parent, seems intended by nature to form an union between the persons thus related to each other; but the union between parents and children, when supported by no other principle but instinct, is different from friendship; it extends no further than to cause the parent to provide for his child during his helpless years, and the child to look up to his parent for protection and support. We need not mention that appetite which is the foundation of love, and is the provision which nature has made for the continuation of our species. This appetite alone, and unassisted by some nobler principle, cannot give rise to any connection worthy of an honourable name.

After excluding these principles, we can refer the origin of friendship only to "an opinion entertained by each f the parties between whom it subsists that the other is adorned with some amiable or respectable qualities." A connection founded on different principles we cannot honour with the name of friendship; but that which flows from this pure source must be noble and virtuous. When two persons of virtue and abilities contemplate each the other's haracter and conduct, they cannot but view them with complacency and esteem. Habits and actions displaying prudence, fortitude, moderation, integrity, benevolence, and piety, naturally command the approbation of the impartial spectator, and even affect him with delight. But s we are disposed to revisit a landscape the beauties of which we have contemplated with rapture, and read with frequent delight a poem in which genius has faithully delineated some of the most enchanting scenes or he most interesting events in nature; so we also become desirous to enjoy frequent opportunities of contemplating a character distinguished for eminent abilities nd virtues. Hence, whenever men of truly respectable haracters enjoy opportunities of mutual intercourse, an attachment naturally takes place between them, entirely disinterested, and founded solely on the approbation with which the one cannot avoid regarding the conduct of the other. The esteem which the one is thus induced to entertain for the other will lead them to seek frequent oportunities of enjoying each other's society, mutually to ask and listen to advice, to trust their most secret and imortant purposes to each other's confidence, and to be no ess concerned each of them for the other's interest and onour than for his own. This, and this alone, is genuine riendship, founded on virtue, and on that approbation which virtue never fails to command; it is a natural conequence of intercourse between virtuous men.

But perhaps such a pure and sublime attachment can carcely be expected to exist among beings of so mixed and mperfect a character as mankind. The wise man of the ancient Stoics, or the Christian who fully obeys the precepts and follows the steps of his Saviour, might be capable of it; but, unfortunately, humanity never reaches such perfection. Even the purest and most disinterested of those friendships which prevail among men owe their origin to other meaner principles, as well as to that which has been mentioned as the principle of genuine friendship. There are certain circumstances favourable, and others adverse, to the formation and continuance of friendship. These, making amends, as it were, for the imperfection of human virtue and human knowledge, lead men to overlook each other's faults and follies, and to unite in the bonds of friendship; a friendship which, though less solid, less generous, and less lasting, than that which we have above described, is yet attended with effects favourable to the happiness of individuals, and to the interests of society in general.

Equality of age is favourable to friendship. Infancy, manhood, and old age, differ so considerably from each other in their views, passions, and pursuits, that the man will seldom be disposed to associate with the boy or the youth, in preference to one who has had equal experience in the world with himself.

They who cultivate the same trade or profession enjoy opportunities favourable to the formation of friendship. Equality of rank and fortune is also favourable to friendship. Seldom will a man of fortune be able to gain the sincere friendship of any of his dependents. Though he treat them with the most obliging condescension, and load them with favours, yet still either the sense of dependence, or resentment for imaginary injuries, or impatience of the debt of gratitude, or some other similar reason, will be likely to prevent them from regarding him with cordial affection. Similarity of taste and temper will generally be found favourable to friendship. Two individuals of mild, humane dispositions will naturally take delight in each other's society and conversation. They who are charmed with the bustle of a gay and active life avoid the haunts of the indolent and contemplative, and join hand in hand to climb the heights of ambition, or tread the round of amusement and dissipation.

As friendship is an attachment which takes place between certain human characters when placed in certain circumstances, there must therefore be laws for supporting the attachment and regulating the intercourse of friendship. Mutual esteem is the basis on which true friendship is established; and the intercourse of friendship ought surely to be conducted in such a manner that this foundation be not injured. Sincerity may be considered as the first law of friendship. Artifice and hypocrisy are inimical to all social intercourse. Between the deceitful and the honest, therefore, friendship can never subsist for any length of time. But though sincerity is to be faithfully observed in the intercourse of friendship, yet the harshness of contradiction must be carefully avoided. Those obliging manners which are so agreeable in an acquaintance or casual companion are still more so in a friend. If they are necessary to recommend the advantages of social intercourse in general to the members of society, they are no less necessary to communicate a charm to the intercourse of friendship. Mild obliging manners are understood as the natural and genuine expression of kindness and affection; boisterous rudeness, petulance, and neglect, are naturally considered as expressive of opposite sentiments. Mutual confidence is the very soul of friendship. If friendship be rightly defined to be a mutual affection founded on mutual esteem, those who are united in the bonds of friendship cannot but repose mutual confidence in each other.

Many instances are related which show what power it is possible for friendship to acquire over the human heart.

We need not here repeat the well-known story of Damon and Pythias, whose generous friendship afforded a spectacle which softened even the savage heart of Dionysius. It is known to every school-boy; for the affecting narrative of Valerius Maximus has been studiously detailed and commented on by almost every succeeding story-teller or moralist. Addison, in one of his Spectators, gives a beautiful little relation, which finely illustrates the power of both friendship and love. The reader is referred to the number of the *Spectator* in which the narrative occurs.

FRIESLAND, one of the provinces of the Netherlands, bounded on the north by the German Ocean, extending over 1192 square miles, comprehending eleven cities and 336 towns and villages, with a population of 176,500 souls, the greater part of whom are Protestants of the reformed confession. It is a low, flat district, below the sea at high-water mark, but preserved by embankments from inundation, and drained by numerous sluices and wind-mills. It has a great abundance of canals, which serve the purpose of roads, and in some degree assist in draining. The soil is rich, admirable for cows, and the produce of the dairy is one of the chief sources of its annual wealth. The inhabitants, descended from the ancient Frisii, speak a dialect distinct from the Dutch and the German, and in sound approaching nearer to the English. The corn land does not produce grain equal to the consumption. In the cities are many manufactories, and extensive labour is applied to the fisheries. The province is divided into three circles and nineteen bailiwicks.

Friesland, East, one of the provinces of the kingdom of Hanover, on the sea-shore. It was formerly subject to its native independent sovereigns, on whose extinction, in the middle of the eighteenth century, it came under the government of Prussia, and was finally ceded to Hanover by the congress of Vienna in 1815. It is bounded on the north and north-east by the German Ocean, on the east by Oldenburg, on the south by Meppen, on the west by the Netherlands, and on the north-west by the Dollart. It extends over 1159 square miles, exclusive of the islands Juist, Norderney, Baltrum, Longeroog, Spiteroog, and Wangeroog, which belong to it. It contains four cities, seven market-towns, 145 parishes, and 200 hamlets, and in 1815, the population amounted to 127,522. The land is marshy, but rich on the border. It gradually decreases in fertility towards the centre, till it becomes a poor sandy heath, unfit for cultivation. The good land comprehends seven tenths of the whole. That part is lower than the sea at high water, but below it at low water, and is drained by sluices, as is practised in Holland, which the province much resembles; and the embankments are said to have been formed more than ten centuries ago. The chief produce is oats, of which large quantities are exported. Some wheat also is raised. Many horses and cows are bred, and butter and cheese are made extensively. There are few large estates; but most of the occupiers are proprietors of their land, in portions varying from thirty to seventy English acres. There is a scarcity of wood, and turf is used for fuel. The city of Aurich is deemed the capital; but more of the business of government is conducted at Emden than in that place.

FRIGATE, a ship of war usually of two decks, light built, designed for swift sailing. Frigates mount from twenty to forty-four guns, and are esteemed excellent cruisers. The name was formerly known only in the Mediterranean, and applied to a long kind of vessel navigated in that sea with sails and oars. The English were the first who appeared on the ocean with these ships, and equipped them for war as well as for commerce.

Frigate-Built denotes the disposition of the decks of such merchant ships as have a descent of four or five steps from the quarter-deck and forecastle into the waist; in contradistinction to those whose decks are on a continued line for the whole length of the ship, which are called *galley-built*.

FRIGATOON, a Venetian vessel, commonly used in the Adriatic, built with a square stern, and without any foremast, having only a main-mast, mizen-mast, and bowsprit.

FRIGID (*frigidus*), in a general sense, denotes the quality of being cold.

Frigid Zone. See Geography.

FRIGIDITY, in *Medicine*, the same with Impotence.

FRIGORIFIC Particles, small particles of matter, which, according to Gassendus and others, being actually and essentially cold, and penetrating other bodies, produce in them that quality which is called *cold*, or, according to others, merely the absence or diminution of the particles of heat.

FRILAZIN, the name of a class or rank of people among the Anglo-Saxons, consisting of those who had been slaves, but had either purchased, or by some other means obtained their liberty. Though these were in reality freemen, they were not considered as of the same rank and dignity with those who had been born free, but were still in a more ignoble condition, and dependent either on their former masters, or on some new patrons. This custom the Anglo-Saxons seem to have derived from their ancestors in Germany, among whom those who had been made free did not differ much in point of dignity and importance in the state from those who continued in servitude. This distinction between those who had been made free, and those who enjoyed freedom by descent from a long race of freemen, still exists in some parts of Germany, and particularly in the original seats of the Anglo-Saxons. Many of the inhabitants of towns and cities in England, at this period, seem to have been of this class of men, who were in a kind of middle state between slaves and freemen.

FRINGYBAZAR, a small town of Hindustan, in the province of Bengal, situated on the west side of the Dullasery, near its junction with the Megna. During the height of the rainy season, the inundation here exhibits the appearance of an inland sea. It is thirteen miles south-west from Dacca. Long. 90. 23. E. Lat. 23. 33. N.

FRIPPERY, a French term, sometimes used in our language to signify the trade or traffic of old clothes or goods. The word is also used for the place where such sort of commerce is carried on, and even for the commodities themselves. The company of frippiers or fripperers at Paris formed a regular corporation, of ancient standing, and made a considerable figure in that city.

FRISI, Paul, a profound mathematician and astronomer, was born at Milan the 13th April 1728; his family had formerly emigrated from Strasburg, and was established at Milan in an humble station of life.

At the age of fifteen he entered into the convent of the Barnabite friars, or of the congregation of St Paul, where his studies were at first confined to the attainment of some knowledge of geography from the contemplation of the old maps that were pasted on the walls of the galleries; he soon acquired, however, a taste for geometry, and made considerable progress in it without an instructor. He was sent to the university of Pavia to go through a course of divinity, and he did not neglect the opportunity of applying with increased diligence to the mathematics, with the assistance of Professor Olivetano. He was afterwards removed to Lodi, in order to give lectures there on philosophy; and he soon after distinguished himself by writing a most able essay on the *Figure of the Earth*, which, however, he had not the means of printing, as his brethren were unwilling to assist him, until he found a patron for his publication in the Count de Silva, who undertook to be at the expense of the impression. The credit which he acquired induced some other members of the society to follow his example, and the convent of the Barnabites at Milan soon began to be converted into a nursery of mathematics. His reputation procured him also, from the king of Sardinia, the appointment of professor of philosophy in the college of Casale. Here, however, he thought the conduct of his superiors unjust and tyrannical, and they were also dissatisfied with him on account of his great intimacy with Radicati, whose opinions were rather more liberal than they thought it prudent to tolerate. This friendship was, however, so far of advantage to Frisi, as it tended to improve his taste in modern literature; but it was the principal cause of his being removed to Novara, where he was obliged to undertake the duties of a preacher. In the mean time he was nominated a correspondent of the Parisian Academy of Sciences in 1753, and received similar honours from other scientific bodies. Soon after this he was recalled to Milan, and made professor of philosophy in the great Barnabite College of St Alexander in that city. His dissertation on the *Figure of the Earth* was very acrimoniously attacked by a young Jesuit, who accused him of being improperly led away by English and French innovations; but it was easy for him to repel so unfounded a charge. From this time he entertained much ill humour against the Jesuits in general, and had written a work to depreciate the order, but he was advised by his second brother to suppress it. He became, however, more and more connected with the enemies of the Jesuits, and, among them, with D'Alembert, Condorcet, and the other Encyclopédistes. He had before this time declared himself, in his lectures, an enemy to the popular opinions of the Italians respecting magic and witchcraft, though he felt himself in some danger of the animadversions of the Inquisition. He was much in the habit of frequenting the best societies in Milan, and even more than was thought consistent with his religious character; but he was in some measure emancipated from the restraints of his order, by his appointment, in 1756, to a professorship in the university of Pisa, for which he was indebted to the Grand Duke Leopold. This situation he retained for eight years, enjoying the highest degree of credit, and receiving marked attention from all travellers of distinction, and saving, at the same time, a considerable portion of his salary, to which he added the amount of some prizes which he obtained from Berlin and Petersburg in 1756, and from Paris in 1758. Notwithstanding his occupations as a professor of moral philosophy, he had always been in the habit of devoting the greater part of his attention to the mathematical sciences. In 1757 he was made an associate of the Imperial Academy of Petersburg, and a foreign member of the Royal Society of London; in 1758, a member of the Academy of Berlin; in 1766, of that of Stockholm; and in 1770, of the Academies of Copenhagen and of Berne. The Archduke Joseph had sent him, in 1759, a collar with a gold medal, and he received similar marks of distinction from the kings of Prussia and Denmark. He was also liberally rewarded by Pope Clement XIII. for his services in arranging a dispute between the people of Ferrara and of Bologna on the subject of rivers and torrents, which had been referred to him on the occasion of a tour that he made to Naples and to Rome in 1760. The senate of Venice also made him a proper acknowledgment for the assistance he gave to the commissioners whom they had appointed to control the ravages of the Brenta. The Empress Maria Theresa settled on him a pension of 100 sequins, or L.50 a year. He was recalled to Milan in 1764, as professor of mathematics in the Palatine schools, with appointments equal to those which he had enjoyed at Pisa, and with the additional advantage of living near his family, and being enabled to promote their interests. He was at various times much engaged in the decision of controversies respecting canals and rivers, and obtained much credit for his skill and ingenuity; though the peculiarities of his temper tended somewhat to increase the number of enemies, which might possibly have been unavoidable. Among other controversies, he was engaged in a dispute respecting the propriety of adding a high pinnacle to the dome of the church at Milan, which has since been raised in opposition to his opinion. In 1766 he undertook a journey into France and England, and his celebrity everywhere procured him the most flattering attentions. At Paris a very liberal proposal was made to him to remove to Lisbon, but he preferred returning to his own country. In 1768 he went to Vienna, and he was consulted by the government there upon some important questions of ecclesiastical policy, in which his advice was adopted. He remained but little longer in the college of St Alexander, and Pope Pius VI. liberated him entirely from subjection to the superiors of his order, and allowed him to wear the habit of a secular priest. As one of the censors of the press, he had incautiously been accessory to the publication of the *Lanterna Curiosa*, the work of a coffee-house club in Milan, which gave great offence to the government; and he afterwards still more imprudently undertook to defend it. This circumstance occasioned his removal from Milan for a time, but he was recalled in 1777, and was appointed director of a school of architecture. He was active in introducing the employment of conductors for security against lightning, and had one fixed for an example on the repository of the public archives. He was equally zealous on every other occasion, in the dissemination of useful novelties among his countrymen. In 1778 he made a tour into Switzerland, and his observations there gave rise to his speculations on subterraneous rivers. He enjoyed uninterrupted health until the age of forty-eight, when he was attacked by a hæmorrhoidal affection, ending in an abscess, which, eight years afterwards, required the performance of an operation; this was unfortunately succeeded by a fatal mortification, and he died the 22d November 1784, at the moment when he was about to be placed on the list of the eight foreign associates of the Parisian Academy; an honour which had been delayed by the preference of J. A. Euler, on the occasion of a former vacancy, to the no small mortification of his vanity. He had very lately obtained a prize from the Academy of Haerlem, for his memoir on the *Inequality of the Satellites of Jupiter*. He was buried in the church of St Alexander, and a medallion with his portrait was placed over his tomb by his brethren Barnabites. He had four brothers, Antony, a physician, botanist, and chemist; Antony Francis, an ecclesiastic, author of some antiquarian researches of merit; Louis, a canon of St Ambrose, a learned theologian and mechanician; and Philip, a lawyer, author of a dissertation, *De Imperio et Jurisdictione.*

The works of Father Paul Frisi are, 1. Disquisitio mathematica in causam figuræ terræ, Milan, 1751; demonstrating, more completely than Newton had done, the spheroidal figure of the earth. 2. Estratto della storia litteraria d'Italia, Milan, 1753; an answer to a review. 3. Saggio della morale filosofia, Lugano, 1755. 4. Nova electricitatis theoria, Milan, 1755; seems to be the same with a dissertation De existentia et motu ætheris, seu de theoria electricitatis ignis et lucis, printed with J. A. Euler's Disquisitio de causa physica electricitatis præmio coronata, 1755, 4to, Petersburg. This dissertation shows some ingenuity, but is by no means established on firm foundations. Among some other fanciful hypotheses, it suggests that light is probably an impulse transmitted by an elastic medium, but not of an undulatory nature. Both these essays seem to have been republished at Lucca, with another by Resaud, under the title of Dissertationes selectæ quæ ad I. P. academiam, anno 1755, missæ sunt, 1757. 5. De motu diurno terræ, Pisa, 1758; a dissertation which obtained a prize from the Academy of Berlin in 1756. 6. Dissertationes variæ, 2 vols. 4to, Lucca, 1759, 1761; the first volume containing a geometrical solution of the problem of Precession and Nutation; a Dissertation on the Atmospheres of the Heavenly Bodies, which obtained the prize at Paris in 1758; an Essay on the Nature and Motion of the Ether: the second, a Treatise on the Inequality of the Motion of the Planets, being an enlargement of a prize dissertation which obtained the second premium at Paris in 1760; a Dissertation on the geometrical method of Fluxions, and some Metaphysical Meditations. 8. Piano de lavori per liberare dalle acque. Lucca, 1761; for the use of the provinces of Bologna, Ferrara, and Ravenna. 9. Del modo di regolare i fiumi e torrenti, Lucca, 1762, 1760; Flor. 1770; French, Paris, 1774; especially of the Bolognan and Roman territories, making great use of Guglielmini's works. At the end there is an Elogio di Gabriello Manfredi. 10. Prælectio habita Mediolani; 1764. 11. Saggio sopra l'architectura Gotica, Leghorn, 1766. 12. Lettre à M. d'Alembert, Par. 1767. 13. Elogio del Galileo, Leghorn and Milan, 1775; French by Floncel, 12mo, Par. 1767; an elegant specimen of biography. 14. On the supposed Inequalities in the Rotation of the Earth and Moon, Inst. Bologn. vol. v. Op. p. 11 (1787). The same volume contains a prospectus of the work on the Laws of Gravity, p. 514. 15. De gravitate universale libri tres, 4to, Milan, 1768; a work considered as a model of elegance, simplicity, and facility; leaving, however, the fact of the moon's acceleration still unexplained, and even stating doubts of its existence. 16. Della maniera di preservare gli edifizi dal fulmine, Milan, 1768; by conductors. 17. De inequalitate motus planetarum, a dissertation which obtained the second premium at Paris in 1768. 18. Melandri et Frisii de theoria lunæ commentarii, Parma, 1769. 19. Cosmographia physica et mathematica, 2 vols. 4to, Milan, 1774, 1775; this is Frisi's principal work; it contains the substance of the three books on the laws of gravity, with additional matter. It is only superseded by the *Mécanique Céleste* in point of practical utility, but still retains the advantage of more satisfactory geometrical representation, and less unnecessary complication in the modes of reasoning employed. 20. Dell architectura statica e idraulica, Milan, 1777. 21. A Letter to Melander on the transit of Venus, *Atti di Sienna*, vol. iv. p. 21 (1771); with some illustrations of the lunar perturbations. 22. Geometrical problems, ib. vol. v. p. 27 (1772); relating to intersections and circles. 23. Elogi di Galileo e di Cavalieri; Milan, 1778; Pisa, 1779. 24. Elogio del Cav. I. Newton, 8vo, Milan, 1778. 25. Elogio del Conte D. Silva, Milan, 1779; anonymous. 26. Elogio di Tito Pomponio Attico, Milan, 1780; a compliment to the Count de Firmian. 27. Opuscoli filosofici, Milan, 1781; denying the fancied influence of the moon on the weather, which Toaldo very unsuccessfully attempted to assert in answer; with dissertations on Conductors, on the effect of Oil on Water, on the Heat of the Earth, and on Subterraneous Rivers. 28. On isoperimetrical maxima and minima, *Atti di Sienna*, vol. vi. p. 121 (1781); intended as a simpler mode of obtaining the results than that of Euler. 29. A Collection of his Works, in 3 volumes, was begun in 1782, and remained unfinished at the time of his death. The first volume contained Algebra and Geometry; the second, Mechanics and Hydraulics; the third, the Cosmography. 30. Elogio di Maria Teresa, Pisa, 1783; anonymous. 31. Lettera intorno agli studj del Sign. T. Perelli, Pisa, 1784. 33. Elogio di D'Alembert, Milan, 1788; posthumous. 32. An Essay on Arches and Domes, *Atti della Società Patriotica di Milano*, vol. i. 1783; correcting some statements of Couplet and Belidor.

He left several unpublished works in the hands of his two brothers: 1. On the mediocrity of the Jesuits. 2. Elements of the Cartesian Algebra. 3. Institutions of Mechanics. 4. Of the restoration of the navigation between Milan and Pavia. 5. Institutiones Hydrometricæ. 6. Elements of Hydrodynamics. 7. Elements of Hydraulics. 8. Memoirs of his travels in France and England. 9. Lectures delivered at Pisa. 10. Prælectiones de malis spiritibus. 11. Several miscellaneous dissertations.

(Verri *Memorie del S. D. P. Frisi*, 4, Milan, 1787; Fabbroni *Elogj d'illustri Italiani*, *Atti di Milano*, vol. ii.; Chalmers's *Biographical Dictionary*, vol. xiv. 8, London, 1814; Aikin's *General Biography*, vol. x. 4, London, 1815; Guillon in *Biographie Universelle*, vol. xvii. 8, Paris, 1816.) (L. L.)

FRISII, a people who dwelt on the east bank of the Rhine, near its mouth, occupying, as far as the scanty notices of them will allow us to determine, West Friesland, Gröningen, and the north part of Upper Yssel; also the islands which lie to the north, and those which are formed by the mouths of the Rhine. Tacitus divides them into Frisii Majores et Minores, though probably by mistake, as no other author notices such a division. We find them, from the earliest period of their acquaintance with the Romans, on terms of the closest intimacy with that people. Not only did Drusus pass unmolested through their country, but they gave him most active support in his wars against the Cherusci. In process of time it appears that the Romans began to build fortresses in their country, and to levy taxes; but this roused the spirit of the Frisii, who had received the Romans as friends, but not as masters. They rose in a body, defeated the forces, and razed the fortresses to the ground. They would no doubt have been chastised, but for the opportune jealousy of the Emperor Claudius towards his general Corbulo, who was employed to subdue them. Corbulo received orders to withdraw to the west of the Rhine, and from that time no Roman set foot in the land of the Frisii.

We hear nothing more of the Frisii till the fourth and fifth centuries, when they appear in history closely united to the Saxons, and occupying a much wider extent of country than they did originally. Not only do they appear to have stretched to the east as far as the Weser, but even to have reached along the sea coast to the Elbe; and towards the west their name appears more than once in the island of the Batavi, and along the coast of Flanders. We find them even mentioned by Procopius as possessing part of Britain. They were first humbled by Pepin, who defeated their king Radbod, and took from him the western portion as far as the mouth of the Rhine. Charlemagne added to his other Saxon conquests the eastern kingdom of the Frisii. This people may be considered as the ancestors of the Dutch.

FRIT, or FRITT, in the glass manufacture, is the matter or ingredients of which glass is to be manufactured when they have been calcined or baked in a furnace.

Frit by the ancients was called *ammonitrum*, of αμμος, *sand*, and νιτρον, *nitre;* under which name it is described by Pliny thus: Fine sand from the Volturnian Sea, mixed with three times the quantity of nitre, and melted, makes a mass called *ammonitrum*, which being rebaked, forms pure glass.

Frit, Neri observes, is only the calx of the materials which make glass; which, though they might be melted and form glass without being calcined, yet it would occupy a much longer time. Thus calcining or making of frit serves to mix and incorporate the materials together, and to evaporate all the superfluous humidity. The frit, once made, is readily fused and turned into glass. See Glass Making.

FRITZLAR, one of the provinces into which the principality of Hesse-Cassel is divided. It extends over 136 square miles, comprehends four cities, twenty-five villages, and thirteen hamlets, with 15,328 inhabitants. It is generally a fertile district, depending on agriculture chiefly, which yields corn nearly equal to the consumption, and much flax, with some tobacco. The capital is the city of the same name on the river Edder. It is walled, contains 478 houses, and 2467 inhabitants.

FRIZE, or Freeze, in *Commerce*, a kind of woollen cloth or stuff for winter wear, being frized or knapt on one side; whence, in all probability, it derives its name. Of frizes some are crossed, others not crossed; the former are chiefly of English manufacture, the latter of Irish.

FRIZING of Cloth. See Woollen Manufacture.

FROBENIUS, John, a distinguished printer in the sixteenth century, was born at Hamelburg in Franconia, and settled at Basil. He had before studied in that university, where he acquired a reputation for great learning; and having set up a printing-house in that city, he was the first of the German printers who brought the art to any degree of perfection. Being a man of great probity and piety, as well as skill, he was particularly choice in the authors whom he printed; and would never for the sake of profit suffer libels or any thing that might injure the reputation of another to issue from his press. The high character of this printer was the principal motive which induced Erasmus to reside at Basil, in order to have his own writings printed by him. The works of a great number of valuable authors were printed by Frobenius with great care and accuracy; among which were the works of St Jerome, Augustine, and Erasmus. He designed to have printed the Greek Fathers, but died in 1527, before he could put his design in execution. Erasmus wrote his epitaph in Greek and Latin.

John Frobenius left a son named Jerome Frobenius, and a daughter married to Nicholas Episcopius, who, joining in partnership, continued Frobenius's printing-house with reputation, and printed correct editions of the Greek Fathers.

FROBISHER, or Forbisher, Sir Martin, a celebrated navigator and naval officer, was born near Doncaster in Yorkshire, about the middle of the sixteenth century, and was from his youth brought up to navigation. He was the first Englishman who attempted to find a north-west passage to China; and to put this design into execution, in 1576 he sailed with two barks and a pinnace. In this voyage he discovered a cape, to which he gave the name of Queen Elizabeth's Foreland; and the next day he discovered a strait, on which he conferred his own name. This voyage proving unsuccessful, he attempted the same passage in 1577; but discovering some ore on an island, and his commission directing him in this voyage only to search for ore, and to leave the further discovery of the north-west to another time, he returned to England. He sailed again with fifteen ships and a great number of adventurers, to form a settlement; but being obstructed by the ice, and driven out to sea by a violent storm, his fleet, after encountering many difficulties, returned home without effecting a settlement. He afterwards commanded the Aid in Sir Francis Drake's expedition to the West Indies, in which St Domingo, Carthagena, and Santa Justina in Florida, were taken and sacked. In 1588 he rendered himself conspicuous in the defence of his country against the Spanish armada. He commanded the Triumph, one of the largest ships in the English service; and, as a reward for his distinguished bravery, received at sea the honour of knighthood from the lord high admiral. He afterwards commanded a squadron which was ordered to cruise on the Spanish coast; and, in 1592, took two valuable ships and a rich carrack. In 1594 he was sent to the assistance of Henry IV. king of France, against a body of the Leaguers and Spaniards, who had strongly intrenched themselves at Croyzon near Brest; but in an assault upon that fort, on the 7th of November, Sir Martin was unfortunately wounded with a ball, of which he died soon after he had brought back the fleet to Plymouth, in which town he was buried.

Frobisher's Straits, a narrow sea, which lies a little to the north of Cape Farewell in West Greenland. It was discovered by Sir Martin Frobisher, as above noticed. Long. 42. W. Lat. 63. N.

FRODSHAM, a market-town of the county of Chester, in the hundred of Eddesbury, 193 miles from London. It stands on a plain on the banks of the river Weaver, by which, through the Mersey, it is in water communication with Liverpool. It is chiefly remarkable for its salt-works, where, from rock salt dissolved in sea water, large quantities of culinary salt are refined. There are also establishments for building and repairing ships. The market is on Thursday. The inhabitants amounted in 1801 to 1551, in 1811 to 1349, in 1821 to 1556, and in 1831 to 1746. The parish is, however, much more extensive than the town, containing seven other townships. The whole population amounted in 1821 to 5451, and in 1831 to 5547.

FROG. See Reptilia.

FROME, a river which rises from several springs in the western parts of Dorsetshire, in England, the principal of which is near Evershot. Directing its course almost due west, it passes under Frampton Bridge, washes the town of Dorchester, and falls into a bay of the English channel called Poolhaven, near Wareham.

Frome, a town of the county of Somerset, in the hundred of its own name, 105 miles from London. It has the addition of Selwood to its name, from having been in ancient times at the termination of a forest of that name, said to have extended fourteen or fifteen miles. It is built on the acclivity of several hills, and the streets, which are narrow, rise one above the other. It is a place of extensive manufactures, chiefly of the best superfine broad cloths and kerseymeres from Spanish and Saxon wool. There are, besides, mills for rolling iron, and some considerable breweries. The church is handsome and spacious, with an octagonal spire 150 feet in height. There is a good market on Wednesday. The town formerly had a corporation, which has become extinct, and it is now under the superintendence of the county magistrates. The population amounted in 1801 to 8748, in 1811 to 10,133, in 1821 to 12,411, and in 1831 to 12,240.

FRONDESCENTIA, from *frons*, a leaf; the precise time of the year and month in which each species of plants unfolds its first leaves.

FRONT, the forehead, or that part of the face above the eyebrows. The word is formed of the Latin *frons*; and that from the Greek φρονειν, to think, perceive; of φρην, *mens*, the mind, thought. Martinius, to make out this etymology, observes, that from the forehead of a person we perceive what he is, what he is capable of, and what he thinks of. Front is also used where several persons or objects are ranged side by side, and show their front or fore parts.

FRONTAL, in *Architecture*, a little fronton or pediment, sometimes placed over a small door or window.

Frontal, *Frontlet*, or *Brow-band*, is also used in speaking of the Jewish ceremonies. This frontal consists of four several pieces of vellum, on each of which is written a text of scripture. They are all laid on a piece of black calf's leather, having thongs by which the Jews fasten it to their foreheads in the synagogue.

FRONTIER, the border, confine, or extreme of a kingdom or province. Thus we say, a frontier town, frontier province, &c. Frontiers were anciently called *marches.* The word is derived from the French *frontière,* and that from the Latin *frontaria,* as being a kind of front opposed to the enemy. Skinner derives *frontier* from *front,* because the frontier is the exterior and most advanced part of a state, as the front is that of the face of man.

FRONTIGNAN, a city of the department of the Herault, in France. It is on a lake surrounded with an amphitheatre of vine-clad hills, from which the celebrated muscatel wine is made. Much rosin and table salt is also made. Long. 3. 39. E. Lat. 43. 28. N.

FRONTINAS, Sext. Julius, a Roman citizen, who, though not of a noble family, rose by his merits to the highest dignities of the state. He was city prætor 70 A. D. the year that Vespasian succeeded to the empire, consul 74, and the year afterwards proceeded to Britain to act as governor of a restless people. He subdued the Silures, who inhabited the southern parts of Wales, one of the most powerful and warlike tribes of Britain. He returned to Rome after this successful war, giving up his command to the celebrated Agricola. During the reign of Domitian he seems to have withdrawn from public affairs to the retirement of the country, and there to have lived unmolested by that cruel tyrant. Under Nerva, however, he was again called to take part in the affairs of his country, and received the consular dignity a second time (97 A. D.). In the same year we find that he was *curator aquarum,* overseer of the Roman aqueducts. His death took place about 106 A. D., when he was succeeded in the augurship by Pliny the Younger. On his deathbed he forbade that a monument should be erected to his honour, saying, "Impensa monumenti supervacua est: memoria nostri durebit si vitam meruimus." The most valuable work which he has left is entitled *De Aquæductibus urbis Romæ,* in two books, which contains much information on the subject of which it treats, but is written without the least eloquence of language. We have also another work, *Strategeticon Libri iv. sive de Sollertibus ducum Græcorum, Romanorum, et aliorum, in bello factis et dictis,* a compilation made without much care, but containing some pieces of information which we find nowhere else. There is also a lost work of Frontinus, *De Scientia Militari et de Tactica Homeri.* As to the fragments *De Coloniis et de Limitibus,* sometimes ascribed to him, they belong to a later age. (Editions: *De Aquæductibus,* ed. Polen. Patav. 1722, ed. Adler, Alton. 1732; *Frontin sur les Aqueducs,* par Rondelet, Par. 1820; *Strategeticon,* ed. Schwebelius, Lips. 1772, ed. Oudendorp. Lugd. Bat. 1731.)

FRONTISPIECE, in *Architecture,* the principal face of a fine building. The word is formed of the Latin *frontispicium,* q. d. *frontis hominis inspectio.* Hence also, by a figure, we say, the frontispiece of a book, meaning an ornament with an engraven title on the first page.

FRONTO, Marcus Cornelius, a celebrated orator, who was born, probably under Domitian or Nerva, at Cirta, a town of Numidia, considerably to the west of Carthage, descended, it is said, on the mother's side from Plutarch. He soon became distinguished for his eloquence; and having taken up his residence at Rome, he was appointed preceptor to M. Aurelius and L. Verus. He was raised by Antoninus Pius to the dignity of consul, and in fact received the first honours of the state. He had numerous friends and followers, who were called Frontoniani. His death seems to have taken place about 169 A. D. Of all his numerous works, we had nothing, till within these few years, except one small grammatical treatise, *De Differentiis Vocabulorum.* But in 1814 Angelo Maio, the indefatigable librarian of the Vatican, discovered in the Ambrosian Library at Milan a palimpsest containing a collection of the works of this author, which was afterwards completed from a palimpsest of the Vatican, which had evidently formed at one time part of the Milan manuscripts. It belonged to the age of the Emperors Commodus or Severus. This collection is full of interest, containing numerous letters addressed by Fronto to his pupils Aurelius and Verus, and a curious correspondence between the Emperor Antoninus and Fronto. We are forcibly struck, even on a cursory perusal of these letters, by the extent of his information and by the playfulness of the style. They entitle the author to a distinguished place among the orators and writers of ancient times, though we do not allow that he can be placed immediately after Cicero. The form of the composition does by no means resemble the noble simplicity of the earlier ages. The style is artificial; and, amidst the poverty of ideas, cold declamation and unmeaning expressions occupy the place of "thoughts that breathe and words that burn." There appear also new and strange expressions, which sufficiently indicate the decline of literature, as well as the corrupted taste of an age which could consider Fronto as the first of its orators. There have been several editions of this collection: Ed. Angelus Maius, Mediolan. 1815, Francof. 1816; ed. Niebuhr, Berlin 1816; ed. Angelus Maius, Romæ, 1823. (*Lettres inedites de Marc Aurele et de Fronton,* par Cassen, Paris, 1830; *Chrestomathia Frontoniana,* Turici, 1830; see *Roth. Bemerkungen uber die Schriften des Fronto und uber das Zeitalter der Antonine,* Nurnberg. 1817.)

FROSINONE, one of the delegations of the papal dominions in Italy, extending over 1370 square miles, comprehending eleven cities, nine market-towns, and many small villages, with 156,769 inhabitants. The northern part is a branch of the Appennines, enjoys a good climate, and, though the cultivation is negligently conducted, produces abundance of all the Italian crops. The inhabitants are of a lazy, filthy, and knavish character, and constantly embroiled with the Roman police. The southern part, called the Maremna, is nearly desolate, because the marshes have vanquished cultivation, and the malaria has nearly exterminated man and beast. In the height of summer not a living creature is to be seen; and it is only in the winter that the shepherd descends from the mountains to gain some pasture for his cattle. The efforts of the several popes to drain the Pontine marshes have been unavailing, though a canal has been constructed as a drain, which is so deep as to be navigable. The marshes continue to extend, and the air to be as pestiferous as before; and it is to be apprehended that the whole campagna may be turned into an uninhabitable marsh. The capital of the delegation bears the same name, is situated on a hill near the river Cosa, and contains 6014 inhabitants. Long. 13. 59. 9. E. Lat. 41. 13. 45. N.

FROST, such a state of the atmosphere as occasions the congelation or freezing of water and other fluids. See Climate, Cold, and Meteorology.

Hoar Frost is simply vapour which has been frozen during the night by the coldness of the atmosphere, and descended to the earth.

FROTH, a white and very light substance, formed on the surface of fluids by violent agitation.

Froth Spit, or *Cuckoo Spit,* a name given to a white froth or spume, very common in the spring and first months of summer, on the leaves of certain plants, particularly on those of the common white field lychnis, or catchfly; thence called by some *spatling poppy.*

FROWDE, Philip, an English poet, was the son of a gentleman who had been postmaster in the reign of Queen Anne. He was sent to the university of Oxford, where he had the honour of being distinguished by Addison, who took him under his protection. While he remained there, he wrote several pieces of poetry, some of which, in Latin, were considered worthy of a place in the *Musæ Anglicanæ*. He likewise wrote two tragedies, *The Fall of Saguntum*, dedicated to Sir Robert Walpole; and *Philotas*, addressed to the Earl of Chesterfield. He died at his lodgings in the Strand, in 1738; and in the *London Daily Post* of the time the following character was given him: "Though the elegance of Mr Frowde's writings has recommended him to the general public esteem, the politeness of his genius is the least amiable part of his character; for he esteemed the talents of wit and learning only as they were conducive to the excitement and practice of honour and humanity. Therefore, with a soul cheerful, benevolent, and virtuous, he was in conversation genteelly delightful, in friendship punctually sincere, in death Christianly resigned. No man could live more beloved; no private man could die more lamented."

FROZEN OCEAN, or the ICY SEA. By this name the ocean is distinguished which bounds the continent of Asia on the north, and which extends towards the north into the unknown regions of the pole, and of which the boundaries on the east and west are calculated to be Nova Zembla and Fohutski Noss. This sea has always been obstructed by an insurmountable barrier of ice at a short distance from the shores, all attempts to penetrate which by mariners have been found ineffectual. The short gleam of summer has very little effect in dissolving the masses of ice formed during the cold of winter, and the ice seldom breaks up until the 31st July; and thick fogs, which at a distance resemble islands in a haze, or vast columns of smoke, are seen constantly hovering over its surface. It is in clear weather, however, that the cold is most severe: at this time the thermometer frequently falls many degrees below zero, and at times the cold is so intense that the quicksilver freezes. There are several islands in this ocean, one of which was reached in the year 1770, by Lachoff, a hunter, who, venturing out on this sea on a sledge drawn by dogs, reached an island sixty-six miles from the coast, when the ice appeared so rough that he could not proceed. In 1773 he discovered another island, in a boat, about 125 miles from the coast. These islands are inhabited by white bears and arctic foxes, and other animals common to the polar zone, such as rein-deer, foxes, wild sheep, as also the whistling marmot, which are also found on all the shores of this inhospitable sea. The bones of the mammoth are also found on all the islands and shores. Very irregular currents prevail in this ocean, and they run at very unequal rates. Few productions are to be seen in this ocean, either animal or vegetable. Whales are rare. The beluga is occasionally seen; and herrings, together with a small species of salmon, may be caught; but shell-fish are not to be found. The great Asiatic rivers which roll down the northern declivity of the Himalaya chain fall into this icy sea. These are the Oby, the Jenesei, the Lena, the Tana, and the Kovima. These are all large streams, by which the vast plain of northern Asia, extending from the Himalaya Mountains to the Icy Sea, is drained of its waters. The coast of this sea is formed by projecting promontories and shallow bays, and is covered with drift-wood from the mouth of the Kovima to Bacranof, in long. 168. 29. E.

FRUCTESCENTIA (from *fructus*, fruit), comprehends the precise time in which, after the fall of the flowers, the fruits arrive at maturity, and disperse their seeds.

FRUCTIFEROUS signifies properly any thing that produces fruit.

FRUCTIFICATION OF PLANTS is defined by Linnæus to be the temporary part of a vegetable appropriated to generation, terminating the old vegetable and beginning the new. It consists of the following seven parts, viz. the calyx, corolla, stamen, pistillum, pericarpium, semen or seed, and receptaculum. See BOTANY.

FRUIT, in its general signification, denotes whatever the earth produces for the nourishment and support of animals. These may be divided into herbs, grain, pulse, hay, corn, and flax, and consist of every thing which the Latins expressed under the name *fruges*.

FRUIT, in *Natural History*, denotes the last production of a tree or plant, for the propagation or multiplication of its kind; in which sense fruit includes all kinds of seeds, with their furniture.

FRUIT, in *Botany*, is properly that part of a plant wherein the seed is contained; it is called by the Latins *fructus*, and by the Greeks καρπος. The fruit in the Linnæan system is one of the parts of fructification, and is distinguished into three parts, viz. the pericarpium, seed, and receptacle or *receptaculum seminum*.

FRUITS, with regard to commerce, are distinguished into *recent, fresh*, and *dry*.

Recent FRUITS are those sold just as they are gathered from the tree, without any farther preparation; in which state most of the productions of our gardens and orchards are sold by fruiterers.

Dry FRUITS are those dried in the sun, or by the fire, with other ingredients sometimes added to them to preserve them from decay. They are imported chiefly from foreign countries, and consist of raisins, currants, figs, capers, olives, cloves, nutmegs, pepper, and other spices.

Under the denomination of *dry fruits* are also frequently included apples, pears, almonds, filberts, &c.

FRUIT-Flies, a name given to a species of small black flies found in vast numbers among fruit-trees in the spring season, and supposed to do great injury to them.

FRUIT Stones. Much mischief arises from the custom which some people have of swallowing the stones of plums and other fruit. In the *Philosophical Transactions* there is an account of a woman who suffered violent pains in her bowels once a month during thirty years on this account. At length a strong purgative was administered to her, which drove down the cause of all these complaints from the bowels to the anus, where it gave a sensation of distension and stoppage, producing a continual desire to go to stool, but without voiding any thing. There was at last extracted from her intestines with forceps a ball of an oval figure, of about ten drachms in weight, and measuring five inches in circumference. This had caused the violent fits of pain which she had suffered for so many years; and after getting rid of it she perfectly recovered. The ball looked like a stone, and felt very hard; but it floated in water. On cutting it through with a knife, a plum-stone was found in the centre of it, round which several coats of this hard and tough matter had gathered. Another instance, given in the same papers, is of a man who died of an incurable colic, which had tormented him many years, and baffled the effects of medicines. He was opened after death, and in his bowels there was found a ball similar to that above mentioned, but somewhat larger, being six inches in circumference, and weighing an ounce and a half. In the centre of this, as in the case of the other, there was found the stone of a common plum, and the coats were of the same nature as those before noticed.

These, and several otner instances mentioned in the same place, sufficiently show the absurdity of the notion that the stones of fruits are wholesome; for though by nature the guts are so defended by their proper mucus, that people very seldom suffer by things of this kind, yet if we consider the various circumvolutions of the guts, their valves and cells, and at the same time consider the hair of the skins of animals we feed on, the wool or down on herbs and fruit, and the fibres, vessels, and nerves of plants, which are not altered by the stomach, it seems surprising that instances of this kind of mischief are not much more common than they are. Cherry-stones, swallowed in great quantities, have occasioned numerous deaths; and there have been instances even of the seeds of straw-berries collecting into a lump in the guts, and causing violent disorders, which could not be cured without great difficulty.

Fruit-Trees. See Horticulture.

FRUITERY, a place for keeping fruit; a fruit-house or fruit-loft. A fruitery should be kept as free from humidity as possible.

FRUMENTACEOUS, a term applied by botanists to all such plants as have a conformity with wheat, in respect of their fruits, leaves, ears, or the like.

FRUMENTARII were a species of soldiers or archers under the Western Empire. They are first mentioned in the reign of the Emperor Adrian, who made use of them as a kind of spies. They did not form any particular corps distinct from the rest of the forces, but there was a certain number of them in each legion. It is supposed that they were at first a number of young persons, disposed by Augustus throughout the provinces, particularly on all the great roads, to acquaint the emperor, with all expedition, of every thing that happened. Afterwards they were incorporated into the troops themselves, where they still retained their ancient name. As their principal office was the giving intelligence, they were often joined with the *curiosi*, with whom they agreed in that part of their office. Their name of *frumentarii* is derived from their being also a sort of purveyors to the armies, cities, and so on, collecting all the corn from the several provinces to furnish the commonwealth.

FRUMENTATION, in Roman antiquity, a largess of corn bestowed on the people. This practice of giving corn to the people was very ancient among the Romans, and frequently used to soothe the turbulent passions of the populace. At first the number of those to whom this largess was given was indeterminate, but it was fixed by Augustus at 200,000.

FRUSTUM, in *Mathematics*, a part of some solid body which is separated from the rest.

The frustum of a cone is the part that remains when the top is cut off by a plane parallel to the base. It is likewise called a *truncated cone.*

The frustum of a pyramid is also what remains after the top is cut off by a plane parallel to its base.

The frustum of a globe or sphere is any part of it which is cut off by a plane. The solid contents of it may be found by the following rule: To three times the square of the semidiameter of the base add the square of its height; then multiply that sum by the height, and this product multiplied by ·5236 gives the solidity of the frustum.

FRUTEX, a shrub. Shrubs, according to Linnæus, make a branch of the seventh family in the vegetable kingdom; and are distinguished from trees, in their coming up without buds. But this distinction is not universal, although it is generally correct with regard to those of Europe. Nature has made no absolute distinction between trees and shrubs. *Frutex*, in its general acceptation, is a plant whose trunk is perennial, gemmiparous, woody, dividing and subdividing into a great number of branches. In short, it is the epitome of a tree, as exemplified in the rose-bush.

FRY, in *Zoology*, signifies the spawn, or rather young, of fish.

FRYBURG, or Freiburg, one of the cantons of Switzerland. It is bounded on the north and the east by the canton of Berne, on the south and west by that of Neufchatel, and on the north-west by the lake of Neufchatel. It is 506 square miles in extent, and contains 67,900 inhabitants, dwelling in 18,384 houses. It is divided into twelve circles, called bailiwicks.

The canton is full of mountains and hills, but in the north are some extensive and fruitful plains. None of the elevations within the district are more than 6000 feet in height. The religion of the inhabitants is generally Catholic; but there are about 7000 Protestants in the bailiwick of Murten, who are allowed the free exercise of their religion. The chief means of subsistence are the dairy and the Alpine common husbandry. It is said that the canton contains 34,900 head of black cattle, and that the milch cows yield 24,000 quintals of Gruer cheese. Some horses are bred for sale. Neither wine nor corn is raised in quantities equal to the demand, and the greater part of the people subsist on potatoes; so that when a failure of that crop occurs, their sufferings are excessive. Flax and hemp are cultivated so as to supply the domestic demand.

The only occupations besides husbandry are linen weaving, for the use of the several families, and plaiting of straw for hats and other purposes, which is sent to other districts. The government is intrusted to a greater and smaller council; the first consisting of 116 members, and the latter of 29. The laws are framed by the small council, and rejected or approved by the greater. In each bailiwick is an amtman or bailiff, chosen by the councils, who administers the laws. The church is in possession of the larger portion of the landed property. The canton pays a contribution to the general funds of the confederation, of 18,600 francs, and provides a contingent of 1240 men to the army of the union. The chief place is the city of the same name on the Soane, on a sandy rock, surrounded with ancient walls, defended by lofty towers. It is a place of no industry, but has four churches, besides a beautiful one belonging to the Jesuits, eight monastic establishments, a college for Catholics, 1079 houses, and 6460 inhabitants. Long. 7. 4. 48. E. Lat. 46. 48. 30. N.

FRYTH, John, a martyr to the Protestant religion in the reign of Henry VIII. He was the son of an innkeeper at Seven Oaks in Kent, and educated in King's College, Cambridge, where he took the degree of bachelor of arts. Thence he removed to Oxford, and was made a junior canon of Wolsey's College. Not long after he entered that university, he became acquainted with William Tyndale, a zealous Lutheran, with whom he had frequent intercourse on the abuses in religion. Fryth became a convert to Lutheranism, and publicly avowed his opinions. He was apprehended, examined by the commissary, and confined to his college. At length, having obtained his liberty, in 1528 he went over to Germany, where he continued about two years, and then returned to England more confirmed in his religious sentiments. Finding but few associates, he wandered about from place to place, and was at last taken up at Reading as a vagrant, and put in the stocks, where he remained until he had nearly expired with hunger. He was at length relieved by the humanity of Leonard Cox, a schoolmaster, who finding him a man of letters, procured his enlargement, and administered to his necessities. Fryth now took his departure for London, where, with more zeal than prudence, he began to make proselytes. He was soon however apprehended, by orders of the chancellor Sir Thomas More, and sent prisoner to the Tower. Refusing to recant his opinions, he was condemned to the flames, and accordingly burnt in Smithfield, on the 4th of July 1533. He left several pieces behind him, which were printed in folio in 1573.

FUAGE, in old English writers, a tax of 12d. levied during the reign of Edward III. for every fire.

FUCINUS Lacus, a lake in the central parts of Italy, to the north-east of Rome, surrounded by a chain of lofty mountains inhabited by the ancient Marsi. Its usual circumference was about forty miles; but there were times when the volume of its waters was much increased, and it enclosed a larger space than this. The purity and transparency of its waters, and the grateful breezes from its surface, were frequent themes of praise to the ancient poets; but the inhabitants on its banks suffered severely from its inundations. Among other magnificent projects to benefit his fellow-citizens, Julius Cæsar entertained the idea of cutting a canal to drain the water from the lake and convey it to the Tiber, by which he imagined that he would benefit the inhabitants on its banks, and at the same time increase the volume of water in the Tiber, so as to render it navigable to vessels of greater burden. His murder put an end to the attempt; and it was not till the reign of Caligula that any further steps were taken. It was the Emperor Claudius, however, who first took effectual measures to accomplish the undertaking; and he directed that the waters should be drained off into the river Liris, now Garigliano. Suetonius states that 30,000 men were employed for eleven years in cutting this emissary; but Feboni, a modern Italian geographer, satisfactorily proves that such a number could not have been employed for eleven years on this work, gigantic though it was. It is probable that the number in the Manuscripts was originally 3000. This emissary is still in existence, though from neglect it has ceased to be of any advantage to the inhabitants. In the plain of Capistrello the openings are still to be seen which were intended to give light to the workmen in the interior, much in the same way as the Grotto di Posilipo at Naples is now lighted; and alongside of these openings there are smaller perforations in the form of a spiral stair-case, to enable the workmen to descend. The government of Naples has latterly employed engineers to report on the possibility of clearing out this emissary, and of thereby recovering much fertile land now covered by the waters of the lake; but whether it has sufficient funds and sufficient energy to succeed, remains to be proved. (See Feboni *Histor. Marsorum*, lib. ii. c. 1; *Descrizione delle antiche et moderne città accosto de' fiumi Liri e Fibreno*, Napoli, 1824.)

FUCUS, a name given by the ancients to certain dyes and paints. By this name they called a purple sea plant used by them in dyeing woollen and linen articles of that colour. It was very beautiful, but fugitive, and in a short time wholly disappeared. Such is the account given of it by Theophrastus.

The women of those times also used a substance called *fucus*, with which they stained their cheeks red; and many have supposed, from the same word expressing both dyes, that they were the same. But this, on a strict inquiry, proves not to be the case. The Greeks called every thing *fucus* which would stain or paint the flesh. But this peculiar substance used by the women to paint their cheeks was distinguished from the others by the name of *rizion* among the more correct writers, and was in fact a root brought from Syria into Greece. The Latins, in imitation of the Greek name, called this root *radicula*; and Pliny very erroneously confounds the plant with the *radix lunaria*, or *struthion* of the Greeks.

The word *fucus* was in those times become such an universal name for paint, that the Greeks and Romans had a *fucus metallicus*, which was the ceruse employed in painting the neck and arms white; after which they used the *purpurissum*, or red fucus of the *rizium*, to colour the cheeks. In after times they also used a peculiar *fucus* or paint for the purpose, prepared of the *creta argentaria*, or silver-chalk, and some of the rich purple dyes that were in use at that time. This seems to have been a colour something resembling our rose-pink.

FUEGO, Fogo, or St Philips, one of the Cape de Verd Islands, situated to the west of St Jago. It is chiefly remarkable on account of a volcano issuing from the top of a mountain which may be said in a manner to constitute the whole island. The island is not of great value, there being only a few plantations along the coast, belonging to the Portuguese, and cultivated by negroes. Long. 24. 20. W. Lat. 15. 0. N.

FUEGOS Isle, one of the most southerly of the Philippines, about forty miles in circumference. Long. 123. 25. E. Lat. 9. 25. N.

FUEL, in its widest acceptation, denotes all bodies which are combustible, and used in making fires, such as coal, wood, turf, peat, and the like.

FUENTE-RRABIA, a city and fortification of Spain, in the province of Guipuzcoa, at the mouth of the Bidassoa, on the frontier towards France. The harbour has a bar at its mouth, which forbids the entrance of vessels except at high tide; and even then those only from forty to fifty tons burden can enter. It was made a place of considerable note by the operations of that war which preceded the celebrated battle of Roncesvalles. Its latitude is 43. 21. 36. N. and its longitude 1. 16. 7. west from London. It contains a population of 1700 souls.

FUGA Isle, one of the Philippines, about thirty-five miles in circumference, and situated due north from the large island of Luzon or Luconia. Long. 121. 30. E. Lat. 19. N.

FUGALIA, in Roman antiquity, a feast supposed by some to be the same with the *regifugium*, held on the 24th of February, in memory of the expulsion of the kings and the abolition of monarchical government. Others again distinguish the fugalia from the regifuge. And some think that the fugalia was the same with the *poplifugia*, or the feast of Fugia, the goddess of joy, occasioned by the rout of an enemy, for which reason the people abandoned themselves to riot and debauchery.

FUGITIVE, a person compelled to expatriate himself, or abandon his place of abode, on account of his debts or misdemeanours.

FUGUE, in *Music* (from the Latin *fuga*, a flight), is a piece of music, either vocal or instrumental, or both, in which one part leads off a succession of notes forming the subject. This is taken up successively by the other parts, and is dispersed through the movement according to the taste of the composer. There are three kinds of fugues; the simple fugue, which contains only one subject, and is hence the least intricate; the double fugue, which consists of two subjects, occasionally intermingled and moving together; and the counter fugue, in which the subjects move in a direction contrary to each other. In all fugues, the parts fly after or follow each other, and hence the general name by which this kind of music is designated. See the article Music.

FULCRUM, in *Mechanics*, the prop or support by which a lever is sustained.

FULDA, a province of the principality of Hesse Cassel, in Germany. It was formerly an independent ecclesiastical state, governed by its own bishop, and was consigned to Hesse by the congress of Vienna. It extends over 644 square miles, and comprehends four cities, 223 villages, and thirty-three hamlets; and the population amounted in 1816 to 66,756 individuals. The province is generally hilly, and one fourth of it consists of woods. It is the country of basalt, which is to be seen in all its variety of forms. The elevation is great, and the climate raw and cold, but it is said to be salubrious. The product of corn is unequal to the consumption, but potatoes have been much extended, which serve as a substitute for grain. Although the cultivation of flax is in a backward state, the produce of it forms the chief source of the wealth of the province. The conversion of the flax into linen cloth, chiefly of the coarser kind, is almost the only branch of industry that is pursued. It is divided by the present ruler into eight bailiwicks. The capital, Fulda, takes its name from the navigable river of that name. It is an ancient but well-built town, 650 feet above the level of the sea, but overlooked by the castle in which its former clerical sovereign resided, the excellence and quantity of whose wines have been much celebrated. The city contains 995 houses, and 7468 inhabitants, who follow a great variety of trades, mostly on a small scale. Long. 9. 50. 40. E. Lat. 50. 33. 57. N.

FULHAM, a large village of the county of Middlesex, in the hundred of Ossulton, four miles from London. It is beautifully situated on the left bank of the Thames, over which is a bridge to Putney in Surrey. The palace of the Bishop of London, and several other houses scarcely inferior to it, with the grounds and gardens around them, are very interesting objects; and even those of less pretensions are elegant. The chief pursuit of the labouring inhabitants is gardening; and it supplies the metropolis with a large portion of the fruit and vegetables it consumes. The population amounted in 1801 to 4428, in 1811 to 5903, in 1821 to 6492, and in 1831 to 7317.

FULLER, DR THOMAS, an eminent historian and divine of the church of England, was born at Aldwinckle, in Northamptonshire, about the year 1608. After receiving the rudiments of education at home, he was sent to Cambridge, where he took the degree of bachelor of arts in 1624, and that of master of arts in 1628, after having much distinguished himself for industry and talent. He was chosen minister of St Bennet's parish, Cambridge, and became very popular as a pulpit orator. In the year 1631 he obtained a fellowship at Sidney College, and was collated to a prebend in the cathedral of Salisbury. The same year he published a poem entitled *David's hainous sin, heartie repentance, and heavie punishment.* This was his first production, and it is now little known. Having taken priest's orders, he was instituted to the rectory of Broad Winsor, in Dorsetshire. In 1635 he proceeded bachelor of divinity. His *History of the Holy War* first appeared in 1640; soon after the publication of which work he removed to London, and was chosen lecturer at the Savoy church in the Strand. He was member of the convocation which met in 1640, and was one of the select committee appointed to draw up new canons for the church. In 1642 he published a loyal sermon, which endangered his personal safety; and shortly afterwards he joined the king at Oxford. Before he left London, however, his *Holy State*, had appeared. After the loss of the battle of Cheviton Down in 1644, he went first to Basin-house, and then to Exeter, where he was appointed chaplain to the infant princess Henrietta Maria. After the surrender of Exeter in 1646, he went to London, and was chosen lecturer, first of St Clement's Church, then of St Bride's. About the year 1648 the Earl of Carlisle presented him with the rectory of Waltham Abbey in Essex. Two years afterwards he published *A Pisgah sight of Palestine and the confines thereof; with the history of the Old and New Testament acted thereon*, in folio, with maps and views. In 1650 appeared his *Abel Redivivus*, which consists of lives of reformers, martyrs, divines, and the like. In 1656 he published the *Church History of Britain, from the birth of Jesus Christ to the year* 1648; to which was subjoined *The History of the University of Cambridge since the Conquest*, and the *History of Waltham Abbey*. He removed to Crauford in Middlesex in 1658, which living had been conferred upon him. At the restoration he was reinstated in his prebend of Salisbury. Soon after he obtained the degree of doctor of divinity, was appointed chaplain to his majesty, and destined for the episcopal bench. This last preferment, however, was prevented by his death, which took place on the 15th of August 1661. In the year following, his principal literary work, *The Worthies of England* was published in folio. This production is valuable on account of the information which it contains relative to the provincial history of the country, and the fund of anecdote and acute observation on men and manners which are profusely scattered throughout it. It is, however, tainted with that elaborate display of quaint conceit, which to a certain extent deteriorates all his productions. But this affectation was the vice of the age, as well as of the author of *The Worthies of England.* Dr Fuller was remarkable for the strength of his memory, and many almost incredible anecdotes are related of his powers in this respect. It is positively affirmed that he could repeat verbatim a sermon of ordinary length after once hearing it. A new edition of his Worthies, with his life prefixed, appeared in 1810, in two vols. 4to.

FULLER, a workman employed in the woollen manufactories to mill or scour cloths, serges, and other stuffs, in order to render them more thick, compact, and durable.

FULLER's Earth, a species of clay much used in scouring woollen cloth and other stuffs, and thus freeing them from oil and grease. Its colour is greenish white, and different other shades of green. Sometimes it has a spotted colour. It is opaque, shining, and resinous in the streak, very soft, and possesses a greasy feel. It falls into powder with water, and melts into a brown spongy scoria before the blowpipe. In England it occurs in beds; the best is found in Buckinghamshire and Surrey. When good it has a greenish-white or greenish-grey colour, falls into powder when put into water, appears to dissolve on the tongue like butter, communicates a milky hue to water, and deposits very little sand when mixed with boiling water. It is used by fullers in taking grease out of cloth before the soap is applied; and as it contains a considerable proportion of alumina, the remarkable detersive property which woollen cloth possesses depends upon the alumina which it thus obtains. Malcolm, in his *Survey of Surrey*, published in 1809, states the consumption of fuller's earth for the whole kingdom to be about 6300 tons, and that Surrey alone furnished 4000 tons.

FULLERY, a place where cloths, &c. are fulled.

FULLING, the art of cleansing, scouring, and pressing cloths, stuffs, and stockings, to render them stronger, closer, and firmer: called also *milling*. Pliny (lib. vii. cap. 56) assures us that one Nicias, the son of Hermias, was the first inventor of the art of fulling; and it appears by an inscription, quoted by Sir G. Wheeler, in his *Travels through Greece*, that this same Nicias was a governor in Greece in the time of the Romans.

The asperities upon the surface of wool, and the disposition which it has to assume a progressive motion towards the root, render the spinning of wool, and making it into cloth, difficult operations. In order to spin wool, and afterwards convert it into cloth, its fibres must be covered with a coating of oil, which, filling the cavities, renders the asperities less sensible; in the same way as oil renders the surface of a very fine file less rough when rubbed over it. When the piece of cloth is finished, it is carried to the fulling-mill, where it is beat with hammers in a trough full of water, in which some fuller's earth has been mixed, for the purpose of cleansing it from the oil. The clay combines with the oil, which it separates from the cloth, and both together are washed away by the fresh water which is brought to it by the machine.

But the scouring of the cloth is not the only object in view in fulling it. The alternate pressure given by the mallets to the piece of cloth occasions, especially when

Fulling.

the scouring is pretty far advanced, an effect analogous to that which is produced upon hats by the hands of the hatters. The fibres of wool which compose one of the threads, whether of the warp or the woof, assume a progressive movement, introduce themselves among those of the threads nearest to them, then into those which follow; and thus, by degrees, all the threads, both of the warp and the woof, become felted together. The cloth, after having by this means become shortened in all its dimensions, partakes both of the nature of cloth and of that of felt; it may be cut without being subject to ravel, and, on that account, we are not obliged to hem the edges of the pieces of which cloths are made. Lastly, as the threads of the warp and those of the woof are no longer so distinct and separated from each other, the cloth, which has acquired a greater degree of thickness, forms a warmer clothing. Knit worsted also is, by fulling, rendered less apt to run in case a stitch should happen to drop in it.

The fulling of cloths and other stuffs is performed by a kind of water-mill, thence called a *fulling* or *scouring-mill.*

These mills, excepting in what relates to the millstones and hopper, are much the same with corn-mills; and there are even some which serve indifferently for either use, corn being ground, and cloths fulled, by the motion of the same wheel. Hence in some places, particularly in France, the fullers are called *millers*; as grinding corn and milling stuffs at the same time.

The principal parts of the fulling-mill are the wheel, with its trundle, which gives motion to the tree or spindle, whose teeth communicate it to the pestles or stampers, which are hereby raised and made to fall alternately, according as its teeth catch on or quit a kind of latch in the middle of each pestle. The pestles and troughs are of wood; each trough having at least two, sometimes three pestles, at the discretion of the master, or according to the force of the stream of water. In those troughs are laid the cloths, stuffs, &c. intended to be fulled; then, letting the current of water fall on the wheel, the pestles are successively let fall thereon, and by their weight and velocity stamp and press the stuffs very strongly, which by this means become thickened and condensed. In the course of the operation they sometimes make use of urine, sometimes of fuller's earth, and sometimes of soap. To prepare the stuffs to receive the first impressions of the pestle, they are usually laid in urine, then in fuller's earth and water, and lastly in soap dissolved in hot water. Soap alone would do very well, but this is expensive, though fuller's earth, in the way of our dressing, is scarcely inferior to it; but then it must be well cleared of all stones and grittinesses, which are apt to make holes in the stuff.

Method of fulling cloths and woollen stuffs with soap.—A coloured cloth of about forty-five ells is to be laid in the usual manner in the trough of a fulling-mill, without first soaking it in water, as is commonly practised in many places. To full this trough of cloth, fifteen pounds of soap are required, one half of which is to be melted in two pails of river or spring water made as hot as the hand can well bear it. This solution is to be poured by degrees upon the cloth, in proportion as it is laid in the trough; and thus it is to be fulled for at least two hours, after which it is to be taken out and stretched. This done, the cloth is immediately returned into the same trough, without any new soap, and there fulled two hours more. Then taking it out, they wring it well, to express all the grease and filth. After the second fulling, the remainder of the soap is dissolved as in the former, and cast four different times on the cloth, remembering to take out the cloth every two hours, to stretch it, and undo the plaits and wrinkles it has acquired in the trough. When it is perceived to be sufficiently fulled, and brought to the quality and thickness required, they scour it in hot water, keeping it in the trough till it be quite clean. With regard to white cloths, these full more easily and in less time than coloured ones, and thus require only a third part of the soap.

Fulmination
||
Funchal.

FULMINATION, in *Chemistry.* Many chemical combinations are accompanied by a loud report. This is termed fulmination, or more commonly detonation.

FULMINATION, in the Romish canon law, is a sentence of a bishop, official, or other ecclesiastic appointed by the pope, by which it is decreed that some bull sent from the pope shall be executed.

FULTA, a large village of Hindustan, in the province of Bengal, situated on the east bank of the river Hooghly, twenty miles south-south-west in a straight line from Calcutta, but much more by the windings of the river. It has safe anchorage for ships, where they are protected from the swell of the sea, and where the anchors hold fast, the bottom being stiff clay.

FULNEK, a town of the circle of Prerau, in the Austrian province of Moravia. It contains 400 houses, and 3045 inhabitants, among whom are many cloth manufacturers. This was the original spot whence issued the respectable Protestant sect of the United Brethren, known in Germany by the name of Hernhutters or Zingendorfers, and in England called Moravians. The establishment in Yorkshire of this sect is called by the name of the place of its origin.

FUMIGATION, in *Chemistry,* a kind of calcination, when metals or other hard bodies are corroded or softened by receiving certain fumes for that purpose.

FUNAMBULUS, among the Romans, was what we call a *rope-dancer,* and the Greeks *schœnobates.*

There was a funambulus, it seems, who performed at the time when the Hecyra of Terence was acted; and the poet complains that the spectacle prevented the people from attending to his comedy. *Ita populus studio stupidus in* funambulo, *animum occuparat.*

At Rome the funambuli first appeared under the consulate of Sulpicius Pæticus and Licinius Stolo, who were the first to introduce scenic representations. It is added, that they were first exhibited in the island of the Tiber, and that the censors Messala and Cassius afterwards promoted them to the theatre.

In the *Floralia,* or *Ludi Florales,* held under Galba, there were funambulatory elephants, as we are informed by Suetonius. Nero also gave similar entertainments in honour of his mother Agrippina. Vopiscus relates the same of the time of Carinus and Numerianus.

FUNCHAL, a sea-port town on the island of Madeira, of which it is the capital. It is situated in the centre of a large bay, the extremities of which are formed by two steep promontories. The city is by no means handsomely built, the only respectable looking houses being those belonging to English merchants. The streets are narrow, irregular, and dirty. Funchal contains six parishes, one cathedral and seven other churches, four convents, and three hospitals. The trade of Funchal consists almost entirely in the exportation of the wine which the island produces, and which is so much sought after in the British dominions and settlements. It is principally carried on by English merchants, who are numerous, and constitute the most opulent portion of the inhabitants. The Madeira wine is exported not only to Britain, but to the East and West Indies. The bay does not afford secure anchorage, and landing is also attended with danger, on account of the heavy surf which breaks upon the shore. The harbour is defended by several batteries and a castle, but on the land side the town is defenceless, a great oversight. Ships, by touching at Funchal, may obtain, besides water, wine, fruits, and vegetables, very reasonably; but fresh meat and poultry are high priced, and difficult to be obtained. The population amounts to about 15,000. Long. 17. 4. W. Lat. 32. 38. N.

FUNCTION, the act of fulfilling the duties of any employment.

Function is a term used in analytics for an algebraical expression in any way compounded of a certain letter or quantity with other quantities or numbers; and the expression is said to be a function of that letter or quantity. Thus $a - 4x$, or $ax + 3x^2$, or $2x - a\sqrt{a^2 - x^2}$, or x^c, or c^x, is each of them a function of the quantity x.

FUND, in general, signifies any sum of money appropriated for a particular purpose. Thus, that part of the national revenue which is set apart for the payment of the national debt is called the *sinking fund*. But, when we speak of *the funds*, we generally mean the large sums which have been lent to government, and constitute the national debt; and for which the lenders, or their assignees, receive interest from revenues allotted for that purpose. The term *stock* is used in the same sense; and is also applied to the sums which form the capital of the Bank of England, the East India and South Sea Companies; the proprietors of which are entitled to a share of the profits of the respective companies.

FUNDAMENTAL, in general, something that serves as a base or foundation for another.

Fundamental, in *Music*. A *fundamental sound* is that which forms the lowest note of the chord, and from which are deduced the harmonical relations of the rest; or which serves for a key to the tone. The *fundamental bass* is that which serves for a foundation to the harmony. A *fundamental chord* is that whose base is fundamental, and in which the sounds are ranged in the same order as when they are generated, according to the experiment so often repeated by M. d'Alembert in his Preliminary Discourse and Elements of Music. As this order removes the parts to an extreme distance one from the other, they must be approximated by combinations or inversions; but if the bass remains the same, the chord does not for this reason cease to bear the name of *fundamental*. Such an example is this chord, *ut mi sol*, included in the interval of a fifth: whereas, in the order of its generation, *ut sol mi*, it includes a tenth, and even a seventeenth; since the fundamental *ut* is not the fifth of *sol*, but the octave of that fifth.

Fundamental Bass. This part in music is, according to Rousseau, and indeed according to all authors who have proceeded upon M. Rameau's experiment, in its primary idea, that bass which is formed by the fundamental notes of every perfect chord that constitutes the harmony of the piece; so that under each chord it causes to be heard, or understood, the fundamental sound of that particular chord; that is to say, the sound from whence it is derived by the rules of harmony. From which we may see that the fundamental bass can have no other contexture than that of a regular and fundamental succession, without which the procedure of the upper parts would be illegitimate.

To understand this well, it is necessary to be known, that, according to the system of Rameau, which Rousseau has followed in his Dictionary, every chord, although composed of several sounds, can only have one which is its fundamental, viz. that which produces this chord, and which is its bass according to the direct and natural order. Now, the bass which prevails under all the other parts does not always express the fundamental sounds of the chords; for amongst all the sounds which form a chord, the composer is at liberty to transfer to the bass that which he thinks preferable; regard being had to the procedure of that bass, to the beauty of the melody, and, above all, to the expression. In this case, the real fundamental sound, instead of retaining its natural station, which is in the bass, will either be transferred to some of the other parts, or perhaps even entirely suppressed, and such a chord is called an *inverted* chord. For farther particulars relative to this subject, see Music.

FUNDI, in *Ancient Geography*, a town of Latium, on the Via Appia, near Cajeta, enjoying all the privileges of Roman citizens, except the right of suffrage and of magistracy. Now *Fondi*, a city of Naples, on the confines of the pope's dominions.

FUNDING SYSTEM.

Under this head we propose, first, to give an account of the rise, progress, and modifications of the Sinking Fund, accompanied with some observations as to the probability of its accomplishing the object for which it was instituted; and, next, briefly to consider the best mode of providing for our annual expenditure both in war and peace,—an inquiry necessarily involving the policy of that System of Funding of which the sinking fund was long considered as one of the principal recommendations and props.

I. On the subject of the sinking fund, we shall have frequent occasion to refer to the statements of Professor Hamilton, in his very valuable publication entitled *An Inquiry concerning the Rise and Progress, the Redemption, and Present State of the National Debt of Great Britain.* "The first plan for the discharge of the national debt, formed on a regular system, and conducted with a considerable degree of firmness," says this able writer, "was that of the sinking fund, established in 1716. The author of this plan was the Earl of Stanhope; but as it was adopted under the administration of Sir Robert Walpole, it is commonly denominated from him. The taxes which had before been laid on for limited periods, being rendered perpetual, and distributed among the *South Sea*, *Aggregate*, and *General Funds*, and the produce of these funds being greater than the charges upon them, the surpluses, together with such further surpluses as might afterwards accrue, were united under the name of the *Sinking Fund*, being appropriated for the discharge of the national debt, and expressly ordained to be applicable to no other purpose whatever. The legal interest had been reduced from six to five per cent. about two years before; and as that reduction was unfavourable to the commercial state of the country, government was now able to obtain the same reduction on the interest of the public debt, and apply the savings in aid of the sinking fund. In 1727 a further reduction of the interest of the public debt, from five to four per cent. was obtained, by which nearly L.400,000 was added to the sinking fund. And, in the year 1749, the interest of part of the debt was again reduced to three and a half per cent. for seven years, and to three per cent. thereafter; and, in 1750, the interest of the remainder was reduced to three and a half per cent. for five years, and to three per cent. thereafter, by which a further saving of about L.600,000 was added to the sinking fund."

This sinking fund was for some time regularly applied to the discharge of debt. The sums applied from 1716 to 1728 amounted to L.6,648,000, being nearly equal to the additional debt contracted in that time. From 1728 to 1733, L.5,000,000 more were paid. The interest of several loans, contracted between 1727 and 1732, was charged upon surplus duties, which, according to the original plan, ought to have been appropriated to the sinking fund.

"Soon after, the principle of preserving the sinking fund inviolable was abandoned. In 1733, L.500,000 was taken from that fund, and applied to the services of the year." "In 1734, L.1,200,000 was taken from the sinking fund for current services; and in 1735 it was anticipated and mortgaged." The produce of the sinking fund, at its commencement in 1717, was L.323,437. In 1776, it was at its highest amount, being then L.3,166,517; in 1780, it had sunk to L.2,403,017.

"The sinking fund would have risen higher, had it not been depressed, especially in the latter period, by various encroachments. It was charged with the interest of several loans, for which no provision was made; and, in 1772, it was charged with an annuity of L.100,000, granted in addition to the civil list. During the three wars which were waged while it subsisted, the whole of its produce was applied to the expense of the war; and even in time of peace, large sums were abstracted from it for current services. According to Dr Price, the amount of public debt paid off by the sinking fund, since its first alienation in 1733, was only three millions, paid off in 1736 and 1737; three millions in the peace between 1748 and 1756; two millions and a half in the peace between 1763 and 1775; in all, eight millions and a half.

"The additional debt discharged during these periods of peace was effected, not by the sinking fund, but from other sources.

"On the whole, this fund did little in time of peace, and nothing in time of war, to the discharge of the national debt. The purpose of its inviolable application was abandoned, and the hopes entertained of its powerful efficacy entirely disappointed. At this time, the nation had no other free revenue, except the land and malt-tax granted annually; and as the land-tax during peace was then granted at a low rate, their produce was inadequate to the expense of a peace establishment, on the most moderate scale. This gave occasion to encroachments on the sinking fund. Had the land-tax been always continued at 4s. in the pound, it would have gone far to keep the sinking fund, during peace, inviolate."

This fund terminated in 1786, when Mr Pitt's sinking fund was established.

To constitute this new fund, one million per annum was appropriated to it by parliament, the capital stock of the national debt then amounting to L.238,231,248.

This million was to be allowed to accumulate at compound interest, by the addition of the dividends on the stock which it purchased, till it amounted to four millions, from which time it was not further to increase. The four millions were then annually to be invested in the public funds as before, but the dividends arising from the stock purchased were no longer to be added to the sinking fund for the purpose of being invested in stock; they were to be applied to the diminution of taxes, or to any other object that parliament might direct.

A further addition to this fund was proposed by Mr Pitt, and readily adopted, in 1792, consisting of a grant of L.400,000 arising from the surplus of the revenue, and a further annual grant of L.200,000; but it was expressly stipulated that no relief from taxation should be given to the public, as far as this fund was concerned, till the original million, with its accumulations, amounted to four millions. The addition made to the fund, by the grant of L.400,000, and of L.200,000 per annum, together with the interest on the stock these sums might purchase, were not to be taken or considered as forming any part of the four millions. At the same time (in 1792), a sinking fund of a new character was constituted. It was enacted, that besides a provision for the interest of any loan which should thenceforward be contracted, taxes should also be imposed for a one per cent. sinking fund on the capital stock created by it, which should be exclusively employed in the liquidation of such particular loan; and that no relief should be afforded to the public from the taxes which constituted the one per cent. sinking fund, until a sum of capital stock, equal in amount to that created by the loan, had been purchased by it. That being accomplished, both the interest and sinking fund were to be applicable to the public service. It was calculated, that, under the most unfavourable circumstances, each loan would be redeemed in forty-five years from the period of contracting for it. If made in the three per cent., and the price of that stock should continue uniformly at 60, the redemption would be effected in twenty-nine years.

In the years 1798, 1799, and 1800, a deviation was made from Mr Pitt's plan of providing a sinking fund of one per cent. on the capital stock created by every loan; for the loans of those years had no sinking fund attached to them. The interest was charged on the war-taxes; and, in lieu of a one per cent. sinking fund, it was provided that the war-taxes should continue during peace, to be then employed in their redemption, till they were all redeemed.

In 1802, Lord Sidmouth, then Mr Addington, was chancellor of the exchequer. He being desirous of liberating the war-taxes from the charges with which they were encumbered, proposed to raise new annual permanent taxes for the interest of the loans of which we have just spoken, as well as for that which he was under the necessity of raising for the service of the year 1802; but he wished to avoid loading the public with additional taxes for a one per cent. sinking fund on the capitals created by those loans, and which capitals together amounted to L.86,796,375. To reconcile the stockholder to this arrangement, he proposed to rescind the provision which limited the fund of 1786 to four millions, and to consolidate the old and the new sinking funds, *i. e.* that which arose from the original million per annum, with the addition made to it of L.200,000 per annum subsequently granted, and that which arose from the one per cent. on the capital of every loan that had been contracted since 1792. These combined funds he proposed should from that time be applied to the redemption of the whole debt without distinction; that the dividends arising from the stock purchased by the commissioners for the reduction of the national debt should be applied in the same manner; and that this arrangement should not be interfered with till the redemption of the whole debt was effected.

In February 1803 the debt amounted to L.480,572,470, and the produce of the joint sinking fund to L.6,311,626. In 1786 the proportion of the sinking fund to the debt was as 1 to 238, in 1792 as 1 to 160, and in 1803 as 1 to 77.

This was the first deviation of importance from Mr Pitt's plan; and this alteration made by Lord Sidmouth was not, perhaps, on the whole, injurious to the stockholder. He lost, indeed, the immediate advantage of an additional sinking fund of L.867,963, the amount of one per cent. on the capitals created by the loans of 1798, 1799, 1800, and 1802; "but in lieu," says Mr Huskisson, "of this sinking fund, a reversionary sinking fund was created, to commence, indeed, in about twelve to fifteen years from that time, but to be of such efficacy when it should commence, and to be so greatly accelerated by subsequent additions in its progress, as, under the most unfavourable supposition, to be certain of reducing the whole of this debt within forty-five years. This reversionary sinking fund was to arise in the following manner; by continuing the *old* sinking fund at *compound* interest, *after* it should have reached its *maximum* of four millions; and by continuing also the *new* sinking fund or aggregate of the one per cents of the loans since 1792, after such one per cents should have liquidated the several loans in respect of which they are originally issued. There is nothing, therefore, in the act of 1802 which is a departure from the spirit of the act of 1792."[1]

The next alteration that was proposed to be made in the sinking fund was in 1807, by Lord Henry Petty, then chancellor of the exchequer. His plan was extremely complicated, and had for its object, that which ministers are too much disposed at all times to view with complacency, namely, to lessen the burden of taxation at the present, with the certainty of aggravating its pressure at a future day.

It was estimated by Lord Henry Petty, that the expenses of the country during war would exceed its permanent annual revenue by thirty-two millions. For twenty-one millions of this deficiency, provision was made by the war-taxes; the property-tax amounting to L.11,500,000, and the other war-taxes to L.9,500,000. The object then was to provide eleven millions per annum. If this sum had been raised by a loan in the three per cents, when their price was 60, provision must have been made by taxes for the interest and sinking fund, so that each year we should have required additional taxes to the amount of L.733,333. But government wished to raise the money without imposing these additional taxes, or by the imposition of as few as circumstances would permit. For this purpose they proposed to raise the money required, by loan, in the usual way, but to provide, out of the war-taxes, for the interest and redemption of the stock created. They proposed to increase the sinking fund of every such loan, by taking from the war-taxes ten per cent. on its amount for interest and sinking fund, so that if the interest and management absorbed only five per cent., the sinking fund would also amount to five per cent.; if the interest amounted to four per cent., the sinking fund would be six per cent. The sums proposed to be borrowed in this manner were twelve millions for the first three years, fourteen millions for the fourth, and sixteen millions for each succeeding year; making together, in fourteen years, 210 millions, for which, at the rate of ten per cent., the whole of the war-taxes would be mortgaged. It was calculated, that, by the operation of the sinking fund, each loan would be paid off in fourteen years from the time of contracting for it; and, therefore, the L.1,200,000 set apart for the interest and sinking fund of the first loan would be liberated and available for the loan of the fifteenth year. At the end of fifteen years a like sum would be set free, and so on each succeeding year; and thus loans might be continued, on this system, without any limitation of time.

But these successive sums could not be withdrawn from the war-taxes, for interest and sinking fund on loans, and be at the same time applied to expenditure; and, therefore, the deficiency of eleven millions, for which provision was to be made, would, from year to year, increase as the war-taxes became absorbed; and at the end of fourteen years, when the whole twenty-one millions of the war-taxes would be absorbed, instead of eleven millions, the deficiency would be thirty-two millions.

To provide for this growing deficiency, it was proposed to raise supplementary loans, increasing in amount from year to year; and for the interest and sinking fund on such loans, provision was to be made in the usual way by annual permanent taxes; on these loans the sinking fund was not to be more than one per cent.

By the plan proposed, in fifteen years from its commencement, on the supposition of the war continuing so long, the regular loan would have been twelve millions, and the supplementary loan twenty millions.

If the expenses of the war should *have exceeded* the estimate then made, provision for such excess was to *have been* made by other means.

The ministry who proposed this plan not continuing in office, it was acted upon only for one year. "In comparing the merit of different systems," says Dr Hamilton, "the only points necessary to be attended to are the amount of the loans contracted—the part of these loans redeemed—the interest incurred—and the sums raised by taxes. The arrangements of the loan under different branches, and the appropriation of particular funds for payment of their respective interests, are matters of official regulation; and the state of the public finance is neither the better nor the worse, whether they be conducted one way or other. A complicated system may perplex and mislead, but it can never ameliorate." Accordingly, Dr Hamilton has shown, that the whole amount of taxes that would have been paid in twenty years, for an annual loan of eleven millions on the old plan of a sinking fund of one per cent., would be 154 millions. On Lord Henry Petty's plan, these taxes would, in the same time, have been ninety-three millions,—a difference in favour of Lord Henry Petty's plan, of fifty-one millions; but to obtain this exemption we should have been encumbered with an additional debt of L.119,489,788 of money capital, which, if raised in a three per cent. stock at 60, would be equal to a nominal capital of L.199,149,646.

The sinking fund was established with a view to diminish the national debt during peace, and to prevent its rapid increase during war. The only wise and good object of war-taxes is also to prevent the accumulation of debt. A sinking fund and war-taxes are only useful while they are strictly applied to the objects for which they are raised; they become instruments of mischief and delusion when they are made use of for the purpose of providing the interest on a new debt.

In 1809, Mr Perceval, who was then chancellor of the exchequer, mortgaged L.1,040,000 of the war-taxes for the interest and sinking fund of the stock he funded in that year.

By taking more than a million from the war-taxes, not for the annual expenditure, but for the interest of a loan, Mr Perceval rendered it necessary to add one million to the loan of the next and all following years; so that the real effect of this measure differed in no respect from one which should have taken the same sum annually from the sinking fund.

In 1813, the next and most important alteration was made in the sinking fund. Mr Vansittart was then chancellor of the exchequer. It has been already observed, that the national debt amounted to L.238,231,248 in 1786, when Mr Pitt established his sinking fund of one million. By the act of 1786, as soon as the sum of one million amounted, by the aid of the dividends on the stock which was to be purchased by it, to four millions, its accumulation was to cease, and the dividends on the stock purchased were to be available for the public service. If the three per cents were at sixty when this million had accumulated to four millions, the public would have had a disposable fund of L.20,000 per annum; if at eighty, of L.15,000 per annum; and no other relief was to be given to the public till the four millions had purchased the whole sum of 238 millions, the then amount of the debt. In 1792, Mr Pitt added L.200,000 per annum to the sinking fund, and accompanied it by the following observations: "When the sum of four millions was originally fixed as the limit for the sinking fund, it was not in contemplation to issue more annually from the surplus revenue than one million; consequently, the fund would not rise to four millions till a proportion of debt was paid off, the interest of which, together with the annuities which might fall in in the interval, should amount to three millions. But as, on the present supposition, additional sums beyond the original million are to be annually issued from the revenue, and applied to the aid of the sinking fund, the consequence would be, that if that fund, with these additions carried to it, were still to be limited to four millions, it would reach that amount, and cease to accumulate, before as great a portion of the debt is reduced as was originally in contemplation." "In order to avoid this consequence, which would, as far as it went, be a relaxation in our system, I should propose, that whatever may be the additional annual sums applied to the reduction of debt, the fund should not cease to accumulate till the interest of the capital discharged, and the amount of the expired annuities, should, together with the annual million only, and exclusive of any additional sums, amount to four millions."[1]

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[1] Mr Huskisson's *Speech on the State of the Finance and Sinking Fund*, 25th March 1813.

It will be recollected, that in 1792 a provision was made for attaching a sinking fund of one per cent. to each loan separately, which was to be exclusively employed in the discharge of the debt contracted by that loan; but no part of these one per cents were to be employed in the reduction of the original debt of L.238,000,000. The act of 1802 consolidated all these sinking funds, and the public were not to be exempted from the payment of the sinking fund itself, nor of the dividends on the stock to be purchased by the commissioners, till the whole debt existing in 1802 was paid off. Mr Vansittart proposed to repeal the act of 1802, and to restore the spirit of Mr Pitt's act of 1792. He acknowledged that it would be a breach of faith to the national creditor, if the fair construction of that act, the act of 1792, were not adhered to. It was, in Mr Vansittart's opinion, no breach of faith to do away the conditions of the act of 1802. Supposing, however, that the act of 1802 had been really more favourable to the stockholder than that of 1792, it is not easy to comprehend by what arguments it can be proved not to be a breach of faith to repeal the one and enact the other. Were not all the loans from 1802 to 1813 negotiated on the faith of that act? Were not all bargains made between the buyer and seller of stock made on the same understanding? Government had no more right to repeal the act of 1802, and substitute another less favourable to the stockholder, and acknowledged to be so by the minister himself, than it would have had to get rid of the sinking fund altogether. But what we are at present to inquire into is, whether Mr Vansittart did as he professed to do? Did he restore the stockholder to all the advantages of the act of 1792? In the first place, it was declared by the new act, that as the sinking fund consolidated in 1802, had redeemed L.238,350,143. 18s. 1d. exceeding the amount of the debt in 1786 by L.118,895. 12s. 10½d., a sum of capital stock equal to the total capital of the public debt existing on the 5th January 1786, viz. L.238,231,248. 5s. 2¾d. had been satisfied and discharged; "and that in like manner an amount of public debt equal to the capital and charge of every loan contracted since the said 5th January 1786, shall successively, and in its proper order, be deemed and declared to be wholly satisfied and discharged, when and as soon as a further amount of capital stock, not less than the capital of such loan, and producing an interest equal to the dividends thereupon, shall be so redeemed or transferred."

It was also resolved, "that after such declaration as aforesaid, the capital stock purchased by the commissioners for the reduction of the national debt shall from time to time be cancelled; at such times, and in such proportions, as shall be directed by any act of parliament to be passed for such purpose, in order to make provision for the charge of any loan or loans thereafter to be contracted."

It was further resolved, that in order to carry into effect the provisions of the acts of the 32d and 42d of the king, for redeeming every part of the national debt within the period of forty-five years from the time of its creation, it is expedient that in future, whenever the amount of the sum to be raised by loan, or by any other addition to the public funded debt, shall in any year exceed the sum estimated to be applicable in the same year to the reduction of the public debt, an annual sum equal to one half of the interest of the excess of the said loan, or other addition, beyond the sum so estimated to be applicable, shall be set apart out of the monies composing the consolidated fund of Great Britain, and shall be issued at the receipt of the exchequer to the governor and company of the Bank of England, to be by them placed to the account of the commissioners for the reduction of the national debt;[2] and upon the remainder of such loan or other addition, the annual sum of one per cent. on the capital thereof, according to the provisions of the said act.

A provision was also made, for the first time, for one per cent. sinking fund on the unfunded debt then existing, or which might thereafter be contracted.

In 1802, it has been already observed, it was deemed expedient that no provision should be made for a sinking fund of one per cent. on a capital of L.86,796,300; and as it was considered by the proposer of the new regulation in 1813, that he was reverting to the principle of Mr Pitt's act of 1792, he provided that L.867,963 should be added to the sinking fund for the one per cent. on the capital stock created, and which was omitted to be provided for in 1802.[3]

This was the substance of Mr Vansittart's new plan, and which, he contended, was not injurious to the stockholder, as it strictly conformed to the spirit of Mr Pitt's act of 1792.

1*st*, By Mr Pitt's act, no relief could be afforded to the public from the burdens of taxation, till the stock redeemed by the original sinking fund of one million amounted to such a sum as that the dividends on the capital stock redeemed should amount to three millions, making the whole sinking fund four millions; from thenceforth the four millions were to discharge debt as before, but the interest of debt so discharged was to be available for the public service, and the public was not to be relieved from the charge on the remainder of the debt of 238 millions till the four millions at simple interest, and the further sinking fund which might arise from the falling in of terminable annuities, together with the additional sum of L.200,000 per annum, voted in 1792, with their accumulations, had redeemed the capital of 238 millions. The sinking fund arising from the one per cent. on each loan was directed, by the act of 1792, to be applied to each separate loan for which it was raised. Mr Vansittart thought himself justified, and free from any breach of faith to the stockholder, in taking for the public service, not the interest of four millions, which is all that Mr Pitt's bill would allow him to take, but the interest on 238 millions; and on what plea? because the whole consolidated sinking funds, comprising the one per cent. on every loan raised since 1793, had purchased 238 millions of stock. On Mr Pitt's plan he might have taken L.20,000 per annum from the sinking fund; on his own construction of that act, he took from it more than seven millions per annum.

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[1] Mr Pitt's Speech, 17th February 1792.

[2] The effect of this clause was to give a sinking fund of one and a half instead of one per cent. on such excess of loan above the inking fund if the loan were raised in a three per cent. stock, and of two and a half per cent. if raised in a five per cent. stock.

[3] Mr Vansittart's plan has added to the sinking fund one per cent. on a capital of L.86,796,300..........L.867,936
On fifty-six millions of exchequer bills outstanding 5th January 1818, one per cent.......... 560,000
By attaching a sinking fund of one half the interest, instead of one per cent. on a part of the capital created by loans, *he has added to the sinking fund*.......... 793,343

Total added..........L.2,221,311
From stock cancelled and available for public service.......... 7,632,969

Total deduction from sinking fund on 5th January 1819..........L.5,411,658

On the 3d of February 1819 the commissioners certified that there had been transferred to them L.378,519,969. 5s. 3¾d. capital tock, the interest on which was L.11,448,564. 10s. 6¼d., and that the debt created prior to and by the 37th Geo. III. amounted to L.348,684,197. 1s. 5¾d., with a yearly interest of L 11,446,736. 3s. 4¾d.; and consequently the excess redeemed was L.29,835,772. s. 9¼d., with a yearly interest of L.1828. 7s. 1¼d.

2dly, Mr Vansittart acknowledged that the stockholder, in 1802, was deprived of the advantage of one per cent. sinking fund on a capital of L.86,796,300; and therefore, to be very just, he gives in 1813 one per cent. on that capital; but should he not have added the accumulation which would have been made in the eleven years from 1802 to 1813, on L.867,963, at compound interest, and which would have given a further addition to the sinking fund of more than L.360,000 per annum?

3dly, On Mr Pitt's plan, every loan was to be redeemed by its sinking fund, under the most unfavourable circumstances, in forty-five years. If the loan was raised in a three per cent. fund at sixty, and the stock was uniformly to continue at that price, a one per cent. sinking fund would redeem the loan to which it was attached in twenty-nine years; but then no relief would be given to the public from taxation till the end of twenty-nine years; and if there had been loans of ten millions every year for that period, when the first loan was paid off, the second would require only one year for its final liquidation; the third two years, and so on. On Mr Vansittart's plan, under the same circumstances, the sinking fund of each and every loan was to be applied, in the first instance, to the redemption of the first loan; and when that was redeemed and cancelled, the whole of the sinking funds were to be applied to the payment of the second, and so on successively. The first loan of ten millions would be cancelled in less than thirteen years, the second in less than six years after the first, the third in a less time, and so on. At the end of the thirteenth year, the public would be relieved from the interest on the first loan, or, which is the same thing, from the necessity of finding fresh taxes for a new loan at the end of thirteen years, for two new loans at the end of nineteen years; but what would be the state of its debt at either of these periods, or at the end of twenty-nine years? Could this advantage be obtained without a corresponding disadvantage? No; the excess of debt on Mr Vansittart's plan would be exactly equal to these various sums, thus prematurely released by cancelled stock, accumulated at compound interest. How could it be otherwise? Is it possible that we could obtain a present relief from the charge of debt without either directly or indirectly borrowing the fund necessary to provide that relief at compound interest? "By this means," says Mr Vansittart, "the loan first contracted would be discharged at an earlier period, and the funds charged with the payment of its interest would become applicable to the public service. Thus, in the event of a long war, a considerable resource might accrue during the course of the war itself, as every successive loan would contribute to accelerate the redemption of those previously existing; and the total amount of charge to be borne by the public, in respect of the public debt, would be reduced to a narrower compass than in the other mode, in which a greater number of loans would be co-existing. At the same time the ultimate discharge of the whole debt would be rather accelerated than retarded."—"It is now only necessary to declare that an amount of stock equal to the whole of the debt existing in 1786 has been redeemed; and that, in like manner, whenever an amount of stock equal to the capital and charge of any loan raised since 1792 shall be redeemed, in its proper order of succession, such loan shall be deemed and taken to be redeemed and satisfied. Every part of the system will then fall at once into its proper place; and we shall proceed with the future redemption with all the advantages which would have been derived from the original adoption of the mode of successive instead of simultaneous redemption. Instead of waiting till the purchase of the whole of the debt consolidated in 1802 shall be completed, that part of it which existed previously to 1792 will be considered as already redeemed, and the subsequent loans will follow in succession, whenever equal portions of stock shall have been purchased. It is satisfactory to observe, that by a gradual and equal progress, we shall have the power of effecting the complete repayment of the debt more speedily than by the present course." Is it possible that Mr Vansittart could so deceive himself as to believe that, by taking five millions from the sinking fund, which would not have been taken by the provisions of the act of 1802, which would not have been taken by the act of 1792, and other sums successively, in shorter times than could have been effected by the provisions of those two acts, he would be enabled to complete the repayment of the debt more speedily? Is it possible that he could believe that, by diminishing the sinking fund, that is, the amount of revenue as compared with expenditure, he would effect the payment of our debt more speedily? It is impossible to believe this. How then are his words to be accounted for? In one way he might have a meaning. It might be this,—I know we shall be more in debt in ten, twenty, and thirty years, on my plan, than we should have been on that of Lord Sidmouth or on that of Mr Pitt; but we shall have effected a greater payment in that time of *the stock now existing*, as the sinking funds attached to future loans will be employed in paying our present debt. On Mr Pitt's plan, those sinking funds would be used for the payment of the new debt to be created; that is to say, of the loans to which they are respectively attached. We shall be more in debt at every subsequent period, it is true; but as our debt may be divided into old stock and new stock, I am correct when I say that we shall have the power of completing the repayment of the debt, meaning by the debt the stock now existing, sooner than by the present course.

This plan of Mr Vansittart was opposed with great ability, both by Mr Huskisson and Mr Tierney. The former gentleman said, "The very foundation of the assumption that the old debt has been paid off, is laid in the circumstance of our having incurred a new debt of a much larger amount; and even allowing that assumption, Mr Vansittart would not have been able to erect his present scheme upon it, if the credit of the country had not been, for the last twenty years, materially impaired by the pressure of that new debt. On the one hand, had the sinking fund been operating at three per cent. during that period, he would not have touched it, even under his own construction of the act of 1792. On the other hand, had the price of the stocks been still lower than it has been, he would have taken from that sinking fund still more largely than he is now, according to his own rule, enabled to take. This then is the new doctrine of the sinking fund;—that, having been originally established 'to prevent the inconvenient and dangerous accumulation of debt hereafter' (to borrow the very words of the act), and for the support and improvement of public credit, it is in the accumulation of new debt that Mr Vansittart found at once the means and the pretence for invading that sinking fund; and the degree of depression of public credit was, with him, the measure of the extent to which that invasion might be carried. And this is the system of which it is gravely predicated, that it is no departure from the letter, and no violation of the spirit of the act of 1792; and of which we are desired seriously to believe, that it is only the following up and improving upon the original measure of Mr Pitt!—of which measure the clear and governing intention was, that every future loan should, from *the moment of its creation*, carry with it the seeds of its destruction; and that the course of its reimbursement should *that moment* be placed beyond the discretion and control of parliament." (Mr Huskisson's *Speech*, 25th March 1813.)

This is the last alteration that has taken place in the *machinery* of the sinking fund. Inroads more fatal than this which we have just recorded have been made on the fund itself; but they have been made silently and indirectly, while the machinery has been left unaltered.

It has been shown by Dr Hamilton, that no fund can be efficient for the reduction of debt but such as arises from an excess of revenue above expenditure.

Suppose a country at peace, and its expenditure, including the interest of its debt, to be forty millions, its revenue to be forty-one millions, it would possess one million of sinking fund. This million would accumulate at compound interest; for stock would be purchased with it in the market, and placed in the names of the commissioners for paying off the debt. These commissioners would be entitled to the dividends before received by private stockholders, which would be added to the capital of the sinking fund. The fund thus increased would make additional purchases the following year, and would be entitled to a larger amount of dividends, and thus would go on accumulating, till in time the whole debt would be discharged.

Suppose such a country to increase its expenditure one million, without adding to its taxes, and to keep up the machinery of the sinking fund; it is evident that it would make no progress in the reduction of its debt; for though it would accumulate a fund in the same manner as before in the hands of the commissioners, it would, by means of adding to its funded or unfunded debt, and by constantly borrowing, in the same way, the sum necessary to pay the interest on such loans, accumulate its million of debt annually at compound interest, in the same manner as it accumulated its million annually of sinking fund.

But suppose that it continued its operations of investing the sinking fund in the purchase of stock, and made a loan for the million which it was deficient in its expenditure, and that, in order to defray the interest and sinking fund of such loan, it imposed new taxes on the people to the amount of L.60,000, the real and efficient sinking fund would, in that case, be L.60,000 per annum, and no more; for there would be L.1,060,000, and no more, to invest in the purchase of stock, while one million was raised by the sale of stock, or, in other words, the revenue would exceed the expenditure by L.60,000.

Suppose a war to take place, and the expenditure to be increased to sixty millions, while its revenue continued, as before, forty-one millions, still keeping on the operation of the commissioners with respect to the investment of one million. If it were to raise war-taxes for the payment of the twenty millions additional expense, the million of sinking fund would operate to the reduction of the national debt at compound interest as it did before. If it raised twenty millions by loan in the stocks or in exchequer bills, and did not provide for the interest by new taxes, but obtained it by an addition to the loan of the following year, it would be accumulating a debt of twenty millions at compound interest; and while the war lasted, and the same expenditure continued, it would not only be accumulating a debt of twenty millions at compound interest, but a debt of twenty millions per annum; and consequently the real increase of its debt, after allowing for the operation of the million of sinking fund, would be at the rate of nineteen millions per annum at compound interest. But if it provided by new taxes five per cent. interest for this annual loan of twenty millions, it would on the one hand simply increase the debt twenty millions per annum; on the other it would diminish it by one million per annum, with its compound interest. If we suppose that, in addition to the five per cent. interest, it raised also by annual taxes L.200,000 per annum as a sinking fund for each loan of twenty millions, it would, the first year of the war, add L.200,000 to the sinking fund, the second year L.400,000, the third year L.600,000, and so on, L.200,000 for every loan of twenty millions. Every year it would add, by means of the additional taxes, to its annual revenue, without increasing its expenditure. Every year, too, that part of this revenue which was devoted to the purpose of purchasing debt, would increase by the amount of the dividends on the stock purchased; and thus would its revenue still further increase, till at last the revenue would overtake the expenditure, and then once again it would have an efficient sinking fund for the reduction of debt.

It is evident that the result of these operations would be the same, the rate of interest being supposed to be always at five per cent. or any other rate, if, during the excess of expenditure above revenue, the operation of the commissioners in the purchase of stock were to cease. The real increase of the national debt must depend upon the excess of expenditure above revenue, and that would be noways altered by a different arrangement. Suppose that, instead of raising twenty millions the first year, and paying off one million, only nineteen millions had been raised by loan, and the same taxes had been raised, namely, L.1,200,000. As five per cent. would be paid on nineteen millions only, instead of on twenty millions, or L.950,000 for interest instead of one million, there would remain, in addition to the original million, L.250,000 towards the loan of the following year, consequently the loan of the second year would be only for L.18,750,000; but as L.1,200,000 would be again raised by additional taxes, or L.2,400,000 in the whole the second year, besides the original million, there would be a surplus, after paying the interest of both loans, of L.1,512,500, and therefore the loan of the third year would be for L.18,487,500. The progress during five years is shown in the following table:—

	Loan each Year.	Amount of Loans.	Amount of Interest.	Amount of Taxes.	Surplus.
1st year	L.19,000,000	L.19,000,000	L.950,000	L.2,200,000	L.1,250,000
2d year..........	18,750,000	37,750,000	1,887,500	3,400,000	1,512,500
3d year..........	18,487,500	56,237,500	2,811,875	4,600,000	1,788,125
4th year.........	18,211,875	74,449,375	3,722,469	5,800,000	2,077,531
5th year.........	17,922,469	92,371,844	4,618,592	7,000,000	2,381,408

If, instead of thus diminishing the loan each year, the same amount of taxes precisely had been raised, and the sinking fund had been applied in the usual manner, the amount of debt would have been exactly the same at any one of these periods. In the third column of the above table it will be seen, that in the fifth year the debt had increased to L.92,371,844. On the supposition that L.200,000 per annum had each year been added to the sinking fund, and invested in stock by the commissioners, the amount of unredeemed debt would have been the same sum of L.92,371,844, as will be seen by the last column of the following table:—

	Loan each Year.	Amount of Loans.	Debt redeemed each Year.	Amount Debt Redeemed.	Interest on Debt Redeemed.	Debt remaining Unredeemed.
1st year........	L.20,000,000	L.20,000,000	L.1,000,000	L.1,000,000	L.50,000	L.19,000,000
2d year.........	20,000,000	40,000,000	1,250,000	2,250,000	112,500	37,750,000
3d year.........	20,000,000	60,000,000	1,512,500	3,762,500	188,125	56,237,500
4th year........	20,000,000	80,000,000	1,788,125	5,550,625	277,531	74,449,375
5th year........	20,000,000	100,000,000	2,077,531	7,628,156	381,408	92,371,844

A full consideration of this subject in all its details has led Dr Hamilton to the conclusion that this first mode of raising the supplies during war, viz. by diminishing the amount of the annual loans, and stopping the purchases of the commissioners in the market, would be more economical, and that it ought therefore to be adopted. In the first place, all the expenses of agency would be saved; in the second, the premium usually obtained by the contractor for the loan would be saved on that part of it which is repurchased by the commissioners in the open market. It is true that the stocks may fall as well as rise between the time of contracting for the loan and the time of the purchases made by the commissioners; and therefore, in some cases, the public may gain by the present arrangement; but as these chances are equal, and a certain advantage is given to the loan contractor to induce him to advance his money, independently of all contingency of future price, the public now give this advantage on the larger sum instead of on the smaller. On an average of years, this cannot fail to amount to a very considerable sum. But both these objections would be obviated, if the clause in the original sinking fund bill, authorizing the commissioners to subscribe to any loan for the public service, to the amount of the annual fund which they have to invest, were uniformly complied with. This is the mode which was for several years strongly urged by Mr Grenfell; and it is far preferable to that which Dr Hamilton recommends. Dr Hamilton and Mr Grenfell both agree, that in time of war, when the expenditure exceeds the revenue, and when therefore we are annually increasing our debt, it is a useless operation to buy a comparatively small quantity of stock in the market, while we are at the same time under the necessity of making large sales: but Dr Hamilton would not keep the sinking fund as a separate fund; Mr Grenfell would, and would have it increased with our debt by some known and fixed rules. We agree with Mr Grenfell. If a loan of twenty millions is to be raised annually, while there is in the hands of the commissioners ten millions which they annually receive, the obvious and simple operation should be really to raise only ten millions by loan; but there is a convenience in calling it twenty millions, and allowing the commissioners to subscribe ten millions. All the objections of Dr Hamilton are by these means removed; there will be no expense for agency; there will be no loss on account of any difference of price at which the public sell and buy. By calling the loan twenty millions, the public will be induced more easily to bear the taxes which are necessary for the interest and sinking fund of twenty millions. Call the loan only ten millions, abolish during the war the very name of the sinking fund in all your public accounts, and it would be difficult to show to the people the expediency of providing L.1,200,000 per annum by additional taxation for the interest of a loan of ten millions. The sinking fund is therefore useful as an engine of taxation; and if the country could depend on ministers that it would be faithfully devoted to the purposes for which it was established, namely, to afford at the termination of war a clear additional surplus revenue beyond expenditure, in proportion to the addition made to the debt, it would be wise and expedient to keep it as a separate fund, subject to fixed rules and regulations.

We shall presently inquire whether there can be any such dependence; and therefore whether the sinking fund is not an instrument of mischief and delusion, and really tending rather to increase our debt and burdens than to diminish them.

It is objected both to Dr Hamilton's and Mr Grenfell's projects, that the disadvantages which they mention are trifling in degree, and are more than compensated by the steadiness which is given to the market by the daily purchases of the commissioners; that the money which those purchases throw into the market is a resource on which bankers and others, who may suddenly want money, with certainty rely.

Those who make this objection forget, that if, by the adoption of this plan, a daily purchaser is withdrawn from the market, so also is a daily seller. The minister gives now to one party ten millions of money to invest in stock, and to another party as much stock as ten millions costs to sell; and as the instalments on the loan are paid monthly, it may fairly be said that the supply is as regular as the demand. It cannot be doubted too, that a loan of twenty millions is negotiated on worse terms than one of ten. It is true that no more stock will remain in the market at the end of the year, whether the one or the other sum be raised by loan; but for a time the contractor must make a large purchase, and he must wait before he can make his sale of ten millions to the commissioners. He is induced then to sell much more largely before the contract, which cannot fail to affect the market price; and it must be recollected, that it is the market price on the day of bidding for the loan which governs the terms on which the loan is negotiated. It is looked to both by the minister who sells and the contractor who purchases. The experiment on Mr Grenfell's suggestion was tried for the first time in 1819; the sum required by government was twenty-four millions, to which the commissioners subscribed twelve millions. In lieu of a loan of twenty-four millions from the contractor, there was one only of twelve millions; and as soon as this arrangement was known, previous to the contract, the stocks rose to four or five per cent., and influenced the terms of the loan in that degree. The reason was, that a preparation had been made for twenty-four or thirty millions loan; and as soon as it was known that it would be for twelve millions only, a part of the stock sold was repurchased. Another advantage attending the smaller loan is, that eight hundred per million, which is paid to the bank for management of the loan, is saved on the sum subscribed by the commissioners.

Dr Hamilton, in another part of his work, observes, "If the sinking fund could be conducted without loss to the public, or even if it were attended with a moderate loss, it would not be wise to propose an alteration of a system which has gained the confidence of the public, and which points out a rule of taxation that has the advantage at least of being steady. If that rule be laid aside, our measures of taxation might become entirely loose."

"The means, and the only means, of restraining the progress of national debt, are saving of expenditure and increase of revenue. Neither of these has a necessary connection with a sinking fund. But if they have an eventual connection, and if the nation, impressed with a conviction of the importance of a system established by a popular minister, has, in order to adhere to it, adopted measures, either of frugality in expenditure, or exertion in raising taxes, which it would not otherwise have done, the sinking fund ought not to be considered as inefficient, and its effects may be of great importance."

It will not, we think, admit of a doubt, that if Mr Pitt's sinking fund, as established in 1792, had been always fairly acted upon,—if, for every loan, in addition to the war-taxes, the interest, and a one per cent. sinking fund, had been invariably supplied by annual taxes,—we should have made rapid progress in the extinction of debt. The alteration in principle which was made in the sinking fund by the act of 1802, was, in our opinion, a judicious one: it provided that no part of the sinking fund, neither that which arose from the original million, with its addition of L.200,000 per annum, nor that which arose from the one per cent. raised for the loans since 1792, should be applicable to the public service, till the whole of the debt then existing was redeemed. We should have been disposed to extend this principle further, and to make a provision, that no part of the sinking fund should be applicable to the public service until the whole of the debt then existing, *and subsequently to be created*, should be redeemed. We do not think that there is much weight in the objection to this clause which was made to it by Lord Henry Petty in 1807, and referred to and more strongly urged by Mr Vansittart in 1813. The noble Lord said, "I need hardly press upon the consideration of the committee, all the evils likely to result from allowing the sinking fund to accumulate without any limit; for the nation would be exposed by that accumulation to the mischief of having a large portion of capital taken at once out of the market, without any adequate means of applying it, which would of course be deprived of its value.

"This evil must appear so serious to any man who contemplates its character, that I have no doubt it will be felt, however paradoxical it may seem, that the redemption of the whole national debt at once would be productive of something like national bankruptcy; for the capital would be equivalent almost to nothing, while the interest he had before derived from it would be altogether extinguished. The other evils which would arise from, and which must serve to demonstrate the mischievous consequence of, a prompt discharge of the national debt, I will show presently. Different arrangements were adopted in the further provisions made on the subject of the sinking fund in 1792 and in 1802. By the first the sinking fund of one per cent., which was thenceforward to be provided for every new loan, was made to accumulate at compound interest until the whole of the debt created by such new loan should be extinguished. And, by the second arrangement, all the various sinking funds existing in 1802 were consolidated, and the whole were appropriated to accumulate at compound interest until the discharge of the whole of the debt also existing in 1802. But the debt created since 1802, amounting to about one hundred millions of nominal capital, is still left subject to the act of 1792, which provides for each separate loan a sinking fund of only one per cent. on the nominal capital. The plan of 1802, engrafted on the former acts of 1786 and 1792, provided for the still more speedy extinction of the debt to which it applied. But it would postpone all relief from the public burdens to a very distant period (computed in 1802 to be from 1834 to 1844); and it would throw such large and disproportionate sums into the money market in the latter years of its operation, as might produce a very dangerous depreciation of the value of money. Many inconveniences might also arise from the sudden stop which would be put to the application of those sums when the whole debt should have been redeemed, and from the no less sudden change in the price of all commodities, which must follow from taking off at one and the same moment taxes to an extent probably then much exceeding thirty millions. The fate of merchants, manufacturers, mechanics, and every description of dealers, in such an event, must be contemplated by every thinking man with alarm; and this applies to my observation respecting a national bankruptcy; for, should the national debt be discharged, and such a weight of taxation taken off at once, all the goods remaining on hand would be, comparatively speaking, of no value to the holders, because, having been purchased or manufactured while such taxation prevailed, they must be undersold by all those who might manufacture the same kind of goods after such taxation had ceased. These objections were foreseen, and to a certain degree acknowledged, at the time when the act of 1802 was passed; and it was then answered, that whenever the danger approached, it might be obviated by subsequent arrangements." A great many of these objections appear to us to be chimerical; but, if well founded, we agree with the latter part of the extract, "whenever the danger approached, it might be obviated by subsequent arrangements." It was not necessary to legislate in 1807 or in 1813, for a danger which could not happen till between 1834 and 1844. It was not necessary to provide against the evils which would arise from a plethora of wealth at a remote period, when our real difficulty was how to supply our immediate and pressing wants.

What are the evils apprehended from the extravagant growth of the sinking fund towards the latter years of its existence? Not that taxation will be increased, because the growth of the sinking fund is occasioned by dividends on stock purchased; but, first, that capital will be returned too suddenly into the hands of the stockholder, without his having any means of deriving a revenue from it; and, secondly, that the remission of taxes, to the amount probably of thirty millions, will have a great effect on the prices of particular commodities, and will be very pernicious to the interest of those who may deal in or manufacture such commodities.

It is obvious that the commissioners have no capital. They receive quarterly or daily certain sums, arising from the taxes, which they employ in the redemption of debt. One portion of the people pay what another portion receive. If the payers employed the sums paid as capital, that is to say, in the production of raw produce, or manufactured commodities, and the receivers, when they received it, employed it in the same manner, there would be little variation in the annual produce. A part of that produce might be produced by A instead of by B: not that even this is a necessary consequence; for A, when he received the money for his debt, might lend it to B, and might receive from him a portion of the produce for interest, in which case B would continue to employ the capital as before. On the supposition, then, that the sinking fund is furnished by capital and not by revenue, no injury would result to the community, however large that fund might be; there might or might not be a transfer of employments, but the annual produce, the real wealth of the country, would undergo no deterioration, and the actual amount of capital employed would neither be increased nor diminished. But if the payers of taxes, for the interest and sinking fund of the national debt, paid them from revenue, then they would retain the same capital as before in active employment; and as this revenue, when received by the stockholder, would be by him employed as capital, there would be, in consequence of this operation, a great increase of capital; every year an additional portion of revenue would be turned into capital, which could be employed only in furnishing new commodities to the market. Now, the doubts of those who speak of the mischievous effects of the great accumulation of the sinking fund, proceed from an opinion they entertain that a country may possess more capital than it can beneficially employ, and that there may be such a glut of commodities that it would be impossible to dispose of them on such terms as to secure to the producers any profits on their capitals. The error of this reasoning has been made manifest by M. Say, in his able work *Economie Politique*, and afterwards by Mr Mill, in his excellent reply to Mr Spence, the advocate of the doctrine of the Economistes. They show that demand is only limited by production; whoever can produce has a right to consume, and he will exercise his privilege to the greatest extent. They do not deny that the demand for particular commodities is limited, and therefore they say there may be a glut of such commodities; but, in a great and civilized country, wants, either for objects of necessity or of luxury, are unlimited, and the employment of capital is of equal extent with our ability of supplying food and necessaries for the increasing population, which a continually augmenting capital would employ. With every increased difficulty of producing additional supplies of raw produce from the land, corn, and the other necessaries of the labourer, would rise. Hence wages would rise. A real rise of wages is necessarily followed by a real fall of profits; and therefore, when the land of a country is brought to the highest state of cultivation, when more labour employed upon it will not yield in return more food than what is necessary to support the labourer so employed, that country is come to the limit of its increase both of capital and population.

The richest country in Europe is yet far distant from that degree of improvement; but if any had arrived at it, by the aid of foreign commerce, even such a country could go on for an indefinite time increasing in wealth and population; for the only obstacle to this increase would be the scarcity, and consequent high value, of food and other raw produce. Let these be supplied from abroad in exchange for manufactured goods, and it is difficult to say where the limit is at which you would cease to accumulate wealth, and to derive profit from its employment. This is a question of the utmost importance in political economy. We hope that the little we have said on the subject will be sufficient to induce those who wish clearly to understand the principle, to consult the works of the able authors whom we have named, to which we acknowledge ourselves so much indebted. If these views are correct, there is then no danger that the accumulated capital which a sinking fund under particular circumstances might occasion, would not find employment, or that the commodities which it might be made to produce would not be beneficially sold, so as to afford an adequate profit to the producers. On this part of the subject it is only necessary to add, that there would be no necessity for stockholders to become farmers or manufacturers. There are always to be found in a great country a sufficient number of responsible persons, with the requisite skill, ready to employ the accumulated capital of others, and to pay to them a share of the profits, and which in all countries is known by the name of interest for borrowed money.

The second objection to the indefinite increase of the sinking fund remains now to be noticed. By the remission of taxes suddenly to the amount probably of thirty millions per annum, a great effect would be produced on the price of goods. "The fate of merchants, manufacturers, mechanics, and every description of dealers, in such an event, must be contemplated by every thinking man with alarm; for should the national debt be discharged, and such a weight of taxation taken off at once, all the goods remaining on hand would be, comparatively speaking, of no value to the holders, because, having been purchased or manufactured while such taxation prevailed, they must be undersold by all those who might manufacture the same kind of goods after such taxation had ceased." It is only, then, on the supposition that merchants, manufacturers, and dealers, would be affected as above described, that any evil would result from the largest remission of taxes. It would not of course be said, that by remitting a tax of L.5 to A, L.10 to B, L.100 to C, and so on, any injury would be done to them. If they added these different sums to their respective capitals, they would augment their permanent annual revenue, and would be contributing to the increase of the mass of commodities, thereby adding to the general abundance. We have already, we hope, successfully shown that an augmentation of capital is neither injurious to the individual by whom it is saved, nor to the community at large; its tendency is to increase the demand for labour, and consequently the population, and to add to the power and strength of the country. But they will not add these respective sums to their capitals; they will expend them as revenue! The measure cannot be said to be either injurious to themselves or to the community on that account. They annually contributed a portion of their produce to the stockholder in payment of debt, who immediately employed it as capital; that portion of produce is now at their own disposal; they may consume it themselves if they please. A farmer who used to sell a portion of his corn for the particular purpose of furnishing this tax, may consume this corn himself; he may get the distiller to make gin of it, or the brewer to turn it into beer, or he may exchange it for a portion of the cloth which the clothier, who is now released from the tax as well as the farmer, is at liberty to dispose of for any commodity which he may desire. It may indeed be said, where is all this cloth, beer, gin, &c. to come from; there was no more than necessary for the general demand before this remission of taxes; if every man is now to consume more, from whence is this supply to be obtained? This is an objection of quite an opposite nature to that which was before urged. Now, it is said there would be too much demand and no additional supply; before, it was contended that the supply would be so great that no demand would exist for the quantity supplied. One objection is no better founded than the other. The stockholders, by previously receiving the payment of their debt, and employing the funds they received productively, or lending them to some other persons who would so employ them, would produce the very additional commodities which the society at large would have it in their power to consume. There would be a general augmentation of revenue, and a general augmentation of enjoyment; and it must not for a moment be supposed that the increased consumption of one part of the people would be at the expense of another part. The good would be unmixed, and without alloy. It remains then only to consider the injury to traders from the fall in the price of goods; and the remedy against this appears to be so very simple, that it surprises us that it should ever have been urged as an objection. In laying on a new tax, the stock in hand of the article taxed is commonly ascertained; and, as a measure of justice, the dealer in such article is required to pay the imposed tax on his stock. Why may not the reverse of this be done? Why may not the tax be returned to each individual on his stock in hand, whenever it shall be thought expedient to take off the tax from the article which he manufactures, or in which he deals? It would only be necessary to continue the taxes for a very short time for this purpose. On no view of this question can we see any validity in the arguments which we have quoted, and which were so particularly insisted on by Mr Vansittart.

There are some persons who think that a sinking fund, even when strictly applied to its object, is of no national benefit whatever. The money which is contributed, they say, would be more productively employed by the payers of the taxes than by the commissioners of the sinking fund. The latter purchase stock with it, which probably does not yield five per cent.; the former would obtain from the employment of the same capital much more than five per cent., consequently the country would be enriched by the difference. There would be in the latter case a larger nett supply of the produce of our land and labour, and that is the fund from which ultimately all our expenditure must be drawn. Those who maintain this opinion do not see that the commissioners merely receive money from one class of the community, and pay it to another class, and that the real question is, Which of these two classes will employ it most productively? Forty millions per annum are raised by taxes, of which twenty millions, we will suppose, is paid for sinking fund, and twenty millions for interest of debt. After a year's purchase is made by the commissioners, this forty millions will be divided differently; nineteen millions will be paid for interest, and twenty-one millions for sinking fund; and so from year to year, though forty millions is always paid on the whole, a less and less portion of it will be paid for interest, and a larger portion for sinking fund, till the commissioners have purchased the whole amount of stock, and then the whole forty millions will be in the hands of the commissioners. The sole question then with regard to profits is, whether those who pay this forty millions, or those who receive it, will employ it most productively; the commissioners, in fact, never employing it at all, their business being to transfer it to those who will employ it. Now, of this we are quite certain, that all the money received by the stockholder in return for his stock must be employed as capital; for if it were not so employed, he would be deprived of his revenue, on which he had habitually depended. If then the taxes which are paid towards the sinking fund be derived from the revenue of the country, and not from its capital, by this operation a portion of revenue is yearly realized into capital, and consequently the whole revenue of the society is increased; but it might have been realized into capital by the payer of the tax if there had been no sinking fund, and he had been allowed to retain the money to his own use. It might so, and if it had been so disposed of, there can be no advantage in respect to the accumulation of the wealth of the whole society by the establishment of the sinking fund; but it is not so probable that the payer of the tax would make this use of it as the receiver. The receiver, when he gets paid for his stock, only substitutes one capital for another; and he is accustomed to look to his capital for all his yearly income. The payer will have all that he paid in addition to his former revenue; if the sinking fund be discontinued he may indeed realize it into capital, but he may also use it as revenue, increasing his expenditure on wine, houses, horses, clothes, &c. The payer might too have paid it from his capital; and therefore the employment of one capital might be substituted for another. In this case, too, no advantage arises from the sinking fund, as the national wealth would accumulate as rapidly without it as with it; but if any portion of the taxes paid expressly for the sinking fund be paid from revenue, and which, if not so paid, would have been expended as revenue, then there is a manifest advantage in the sinking fund, as it tends to increase the annual produce of our land and labour; and as we cannot but think that this would be its operation, we are clearly of opinion that a sinking fund, honestly applied, is favourable to the accumulation of wealth.

Dr Hamilton has followed Dr Price in insisting much on the disadvantage of raising loans during war in a three per cent. stock, and not in a five per cent. stock. In the former, a great addition is made to the nominal capital, which is generally redeemed during peace at a greatly advanced price. Three per cents which were sold at sixty will probably be repurchased at eighty, and may come to be bought at 100; whereas in five per cents there would be little or no increase of nominal capital, and as all the stocks are redeemable at par, they would be paid off with very little loss. The correctness of this observation must depend on the relative prices of these two stocks. During the war in 1798, the three per cents were at fifty, while the five per cents were at seventy-three; and at all times the five per cents bear a very low relative price to the three per cents. Here then is one disadvantage to be put against another, and it must depend upon the degree in which the prices of the three per cents and five per cents differ, whether it be more desirable to raise the loan in the one or in the other. We have little doubt, that during many periods of the war, there would have been a decided disadvantage in making the loan in five per cent. stock in preference to three per cent. stock. The market in five per cent. stock, too, is limited; a sale cannot be forced in it without causing a considerable fall, a circumstance known to the contractors, and against which they would naturally take some security in the price which they bid for a large loan if in that stock. A premium of two per cent. on the market price may appear to them sufficient to compensate them for their risk in a loan in three per cent. stock; they may require one of five per cent. to protect them against the dangers they apprehend from taking the same loan in a five per cent. stock.

II. After having duly considered the operation of a sinking fund derived from annual taxes, we come now to the consideration of the best mode of providing for our annual expenditure, both in war and peace; and further, to examine whether a country can have any security that a fund raised for the purpose of paying debt will not be misapplied by ministers, and be really made the instrument for creating new debt, so as never to afford a rational hope that any progress whatever will permanently be made in the reduction of debt.

Suppose a country to be free from debt, and a war to take place which should involve it in an annual additional expenditure of twenty millions—there are three modes by which this expenditure may be provided; first, taxes may be raised to the amount of twenty millions per annum, from which the country would be totally freed on the return of peace; or, secondly, the money might be annually borrowed and funded, in which case, if the interest agreed upon was five per cent. a perpetual charge of one million per annum taxes would be incurred for the first year's expense, from which there would be no relief during peace, or in any future war,—of an additional million for the second year's expense, and so on for every year that the war might last. At the end of twenty years, if the war lasted so long, the country would be perpetually encumbered with taxes of twenty millions per annum, and would have to repeat the same course on the recurrence of any new war. The third mode of providing for the expenses of the war would be to borrow annually the twenty millions required as before, but to provide by taxes a fund, in addition to the interest, which, accumulating at compound interest, should finally be equal to the debt. In the case supposed, if money was raised at five per cent. and a sum of L.200,000 per annum in addition to the million for interest were provided, it would accumulate to twenty millions in forty-five years; and, by consenting to raise L.1,200,000 per annum by taxes for every loan of twenty millions, each loan would be paid off in forty-five years from the time of its creation; and in forty-five years from the termination of the war, if no new debt were created, the whole would be redeemed, and the whole of the taxes would be repealed.

Of these three modes, we are decidedly of opinion that the preference should be given to the first. The burdens of the war are undoubtedly great during its continuance, but at its termination they cease altogether. When the pressure of the war is felt at once, without mitigation, we shall be less disposed wantonly to engage in an expensive contest; and, if engaged in it, we shall be sooner disposed to get out of it, unless it be a contest for some great national interest. In point of economy, there is no real difference in either of the modes; for twenty millions in one payment, one million per annum for ever, or L.1,200,000 for forty-five years, are precisely of the same value; but the people who pay the taxes never so estimate them, and therefore do not manage their private affairs accordingly. We are too apt to think that the war is burdensome only in proportion to what we are at the moment called to pay for it in taxes, without reflecting on the probable duration of such taxes. It would be difficult to convince a man possessed of L.20,000, or any other sum, that a perpetual payment of L.50 per annum was equally burdensome with a single tax of L.1000. He would have some vague notion that the L.50 per annum would be paid by posterity, and would not be paid by him; but if he leaves his fortune to his son, and leaves it charged with this perpetual tax, where is the difference whether he leaves him L.20,000 with the tax, or L.19,000 without it? This argument of charging posterity with the interest of our debt, or of relieving them from a portion of such interest, is often used by otherwise well-informed people; but we confess we see no weight in it. It may indeed be said that the wealth of the country may increase, and as a portion of the increased wealth will have to contribute to the taxes, the proportion falling on the present amount of wealth will be less, and thus posterity will contribute to our present expenditure. That this may be so, is true: but it may also be otherwise; the wealth of the country may diminish; individuals may withdraw from a country heavily taxed; and therefore the property retained in the country may pay more than the just equivalent, which would at the present time be received from it. That an annual tax of L.50 is not deemed the same in amount as L.1000 ready money, must have been observed by every body. If an individual were called upon to pay L.1000 to the income-tax, he would probably endeavour to save the whole of it from his income; he would do no more if, in lieu of this war-tax, a loan had been raised, for the interest of which he would have been called upon to pay only L.50 income-tax. The war-taxes, then, are more economical; for when they are paid, an effort is made to save to the amount of the whole expenditure of the war, leaving the national capital undiminished. In the other case, an effort is only made to save to the amount of the interest of such expenditure, and therefore the national capital is diminished in amount. The usual objection made to the payment of the larger tax is, that it could not be conveniently paid by manufacturers and landholders, for they have not large sums of money at their command. We think that great efforts would be made to save the tax out of their income, in which case they could obtain the money from this source; but suppose they could not, what should hinder them from selling a part of their property for money, or of borrowing it at interest? That there are persons disposed to lend, is evident from the facility with which government raises its loans. Withdraw this great borrower from the market, and private borrowers would be readily accommodated. By wise regulations and good laws, the greatest facilities and security might be afforded to individuals in such transactions. In the case of a loan, A advances the money, and B pays the interest, and every thing else remains as before. In the case of war-taxes, A would still advance the money and B pay the interest, only with this difference, he would pay it directly to A; now he pays it to government, and government pays it to A.

These large taxes, it may be said, must fall on property, which the smaller taxes now do not exclusively do. Those who are in professions, as well as those who live from salaries and wages, and who now contribute annually to the taxes, could not make a large ready money payment; and they would therefore be benefited at the expense of the capitalist and landholder. We believe that they would be very little, if at all, benefited by the system of war-taxes. Fees to professional men, salaries, and wages, are regulated by the prices of commodities, and by the relative situation of those who pay and of those who receive them. A tax of the nature proposed, if it did not disturb prices, would, however, change the relation between these classes, and a new arrangement of fees, salaries, and wages, would take place, so that the usual level would be restored.

The reward that is paid to professors, &c. is regulated, like every thing else, by demand and supply. What produces the supply of men, with certain qualifications, is not any particular sum of money, but a certain relative position in society. If you diminish, by additional taxes, the incomes of landlords and capitalists, leaving the pay of professions the same, the relative position of professions would be raised; an additional number of persons would therefore be enticed into those lines, and the competition would reduce the pay.

The greatest advantage that would attend war-taxes would be the little permanent derangement that they would cause to the industry of the country. The prices of our commodities would not be disturbed by taxation; or if they were, they would only be so during a period when every thing is disturbed by other causes during war. At the commencement of peace every thing would be at its natural price again, and no inducement would be afforded to us by the direct effect, and still less by the indirect effect, of taxes on various commodities, to desert employments in which we have peculiar skill and facilities, and engage in others in which the same skill and facilities are wanting. In a state of freedom every man naturally engages himself in that employment for which he is best fitted, and the greatest abundance of products is the result. An injudicious tax may induce us to import what we should otherwise have produced at home, or to export what we should otherwise have received from abroad; and in both cases we shall receive, besides the inconvenience of paying the tax, a less return for a given quantity of our labour than what that labour would, if unfettered, have produced. Under a complicated system of taxation, it is impossible for the wisest legislature to discover all the effects, direct and indirect, of its taxes; and if it cannot do this, the industry of the country will not be exerted to the greatest advantage. By war-taxes, we should save many millions in the collection of taxes. We might get rid of at least some of the expensive establishments, and the army of officers which they employ would be dispensed with. There would be no charges for the management of debt. Loans would not be raised at the rate of L.50 or L.60 for a nominal capital of L.100, to be repaid at L.70, L.80, or possibly at L.100; and perhaps, what is of more importance than all these together, we might get rid of those great sources of the demoralization of the people, the Customs and Excise. In every view of this question we come to the same conclusion, that it would be a great improvement in our system for ever to get rid of the practice of funding. Let us meet our difficulties as they arise, and keep our estates free from permanent encumbrances, of the weight of which we are never truly sensible till we are involved in them past remedy.

We are now to compare the other two modes of defraying the expenses of a war, one by borrowing the capital expended, and providing annual taxes permanently for the payment of the interest; the other by borrowing the capital expended, and, besides providing the interest by annual taxes, raising, by the same mode, an additional revenue (and which is called the sinking fund), with a view, within a certain determinate time, to redeem the original debt, and get rid entirely of the taxes.

Under the firm conviction that nations will at last adopt the plan of defraying their expenses, ordinary and extraordinary, at the time they are incurred, we are favourable to every plan which shall soonest redeem us from debt; but then we must be convinced that the plan is effective for the object. This, then, is the place to examine whether we have or can have any security for the due application of the sinking fund to the payment of debt.

When Mr Pitt, in 1786, established the sinking fund, he was aware of the danger of intrusting it to ministers and parliament; and therefore provided that the sums applicable to the sinking fund should be paid by the exchequer into the hands of commissioners, by quarterly payments, who should be required to invest equal sums of money in the purchase of stock, on four days in each week, or about fifty days in each quarter. The commissioners named were, the Speaker of the House of Commons, the Chancellor of the Exchequer, the Master of the Rolls, the Accountant-General of the Court of Chancery, and the Governor and Deputy-Governor of the Bank. He thought that, under such management, there could be no misapplication of the funds, and he thought correctly, for the commissioners have faithfully fulfilled the trust reposed in them. In proposing the establishment of a sinking fund to parliament in 1786, Mr Pitt said, "With regard to preserving the fund to be invariably applied to the diminution of the debt inalienable, it was the essence of his plan to keep that sacred, and most effectually so in time of war. He must contend, that to suffer the fund at any time, or on any pretence, to be diverted from its proper object, would be to ruin, defeat, and overturn his plan. He hoped, therefore, when the bill he should introduce should pass into a law, that house would hold itself solemnly pledged not to listen to a proposal for its repeal on any pretence whatever."

"If this million, to be so applied, is laid out with its growing interest, it will amount to a very great sum in a period that is not very long in the life of an individual, and but an hour in the existence of a great nation; and this will diminish the debt of this country so much as to prevent the exigencies of war from raising it to the enormous height it has hitherto done. In the period of twenty-eight years, the sum of a million, annually improved, would amount to four millions per annum; but care must be taken that this fund be not broken in upon: *this has hitherto been the bane of this country;* for if the original sinking fund had been properly preserved, it is easy to be proved that our debts, at this moment, would not have been very burdensome: *this has hitherto been in vain endeavoured to be prevented by acts of parliament;* the minister has uniformly, when it suited his convenience, gotten hold of this sum, which ought to have been regarded as most sacred. What then is the way of preventing this? The plan I mean to propose is this, that this sum be vested in certain commissioners, to be by them applied quarterly to buy up stock; by this means, no sum so great will ever be ready to be seized upon on any occasion, and the fund will go on without interruption. Long and very long has this country struggled under its heavy load, without any prospect of being relieved; but it may now look forward to an object upon which the existence of this country depends; it is therefore proper it should be fortified as much as possible against alienation. By this manner of paying L.250,000 quarterly into the hands of commissioners, it would make it impossible to take it by stealth; and the advantage would be too well felt ever to suffer a public act for that purpose. A minister could not have the confidence to come to this house and desire the repeal of so beneficial a law, which tended so directly to relieve the people from burden."

Mr Pitt flattered himself most strangely, that he had found a remedy for the difficulty which "had hitherto been the bane of this country:" he thought he had discovered means for preventing "ministers, when it suited their convenience, from getting hold of this sum, which ought to be regarded as most sacred." With the knowledge of parliament which he had, it is surprising that he should have relied so firmly on the resistance which the House of Commons would offer to any plan of ministers for violating the sinking fund. Ministers have never desired the partial repeal of this law, without obtaining a ready compliance from parliament.

We have already shown, that in 1807, one chancellor of the exchequer proposed to relieve the country from taxation, with a very slight exception, for several years together, while we were, during war, keeping up, if not increasing, our expenditure, and supplying it by means of annual loans. What is this but disposing of a fund which ought to have been regarded as most sacred?

In 1809, another chancellor of the exchequer raised a loan, without raising any additional taxes to pay the interest of it, but pledged a portion of the war-taxes for that purpose, thereby rendering an addition to that amount necessary to the loan of the following and every succeeding year. Was not this disposing of the sinking fund by stealth, and accumulating debt at compound interest? Another chancellor of the exchequer, in 1813, proposed a partial repeal of the law, by which seven millions per annum of the sinking fund was placed at his disposal, and which he has employed in providing for the interest of new debt. This was done with the sanction of parliament, and, as we apprehend, in direct violation of all the laws which had before been passed regarding the sinking fund. But what has become of the remainder of this fund, after deducting the seven millions taken from it by the act of 1813?[1] It should now be sixteen millions, and at that amount it was returned in the annual finance accounts last laid before parliament. The finance committee appointed by the House of Commons did not fail to see that nothing can be deemed an efficient fund for the redemption of debt in time of peace, but such as arises from an excess of revenue above expenditure; and as that excess, under the most favourable view, was not quite two millions, they considered that sum as the real efficient sinking fund, which was now applicable to the discharge of debt. If the act of 1802 had been complied with, if the intentions of Mr Pitt had been fulfilled, we should now have had a clear excess of revenue of above twenty millions, applicable to the payment of the debt; as it is, we have two millions only, and if we ask ministers what has become of the remaining eighteen millions, they show us an expensive peace establishment, which they have no other means of defraying but by drafts on this fund, or several hundred millions of three per cents, on which it is employed in discharging the interest. If ministers had not had such an amount of taxes to depend on, would they have ventured, year after year, to encounter a deficiency of revenue below expenditure, for several years together, of more than twelve millions? It is true that the measures of Mr Pitt locked it up from their immediate seizure; but they knew it was in the hands of the commissioners, and presumed as much upon it, and justly, with the knowledge they had of parliament, as if it had been in their own. They considered the commissioners as their trustees, accumulating money for their benefit, and of which they knew that they might dispose whenever they should consider that the urgency of the case required it. They seem to have made a tacit agreement with the commissioners, that they should accumulate twelve millions per annum at compound interest, while they themselves accumulated an equal amount of debt, also at compound interest. The facts are indeed no longer denied. In the last session of parliament, for the first time, the delusion was acknowledged by ministers, after it had become manifest to every other person; but yet it is avowed to be their intention to go on with this nominal sinking fund, raising a loan every year for the difference between its real and nominal amount, and letting the commissioners subscribe to it. On what principle this can be done, it would be difficult to give any rational account. Perhaps it may be said that it would be a breach of faith to the stockholder to take away the sinking fund; but is it not equally a breach of faith if the government itself sells to the commissioners the greatest part of the stock which they buy? The stockholder wants something substantial and real to be done for him, and not any thing deceitful and delusive. Disguise it as you will, if of fourteen millions to be invested by the commissioners in time of peace, the stock which twelve millions will purchase is sold by the government itself, which creates it for the very purpose of obtaining these twelve millions, and only stock for two millions is purchased in the market, and no taxes for sinking fund or interest are provided for the twelve millions which government takes; the result is precisely the same to the stockholder, and to every one concerned, as if the sinking fund was reduced to two millions. It is utterly unworthy of a great country to countenance such pitiful shifts and evasions.

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[1] Some of the following observations refer to the period when this article was originally composed.—Ed.

The sinking fund, then, has, instead of diminishing the debt, greatly increased it. The sinking fund has encouraged expenditure. If, during war, a country spends twenty millions per annum, in addition to its ordinary expenditure, and raises taxes only for the interest, it will in twenty years accumulate a debt of four hundred millions, and its taxes will increase to twenty millions per annum. If, in addition to the million per annum, taxes of L.200,000 were raised for a sinking fund, and regularly applied to the purchase of stock, the taxes, at the end of twenty years, would be twenty-four millions, and its debt only three hundred and forty-two millions; for fifty-eight millions will have been paid off by the sinking fund; but if at the end of this period new debt shall be contracted, and the sinking fund itself, with all its accumulations, amounting to L.6,940,000, be absorbed in the payment of interest on such debt, the whole amount of debt will be five hundred and thirty-eight millions, exceeding that which would have existed if there had been no sinking fund by a hundred and thirty-eight millions. If such an additional expenditure were necessary, provision should be made for it without any interference with the sinking fund. If, at the end of the war, there is not a clear surplus of revenue above expenditure of L.6,940,000 on the above supposition, there is no use whatever in persevering in a system which is so little adequate to its object. After all our experience, however, we are again toiling to raise a sinking fund; and in the last session of parliament three millions of new taxes were voted, with the avowed object of raising the remnant of our sinking fund, now reduced to two millions, to five millions. Is it rash to prognosticate that this sinking fund will share the fate of all those which have preceded it? Probably it will accumulate for a few years, till we are engaged in some new contest, when ministers, finding it difficult to raise taxes for the interest of loans, will silently encroach on this fund; and we shall be fortunate if, in their next arrangement, we shall be able to preserve out of its wreck an amount so large as two millions.

It is, we think, sufficiently proved that no securities can be given by ministers that the sinking fund shall be faithfully devoted to the payment of debt, and without such securities we should be much better without such a fund. To pay off the whole, or a great portion of our debt, is, in our estimation, a most desirable object, if, at the same time, we acknowledged the evils of the funding system, and resolutely determined to carry on our future contests without having recourse to it. This cannot, or rather will not, be done by a sinking fund as at present constituted, nor by any other that we can suggest; but if, without raising any fund, the debt were paid by a tax on property, once for all, it would effect its object. Its operation might be completed in two or three years during peace; and if we mean honestly to discharge the debt, we do not see any other mode of accomplishing it. The objections to this plan are the same as those which we have already attempted to answer in speaking of war-taxes. The stockholders, being paid off, would have a large mass of property, for which they would be eagerly seeking employment. Manufacturers and landholders would want large sums for their payments into the exchequer. These two parties would not fail to make an arrangement with each other, by which one party would employ their money, and the other raise it. They might do this by loan, or by sale and purchase, as they might think it most conducive to their respective interests; with this the state would have nothing to do. Thus, by one great effort, we should get rid of one of the most terrible scourges which was ever invented to afflict a nation; and our commerce would be extended without being subject to all the vexatious delays and interruptions which our present artificial system imposes upon it.

There cannot be a greater security for the continuance of peace, than the imposing on ministers the necessity of applying to the people for taxes to support a war. Suffer the sinking fund to accumulate during peace to any considerable sum, and very little provocation would induce them to enter into a new contest. They would know that, by a little management, they could make the sinking fund available to the raising of a new supply, instead of being available to the payment of the debt. The argument is now common in the mouths of ministers, when they wish to lay on new taxes, for the purpose of creating a new sinking fund, in lieu of one which they have just spent, to say, "It will make foreign countries respect us; they will be afraid to insult or provoke us, when they know that we are possessed of so powerful a resource." What do they mean by this argument, if the sinking fund be not considered by them as a war fund, on which they can draw in support of the contest? It cannot, at one and the same time, be employed in the annoyance of an enemy, and in the payment of debt. If taxes are, as they ought to be, Funeral Rites.

raised for the expenses of a war, what facility will a sinking fund give to the raising of them? none whatever. It is not because the possession of a sinking fund will enable them to raise new and additional taxes that ministers prize it; for they know it will have no such effect; but because they know that they will be enabled to substitute the sinking fund in lieu of taxes, and employ it, as they have always done, in war, and providing interest for fresh debt. Their argument means this, or it means nothing; for a sinking fund does not necessarily add to the wealth and prosperity of a country; and it is on that wealth and prosperity that it must depend, whether new burdens can be borne by the people. What did Mr Vansittart mean in 1813, when he said that "the advantage which his new plan of finance would hereafter give, in furnishing a hundred millions in time of peace, as a fund against the return of hostilities, was one of great moment. This would place an instrument of force in the hands of parliament, which might lead to the most important results." "It might be objected by some, that keeping in reserve a large fund to meet the expenses of a new war, might be likely to make the government of this country arrogant and ambitious, and therefore have a tendency unnecessarily to plunge us in new contests;" not a very unreasonable objection, we should think. How does Mr Vansittart answer it? "On this subject he would say, from long experience and observation, that it would be better for our neighbours to depend on the moderation of this country, than for this country to depend on them. He should not think the plan objectionable on this account. If the sums treasured up were misapplied by the arrogant or ambitious conduct of our government, the blame must fall on the heads of those who misused it, not on those who put it into their hands for purposes of defence. They did their duty in furnishing the means of preserving the greatness and glory of the country, though those means might be used for the purposes of ambition, rapine, and desolation." These are very natural observations from the mouth of a minister; but we are of opinion that such a treasure would be more safe in the custody of the people, and that parliament have something more to do than to furnish ministers with the means of preserving the greatness and glory of the country. It is their duty to take every security that the resources of the country are not misapplied "by the arrogant and ambitious conduct of our government," or "used for the purposes of ambition, rapine, and desolation."

On the extraordinary assumption that there was any thing in Mr Vansittart's plan that would more effectually than the old plan allow a hundred millions hereafter to be appropriated to the public service, Dr Hamilton has the following observations:

"We are altogether at a loss to form a distinct conception of the *valuable treasure* here held forth. So soon as any stock is purchased by the commissioners, and stands invested in their name, a like amount of the public debt is in fact discharged. Whether a parliamentary declaration to the effect be made or not, is only a matter of form. If the money remain invested in the name of the commissioners, no doubt it may be transferred again to purchasers in the stock exchange when war broke out anew; and money may be raised for the public in this manner. It is an application to the public to invest their capital in the purchase of this dormant stock." "It is true, that if the taxes imposed during war for the purpose of a sinking fund be continued after peace is restored, till a large sum (suppose L.100,000,000) be vested in the hands of the commissioners, the public, upon the renewal of the war, may spend to that amount without imposing fresh taxes; an advantage," observes Mr Huskisson, "not only not exclusively belonging to this plan, but unavoidable under any plan of a sinking fund in time of peace." Mr Vansittart ought to have said, "if our sinking fund should accumulate in time of peace to so large a sum that I can take five millions per annum from it, I can spend L.100,000,000 in a new war without coming to you for fresh taxes: the disadvantages of my plan are, that by now taking L.7,000,000 per annum from it, and making a provision for speedily, and at regular intervals, appropriating more of this fund to present objects, the sinking fund will be so much diminished that I cannot so soon, by a great many years, avail myself of the five millions for the purpose which I have stated." (S. S. S.)

FUNEN, an island in the Baltic, which, with the island of Langeland and some smaller islands, forms a province of the kingdom of Denmark, which extends over 1348 square miles. These islands partake, in soil and formation, of the same character as the adjoining continental dominions of the same monarchy. The climate also resembles Hamburg, being moist, and excessively variable. The inhabitants of these islands amount to 127,000 persons, who speak the Danish language, and profess the Lutheran religion. The agriculture is tolerably conducted, and the province yields a surplus of corn, chiefly rye and oats, which are sent to other parts of the kingdom or to Norway. The dairies also have a surplus of butter and cheese. There are few manufactures, except those of the domestic kind, which employ the people during the long winter nights in spinning. The capital is Odensee, in the centre of Funen.

FUNERAL RITES, ceremonies accompanying the interment or burial of the dead. The word is formed of the Latin *funus*, and that of *funalia*, on account of the torches (*funes cera circumdati*) used in the funerals of the Romans. Others, however, derive *funus* from the Greek φονος, *death* or *slaughter*.

The first people who seem to have paid any particular respect to their dead were the Egyptians, the posterity of Ham, the first cultivators of idolatrous worship and superstition after the deluge. They were also the first who asserted the immortality of the soul, its migration into all kinds of animals, and its return to the human body, which they supposed to be within the term of three thousand years. Hence the great care which they evinced in embalming their dead, and the vast expense they incurred in building proper repositories for them. In fact, they were more solicitous about graves for the dead than about houses for the living. This is strikingly displayed in those stupendous remains of architecture under ground which were appropriated to the reception of the dead, as well as those above ground, such as the pyramids, where some of the Egyptian kings were interred.

Amongst the Egyptians, when a person died, his parents and friends put on mourning habits, and abstained from all banquets and entertainments. This mourning lasted from forty to seventy days, during which period they embalmed the body. After this ceremony was completed, it was restored to the friends, who placed it in a kind of open chest, which was preserved either in their houses, or in the sepulchres of their ancestors. But before the dead were allowed to be deposited in the tomb, they underwent a solemn judgment, which extended even to their kings. Of this remarkable custom we have a particular account in the first book of Diodorus Siculus. "Those who prepare to bury a relative give notice of the day intended for the ceremony to the judges, and to all the friends of the deceased, informing them that the body will pass over the lake of that district to which the dead belonged; when, on the

Funeral Rites.

judges assembling, to the number of more than forty, and ranging themselves in a semicircle on the further side of the lake, the vessel is set afloat, which those who superintend the funeral have prepared for this purpose. This vessel is managed by a pilot, called in the Egyptian language Charon; and hence they say, that Orpheus, travelling in old times into Egypt, and seeing this ceremony, formed his fable of the infernal regions, partly from what he saw, and partly from invention. The vessel being launched on the lake, before the coffin which contains the body is put on board, the law permits all who are so inclined to produce an accusation against it. If any one steps forth and proves that the deceased has led an evil life, the judges pronounce sentence, and the body is precluded from burial; but if the accuser is convicted of injustice in his charge he falls himself under a considerable penalty. When no accuser appears, or when the accusation is proved to be an unfair one, the relations who are assembled change their expressions of sorrow into encomiums on the dead; yet do not, like the Greeks, speak in honour of his family, because they consider all Egyptians as equally well born; but they set forth the education and manners of his youth, his piety and justice in maturer life, his moderation, and every virtue by which he was distinguished; and they supplicate the infernal deities to receive him as an associate amongst the blessed. The multitude join their acclamations of applause in this celebration of the dead, whom they consider as going to pass an eternity amongst the just below." Such is the description which Diodorus gives of this funeral judicature, to which even the kings of Egypt were subject. The same author asserts that many sovereigns had been thus judicially deprived of the honours of burial by the indignation of their people; and that the terrors of such a fate had the most salutary influence on the conduct of their kings.

The funeral rites amongst the Hebrews were solemn and magnificent. Upon the demise of any person, the relatives and friends of the deceased rent their clothes. This custom is still imitated, but with a due regard to economy, by the modern Jews, who only cut off a piece of their garment in token of affliction. It was usual to bend the dead person's thumb into the hand, and fasten it in that posture with a string, because the thumb having then the figure of the name of God, they thought the evil spirit would not dare to approach it. When they came to the burying-place, they made a speech to the dead in the following terms: "Blessed be God, who has formed thee, fed thee, maintained thee, and taken away thy life. O dead, he knows your numbers, and shall one day restore your life;" and so on. After this they delivered the eulogium, or funeral oration, upon the deceased; then said a prayer, called the "righteousness of judgment;" and finally, turning the face of the dead body towards heaven, they called out, "Go in peace."

Amongst the ancient Greeks it was usual sometimes, before the interment, to place a piece of money in the mouth of the deceased, as Charon's fare for wafting the departed soul over the river Styx. This ceremony was considered as unnecessary in those countries which were supposed to be situated in the neighbourhood of the infernal regions, and to lead thither by a ready and direct road. The corpse was likewise furnished with a cake, composed of flour, honey, and other ingredients, which was designed to appease the fury of Cerberus, and to procure the ghost a safe and quiet entrance. Whilst the corpse continued in the house, a vessel of water was placed before the door, the design of which was, that those concerned about the body might purify themselves by washing; it being the opinion of the Greeks, as well as of the Jews, that pollution was contracted by touching a dead body.

The ceremonies by which they expressed their sorrow for the death of their friends were various; but it seems to have been a constant rule to recede as much as possible in habit and behaviour from their ordinary customs. For this reason they abstained from banquets and entertainments; they divested themselves of all ornaments; and they tore, cut off, or shaved their hair, which they cast into the funeral pile, to be consumed with the remains of their deceased friend. Sometimes they threw themselves on the ground and rolled in the dust, or covered their heads with ashes. They beat their breasts, and even tore their flesh with their nails, upon the loss of a person whom they much lamented. When people of rank, such as public magistrates or great generals, died, the whole city mourned their loss. All public meetings were intermitted; the schools, baths, shops, temples, and all places of concourse were shut up.

Funeral Rites.

After interment followed the *epulæ* or feasts, at which the company used to appear crowned; and upon this occasion they spoke in praise of the dead, as far as they could go with truth, it being esteemed a notorious wickedness to disregard truth in their eulogiums. And not only at these feasts, but even before the company quitted the sepulchre, they were sometimes entertained with a panegyric upon the deceased.

The Grecian soldiers who died in battle had not only their tombs adorned with inscriptions showing their names, parentage, and exploits, but were also honoured with an oration in their praise. The custom amongst the Athenians in the interment of their soldiers was as follows: "They used to place the bodies of their dead in tents three days before the funeral, that all persons might have an opportunity of finding out their relatives, and paying their last respects to them. Upon the fourth day a coffin of cypress was sent from every tribe to convey the bones of their own relatives; after which went a covered hearse, in memory of those whose bodies could not be found. All these, accompanied by a concourse of people, were carried to the public burying-place, called Ceramicus, and there interred. One oration was spoken in commendation of them all, and their monuments were adorned with pillars, inscriptions, and other ornaments usual about the tombs of the most honourable persons. The oration was pronounced by the fathers of the deceased persons who had behaved themselves most valiantly. Thus, after the battle of Marathon, the fathers of Callimachus and Cynægyrus were appointed to pronounce the funeral oration. And on the return of the day upon which the solemnity was first held, the same oration was annually repeated."

Interring or laying the dead in the ground seems to have been the most ancient practice amongst the Greeks; though burning came afterwards to be generally had recourse to. It was customary to throw into the funeral pile those garments which the deceased had usually worn. The pile was lighted by one of his nearest relatives or friends, who made prayers and vows to the wind to assist the flames, that the body might quickly be reduced to ashes; and whilst the pile was burning, the friends of the deceased stood by it, called upon him, and poured out libations of wine.

The funeral rites amongst the ancient Romans were very numerous. The deceased was kept seven days, and every day washed with hot water, and sometimes with oil, that, in case he was only in a slumber, he might be thus awakened; and at intervals his friends collected and raised a shout with the same intent. This last act they called *conclamatio.* The third conclamation was on the seventh day; when, if no signs of life appeared, the defunct was dressed and embalmed by the *pollinctores*, placed in a bed near the door, with his face and heels towards the street; and the outside of the gate, if the deceased were of condition, was hung with cypress boughs. In the course of these seven days an altar was raised near his bed side, called *acerra*, on which his friends every day offered incense; and the *libitinarii* provided articles necessary for the interment.

Funeral Games.

On the seventh day a public crier was sent about the city, inviting the people to the solemnization of the funeral in these words: *Exequias L. Tit. filii, quibus est commodum ire, jam tempus est. Olus* (i. e. *ille*) *ex ædibus effertur.* The company being assembled, the last conclamation ended, and the bed was covered with purple. A trumpeter then marched forward, followed by old women called *præficæ*, singing songs in praise of the deceased. Lastly, the bed followed, borne by the next relations; and if the person were of quality and office, the waxen images of all his predecessors were carried before him on poles. The bed was followed by his children, kindred, and others, *atrati*, or in mourning. From this act of following the corpse, these funeral rites were called *exequiæ*. The body being thus brought to the rostra, the next of kin *laudabat defunctum pro rostris*, made a funeral oration in his praise and that of his ancestors. This being completed, the body was carried to the *pyra*, or funeral pile, and there burnt, his friends first cutting off a finger, which was buried with a second solemnity. When the body was consumed, the ashes were gathered; and the priest, sprinkling the company thrice with clean water, the eldest of the *præficæ* crying aloud, *Ilicet*, dismissed the people, who took their leave of the deceased in this form, *Vale, vale, vale; nos te ordine quo natura permiserit sequemur.* The ashes, enclosed in an urn, were laid in the sepulchre or tomb.

The ancient Christians testified their abhorrence of the Pagan custom of burning their dead, and always deposited the body entire in the ground; and it was usual to bestow the honour of embalming upon the martyrs at least, if not upon others. They prepared the body for burial by washing it with water, and dressing it in a funeral attire. The exportation or carrying forth of the body was performed by near relations, or persons of such dignity as the circumstances of the deceased required. Psalmody, or singing of psalms, was the great ceremony used in all funeral processions amongst the early Christians.

In the Roman Catholic church, the body of the deceased person is washed, and a crucifix is put in its hand. At its feet stands a vessel full of holy water, and a sprinkler is placed, that those who come in may sprinkle both themselves and the body. A priest also stands by the corpse, and prays for the deceased till it is interred. In the funeral procession, the exorcist walks first, carrying the holy water, next the cross-bearer, afterwards the rest of the clergy, and lastly the officiating priest. They all sing the *miserere*, and some other psalms; and at the end of each psalm a *requiem*. We learn from Alet's ritual that the faces of deceased laymen must be turned towards the altar when they are placed in the church, and those of the clergy towards the people. The corpse is placed in the church, surrounded with lighted tapers; after the office for the dead, mass is said; then the officiating priest sprinkles the corpse thrice with holy water, and as often throws incense on it. The body being laid in the grave, the clergyman sprinkles it with holy water.

The funeral ceremonies of the Greek church are much the same with those of the Latin. It needs only to be observed, that, after the funeral service, they kiss the crucifix, and salute the mouth and forehead of the deceased; after which each of the company eats a bit of bread and drinks a glass of wine in the church, wishing the soul a good repose, and the afflicted family all consolation.

Funeral *Games*, a part of the ceremonial of funerals amongst the ancients.

It was customary for persons of quality amongst the ancient Greeks and Romans to institute games with all sorts of exercises, to render the death of their friends more remarkable. This practice was generally received, and is frequently mentioned by ancient writers. Patroclus's funeral games occupy the greater part of one book of the Iliad; and Agamemnon's ghost is introduced by Homer, telling the ghost of Achilles, that he had been a spectator at a great number of such solemnities.

The celebration of these games amongst the Greeks mostly consisted of horse-races; the prizes were of different sorts and value, according to the quality and magnificence of the person who celebrated them. The garlands given to victors on this occasion usually consisted of parsley, which was thought to have some relation to the dead.

These games, amongst the Romans, consisted chiefly of processions, and sometimes of mortal combats of gladiators around the funeral pile. They, as well as the Greeks, had also a custom, though very ancient, of cutting the throats of a number of captives before the pile, as victims to appease the manes of the deceased. Cæsar relates that the Gauls also observed this sanguinary custom.

The funeral games were at length abolished by the Emperor Claudius.

Funeral Oration.

Funeral *Oration*, a discourse pronounced in praise of a person deceased, at the ceremony of his funeral.

This custom is very ancient. In the latter part of the account given of the Egyptian ceremonies of interment may be perceived the first rudiments of funeral orations, which were afterwards moulded into a more polite and regular form by other nations who adopted this custom. Nor can we omit remarking, that those funeral solemnities were attended not only with orations in praise of the deceased, but with prayers for him; which prayers, it seems, were made by one who personated the deceased.

The Grecians received the seeds of superstitious and idolatrous worship from the Egyptians, through Cecrops, Cadmus, Danaus, and Erechtheus; and amongst other customs transplanted from Egypt into Greece, were the solemnities used at the burial of the dead. Of these an encomium on the deceased always formed part, as particularly noticed under the preceding article.

From the Egyptians and Grecians, especially from the latter, the Romans received many of their laws and customs, as well as much of their polytheism and idolatrous worship. It is well known that the custom of pronouncing funeral orations in praise of the dead obtained amongst them; and the manner in which their funeral services were performed has been already described. The corpse being brought into their great oratory, called the *rostra*, the nearest relation *laudabat defunctum pro rostris*, that is, made a funeral oration, in commendation principally of the party deceased, but touching the worthy acts also of those his predecessors whose images were there present. The account given by Dr Kennet is in these words: "In all the funerals of note, especially in the public or indictive, the corpse was first brought with a vast train of followers into the forum; here one of the nearest relations ascended the rostra, and favoured the audience with an oration in praise of the deceased. If none of the kindred undertook the office, it was discharged by some of the most eminent persons in the city for learning and eloquence, as Appian reports of the funeral of Sylla. And Pliny the younger reckons it as the last addition to the happiness of a very great man, that he had the honour to be praised at his funeral by the eloquent Tacitus, then consul; and this is agreeable to Quintilian's account of this matter. "For the funeral orations," says he, "depend very often on some public office, and, by order of the senate, are many times given in charge to the magistrates, to be performed by themselves in person. The invention of this custom is generally attributed to Valerius Poplicola, soon after the expulsion of the regal family. Plutarch tells us, that honouring his colleague's obsequies with a funeral oration, it so pleased the Romans that it became customary for the best men to celebrate the funerals of great persons with speeches in their commendations." Thus

Julius Cæsar, according to custom, delivered an oration in the rostra in praise of his wife Cornelia, and his aunt Julia, when dead; showing that his aunt's descent, by her mother's side, was from kings, and by her father's from the gods. Plutarch says that "he approved of the law of the Romans, which ordered suitable praises to be given to women as well as to men after death." But from what he says in another place it appears that the old Roman law provided that funeral orations should be made only for the elder women; and therefore he says that Cæsar was the first who made one upon his own wife, it not being then usual to take notice of younger women in that way; but by that action he gained much favour from the populace, who afterwards looked upon him, and loved him, as a very mild and good man. The reason why such a law was made in favour of the women, Livy tells us, was this, that when there was such a scarcity of money in the public treasury, that the sum agreed upon to give the Gauls to break up the siege of the city and capitol could not be raised, the women collected amongst themselves and made it up; for which cause they had not only thanks given them, but this additional honour, that after death they should be solemnly praised as well as the men; which looks as if, before this time, the men only had those funeral orations made for them.

This custom of the Romans very early obtained amongst the Christians. Some of their funeral sermons or orations are now extant, as that of Eusebius on Constantine; and those of Nazianzen on Basil and Cæsarius, and of Ambrose on Valentinian, Theodosius, and others. Gregory, the brother of Basil, made επικηδειον λογον, a funeral oration on Melitus, bishop of Antioch. These orations were usually pronounced before the bodies of the deceased were committed to the ground, which custom has been more or less continued ever since.

Thus it appears that those rites and ceremonies amongst the heathens, which have been delivered from one people to another, are what have given birth to

FUNERAL *Sermons and Orations* among Christians. The method in which the characters of deceased persons are given in our funeral sermons is very much the same with that observed in those pagan orations, where first an account is given of the parentage of the deceased, then of his education; after which we hear of his conduct in riper years; then his many virtues are enumerated, as also his generous, noble, and excellent performances.

FUNFKIRCHEN, or PETS, a city of Hungary, in the circle of the Further Danube, situated on the river Pecs. It consists of a single street, near four miles in length, on the declivity of a hill by the river side. It is the seat of the civil and military boards which govern the province, of a college, and of several institutions for education. It contains 2000 houses, and 8487 inhabitants.

FUNGI, from σφογγος, *fungus*, the name of the fourth order of the twenty-fourth class of vegetables in the Linnæan system, comprehending all those which are of the mushroom kind. See BOTANY.

FUNGIBLES, in *Scotch Law*, are such things as are estimated by number, weight, or measure, as corn, butter, ale, and the like.

FUNNEL OF A CHIMNEY, the shaft or smallest part of the waste, where it is gathered into its least dimensions.

FUR TRADE.

THE fur trade in Great Britain, and in most parts of the world, is divided into two distinct branches; namely, one for the preparing of fur for felting purposes, or the manufacturing of men's hats of various descriptions; and the other for dressing the skins of animals for articles of clothing and ornament. But before entering into a detailed account of these two divisions of the fur trade, we shall present the reader with a brief sketch of the history of this branch of commercial traffic in modern times. In doing this, however, our limits will only permit us to give a dry statement of facts, although the subject naturally abounds with moving incidents and perilous enterprises. There is not, perhaps, a single article of commerce which has called forth a more daring and adventurous spirit, or given rise to a more patient and courageous endurance of personal dangers, privations, and hardships, than have been manifested throughout the whole history of the fur trade. We have by its means become pretty accurately acquainted with nearly three fourths of the immense continent of North America, extending from the Gulf of Mexico, on both sides of the country, to the Frozen Ocean on the north. The indefatigable exertions of the fur merchant, stimulated by the prospect of attaining great profits from his hazardous undertakings, have made many nations and tribes of savage men partially acquainted with the arts and refinements of civilized life, who, in the natural course of things, would otherwise have remained many ages immersed in heathen darkness and barbarity. Nor are the general advantages derived from the fur trade confined to a more accurate geographical knowledge of a vast range of country, and the extension of the arts of social comfort and peace. The adventurous fur trader has often been the precursor of the gospel missionary, and has enabled him to pursue his important labours with comparative security and success.

History.

The French, soon after their establishment in Canada in 1608, were the first who brought this commerce into repute, by extending their traffic in skins to the remotest settlements of the Indian tribes in North America. When this trade had been carried on for nearly half a century by the French, it was thought to be so extremely profitable and advantageous that it became the leading temptation for incorporating the English Hudson's Bay Company. The vast countries which surround this bay abounded with animals whose furs and skins were of great value, and far superior in quality to those found in less northerly regions. In 1670 a charter was accordingly granted by Charles II. to the governor and company of adventurers of England trading to Hudson's Bay. They were to have the sole trade and commerce of and to all the seas, bays, straits, creeks, lakes, rivers, and sounds, in whatever latitude, which lie within the entrance of the straits commonly called *Hudson's Straits;* together with all the lands, countries, and territories, upon the coasts of such bays, seas, and straits, which were then possessed by any English subject, or the subjects of any Christian state. The company established several forts, namely, Prince of Wales' Fort, Churchill River, Nelson, New Severn, and Albany, which stood on the west side of the bay, and were garrisoned by a sufficient number of men for ordinary purposes. But in May 1782 the French took and destroyed these forts and settlements, which the company considered as a loss equal to half a million sterling.

Notwithstanding this misfortune, however, the company carried on for many years a very steady and lucrative business. But in spite of the restrictions which grew out of their charter, the fur trade gradually extended itself beyond the territorial limits of the Company; nevertheless, being principally carried on by private individuals, with divided interests and very limited means, the company did not look upon their enterprises with jealousy, and allowed them to pursue their traffic without molestation. But for some time after the conquest of Canada by the English, this irregular trade was suspended, and several years elapsed before it was again revived.

In the year 1766 private adventurers began to traffic from Michilimakinac. The first persons who attempted it went as far as the river Camenistignia, and soon returned successful to Michilimakinac. Their success induced them to renew the journey, and incited others to follow their example. One of these adventurers, Thomas Curry, with a skill and enterprise superior to the others, penetrated to Fort Bourbon, one of the French forts, and returned to Canada with four canoes filled with fur. From this period the people began to spread over every part of the country.

In 1787 these scattered and independent trading parties were united into one body, under the denomination of the North-West Company. This was neither more nor less than an association of commercial men, who agreed to carry on the fur trade conjointly. The capital consisted of twenty shares, of which a certain proportion was held by the company's agents in Canada. The remaining shares were held by the proprietors, who were obliged to manage the business of the concern with the Indians, their clerks, and other servants. They were not bound to furnish capital, nor even credit. Some of them held double shares, and could retire from business at any period with one of them, naming to succeed him in the other any young man in the service, who might be approved of by the majority of the concern, which became accountable to the succeeding person for the share so transferred. The retiring proprietor was also discharged from all duty, and became a dormant partner. Shares were transferable only to such as had served their time in the trade. Every share had a vote, and two thirds formed a majority. The liberal way of providing for the clerks of the company, by admitting them as partners in the concern, excited a spirit of emulation amongst them, and was one of the principal causes of its past and present prosperity. In 1788 the amount of the adventure did not exceed L.40,000; in eleven years it increased to triple that sum. In the same year this concern assumed a new form: the shares were more than doubled, and the company split into two parties; the majority acting upon the old stock and firm, and the rest commencing a new one.

The following is the mode of carrying on the fur trade by these companies. The agents order the goods from England in October, which are shipped from London the next spring, and arrive at Montreal by the summer. From thence they are sent to the Indian market in May following, where they arrive in the ensuing winter, and are exchanged for furs, which reach Montreal next autumn, and are thence shipped for London. As these are not sold nor paid for till the succeeding spring or summer, the merchant, allowing twelve months' credit, receives no return for his goods, and the expenses attending them, which is about equal to the value of the goods themselves, until two years after they are considered as cash; which makes this a very heavy business.

The articles necessary for the trade are coarse woollen cloths, milled blankets, arms and ammunition, tobacco, Manchester goods, linens and coarse sheetings; common hardware, cutlery, ironmongery, and sheet iron; handkerchiefs, hats, shoes, and hose; calicoes and printed cottons, &c. Spirituous liquors and provisions are purchased in Canada. These, with the expenses of making up, and transporting them to and from the Indian market, form about half the annual amount against the adventure.

The number of men employed in the North-West Company, after its firm establishment, was in all 1276; consisting of fifty clerks, seventy-one interpreters, 1120 canoe-men, and thirty-five guides. Of these, five clerks, eighteen guides, and 350 canoe-men, were employed for the summer in going from Montreal to the Grand Portage, and were called pork-eaters, or goers and comers. One third of the total number remained during the winter; all the rest were hired by the year, and sometimes for three years, except the apprentice clerks, who were generally engaged for five or seven years, for which they had only L.100, besides clothing. At the expiration of their time they were either admitted as partners, or were allowed from L.100 to L.300 per annum till thus provided for. Those who acted both as clerks and interpreters received from 1000 to 4000 livres per annum, with clothing and provisions. The guides, who also acted as interpreters, had from 1000 to 3000 livres. The canoe-men are of three descriptions; foremen, steersmen, and middlemen. The first two were allowed annually 1200, and the latter 400 livres each. To the last class were attached upwards of 700 Indians, women and children, victualled at the company's expense.

The necessary number of canoes being purchased, the goods packed, and the rivers free of ice, they are dispatched from La Chine, about eight miles above Montreal, with eight or ten men in each canoe, and their baggage; sixty-five packets of goods, six hundredweight of biscuit, two hundredweight of pork, three bushels of peas, two oil-cloths to cover the goods, a sail, &c., an oar, a towing-line, a kettle, a sponge to bail out the water, with a quantity of gum, bark, and watape to repair the vessel. An European seeing one of these vessels thus laden, with her gunwale within six inches of the water, would think his fate inevitable in it; but the Canadians are very expert, and few accidents happen.

The number of skins obtained annually by the company has varied considerably. In the year 1798 the total produce of their trade for twelve months consisted of 184,300 skins. Of these, 16,338 were diverted from the British market, and sent to China. This speculation, however, did not turn out very profitable, principally on account of the difficulty of getting home the return from this country in the East India Company's ship, the payment of duty, and various other restrictions which do not affect the direct trade with America.

We shall now leave the fur trade in this part of the American continent for the present, and give a short sketch of the trade in other parts of the world. During Captain Cook's last voyage to the Pacific Ocean, besides the various scientific advantages which were derived from it, a new source of wealth was laid open to future navigators, by trading for furs of the most valuable kind to the north-west coast of America. The first vessel that engaged in the new branch of trade which had been pointed out by that great navigator, was equipped by some gentlemen in China. She was a brig of sixty tons and twenty men, commanded by James Hanna; and having sailed from the Typa in the end of April 1785, proceeded to the northward along the coast of China, passed Diemen's Straits, the south end of Japan, and arrived at Nootka in August following. Soon after her arrival, the natives, whom Captain Cook had left unacquainted with the effect of fire-arms, tempted probably by the diminutive size of the vessel, which was scarcely longer than some of their own canoes, and the small number of her people, attempted to board her in open day, but were repulsed with considerable slaughter. This was the introduction to a firm and lasting friendship. Captain Hanna cured such of the Indians as were wounded; an unreserved confidence took place; they traded fairly and peaceably; a valuable cargo of furs was procured; and the bad weather setting in, he left the coast in the end of September, touched at the Sandwich Islands, and arrived at Macao about the end of December.

Captain Hanna sailed again from Macao in May 1786, in the snow Sea Otter, of a hundred and twenty tons and thirty men, and returned to Macao in February 1787. In this second voyage he followed his former track, and arrived at Nootka in August; traced the coast from thence as far as fifty-three degrees; and explored the extensive sound discovered a short time before by Mr Strange, and called by him Queen Charlotte's Sound, the latitude of which is 51 degrees north, and the longitude 128 west.

The snow Lark, Captain Peters, of two hundred and twenty tons and forty men, sailed from Macao in July 1786. Her destination was Kamtschatka (for which she was provided with a suitable cargo of arrack, tea, &c.), Copper Islands, and the north-west coast. Captain Peters was directed to make his passage between Japan and Corea, and examine the islands to the north of Japan, said to be inhabited by hairy people; which, if Captain Cook had lived, would not have been left for the French to determine. No account having been received of this vessel since her departure, there is every reason to fear that she perished.

In the beginning of 1786 two coppered vessels were fitted out at Bombay, under the direction of Mr James Strange, who was himself a principal owner. These vessels were the snow Captain Cook, of three hundred tons, and snow Experiment, of a hundred tons. They proceeded in company from the Malabar coast to Batavia, passed the Straits of Macassar, where the Experiment was run upon a reef, and was obliged to haul ashore upon Borneo to repair; and thence they steered to the eastward of the Palaos Islands, made Sulphur Island, and arrived at Nootka the end of June following. From Nootka, where they left their surgeon's mate, Mackay, to learn the language and collect skins against their intended return (but who was brought away in the Imperial Eagle the following year), they proceeded along the coast to Queen Charlotte's Sound, of which they were the first discoverers, and thence in a direct course to Prince William's Sound. After some stay there, the Experiment proceeded to Macao (their vessels being provided with passes by the governor-general of Goa); the Captain Cook endeavoured to get to Copper Island, but without success, being prevented by constant westerly winds.

Two coppered vessels were also fitted out by a society of gentlemen in Bengal, viz. the snow Nootka, of two hundred tons, and the snow Sea Otter, of a hundred tons, commanded by John Meares and William Tipping, lieutenants in the royal navy. The Nootka sailed in March 1786 from Bengal; passed through the China seas; touched at the Bashees, where they were very civilly treated by the Spaniards, who had taken possession of these islands; arrived at Oonalashka the beginning of August; found there a Russian galliot and some furriers; discovered accidently near Cape Greville a new strait near Cook's River, fifteen leagues wide and thirty long; saw some Russian hunters in a small bay between Cape Elizabeth and Cape Bear; and arrived in Prince William's Sound about the end of September. They determined to winter in Snug Corner Cove, latitude 60. 30. in preference to going to the Sandwich Islands, which seem placed by Providence for the comfort and refreshment of the adventurers in this trade; and were frozen up in this gloomy and frightful spot from the end of November till the end of May. By the severity of the winter they lost their third and fourth mates, surgeon, boatswain, carpenter, and cooper, and twelve of the foremast-men; and the remainder were so enfeebled as to be under the necessity of applying to the commanders of the King George and Queen Charlotte, who just at this time arrived in the sound, for some hands to assist in carrying the vessel to the Sandwich Islands, whither, abandoning all further thoughts of trade, they determined (after getting a sea-stock of fish off Cape Edgecumbe) immediately to proceed. The Nootka arrived at Macao in the end of October 1787.

The Imperial Eagle, Captain Barkley, fitted out by a society of gentlemen at Ostend, sailed from Ostend in the latter end of November 1786; went into the bay of All-Saints, and thence, without touching anywhere, to the Sandwich Islands, and arrived in the beginning of June at Nootka, whence he proceeded to the south, as far as 47. 30. in which space he discovered some good and spacious harbours. In the latitude of 47. 46. he lost his second mate, purser, and two seamen, who were upon a trading party with the long boat, and imprudently trusting themselves ashore unarmed, were cut off by the natives. This place seems to be the same which Don Antonio Mourelle calls the *Ilha de los Dolores*, where the Spaniards, going ashore to water, were also attacked and cut off.

The King George, of three hundred and twenty, and the Queen Charlotte, of two hundred tons, commanded by Captains Portlock and Dixon, who served under Captain Cook in his last voyage, were fitted out by a society of gentlemen in England, who obtained a privilege to trade to the north-west coast of America, from the South Sea and East India Companies. These vessels sailed from England in the beginning of September 1785, touched at the Falkland Islands, Sandwich Islands, and arrived at Cook's River in the month of August. From thence, after collecting a few furs, they steered in the end of September for Prince William's Sound, intending, it is said, to winter there; but they were prevented entering by heavy storms and extremely bad weather, which obliged them to bear away, and seek some other part of the coast to winter at. The storms and bad weather accompanied them till they arrived off Nootka Sound, when they were so near the shore that a canoe came off to them; but though thus near accomplishing their purpose, a fresh storm came on, and obliged them finally to bear away for the Sandwich Islands, where they remained during the winter months; and returning again to the coast, arrived in Prince William's Sound in the middle of May. The King George remained in Prince William's Sound; and during her stay her long boat discovered a new passage from the sound into Cook's River. The Queen Charlotte proceeded along the coast to the south; looked into Behring's Bay, where the Russians have now a settlement; and examined that part of the coast, from fifty-six to fifty degrees, which was not seen by Captain Cook, and which consists of a cluster of islands, called by Captain Dixon Queen Charlotte's Islands, at a considerable distance from the main, which is thus removed further to the eastward than it was supposed to be. Some part of the continent may, however, be seen from the east side of these islands; and it is probable that the distance does not anywhere exceed fifty leagues. According to this estimation, Hudson's House, longitude 106. 27. west, latitude 53. north, is not more than 800 miles distant from that part of this coast, in the same parallel. It is therefore not improbable that the enterprising spirit of our Canadian furriers may penetrate to this coast, the communication with which is probably much facilitated by lakes or rivers, and add to the comforts and luxuries of Europe this invaluable fur, which in warmth, beauty, and magnificence, far exceeds the richest furs of Siberia. Queen Charlotte's Islands are inhabited by a race of people differing in language, in features, and in manners, from all the other tribes of this coast. Amongst other peculiarities, they are distinguished by a large incision in the under lip, in which is inserted a piece of polished wood, sometimes ornamented with mother of pearl shell, in shape and size like a weaver's shuttle, which undoubtedly is the most effectual mode of deforming the human face divine that the ingenious depravity of taste in any savage nation has yet discovered. These ships, after disposing of their furs in China, were loaded with teas on account of the English company, sailed from Wampoa, and arrived in England after an absence of three years.

The year after the departure of the King George and Queen Charlotte, the association to which they belonged fitted out two other vessels, viz. the Princess Royal, of sixty tons, and the Prince of Wales, of two hundred tons, commanded by Captains Colnet and Duncan, the former of whom had served under Captain Cook. These vessels left England in August 1786; touched at New Year's Harbour on Staaten Land, where they left an officer and twelve men to kill seals against the arrival of a vessel which was to follow them from England; and thence proceeded directly to Nootka, where they arrived the 6th of July, sickly and in bad condition, and found there the Imperial Eagle, which had left Europe some months after them. Leaving Nootka, they steered along the shore to the northward, and soon after fell in with the Queen Charlotte.

In the beginning of 1788 Captain Meares again sailed with two other vessels, the Felice, which he commanded himself, and the Iphigenia, Captain Douglas, to Nootka Sound. Here he purchased of the chief of the district a spot, on which he built a house for his residence and the more convenient intercourse with the natives; hoisting the British colours thereon, surrounding it with a breastwork, and mounting a three-pounder on the front. Having done this, he sent Mr Douglas in the Iphigenia to trade along the northern coast, whilst he himself proceeded to the south; and by presents to the chiefs he obtained the ports Cox and Effingham, and the promise of an excellent trade with the natives of the district, and also some other places, which he took possession of in name of the king. Captain Douglas likewise, by presents to the chiefs of the countries he visited, obtained similar privileges, no other European vessel having been there before him.

On their return to Nootka, they found a vessel finished, which the commander had laid down before his departure. This, which he named the North-West America, he left at Nootka with the Iphigenia, whilst he sailed with a cargo of furs in the Felice to China.

A few days after his arrival at China, two vessels, the Prince of Wales and Princess Royal, came to Canton from their trading voyage above mentioned. Captain Meares, fearing that a competition of interests might be injurious to both parties, proposed a partnership, which was mutually agreed to; and another ship was purchased by the firm, and called the Argonaut. In the month of April 1787, Captain Meares gave Mr Colnet the command of the Princess Royal and the Argonaut, which were loaded with stores and articles estimated sufficient for three years trade, besides several artificers, and about seventy Chinese, who intended to become settlers on the north-west coast of America, under protection of the new company.

In the mean while the Iphigenia and North-West America (the vessel built at Nootka), having wintered in the Sandwich Islands, returned to Nootka in the latter end of April; soon after which two Spanish ships of war, under the command of Don Martinez, anchored in the sound. For a few days mutual civilities passed between the Spanish captain and Mr Douglas; but at the end of about a week Don Martinez summoned the latter on board his own ship the Princessa, telling him he was his prisoner, and that the king of Spain had commanded him, Don Martinez, to seize all vessels he should find on that coast. He therefore instructed his officers to take possession of the Iphigenia, which they accordingly did in the name of his Catholic majesty; and the officers and crew were conveyed as prisoners on board the Spanish ships, where they were put in irons, and otherwise ill treated. Immediately after this, Don Martinez took possession of the little settlement, hoisting the standard of Spain, and modestly declaring all the lands from Cape Horn to sixty degrees north latitude belonging to his master. To aggravate the insult, he forcibly employed the crew of the Iphigenia in building batteries, &c. and offered no kind of violence to two American vessels which were at the same time in the harbour. At this time the North-West America was sent to explore the Archipelago of St Lazarus. On her return to Nootka she met with similar treatment, and the skins she had collected were seized, with the rest of her cargo.

A few days after, the Princess Royal (which we have mentioned as having left Canton in company with the Argonaut) arrived. The Spanish commander, for reasons which do not appear, suffered her to depart. The skins collected by the North-West America were shipped on board her for the benefit of her owner, and she proceeded to trade in the neighbouring isles. On the 3d of July the Argonaut arrived at the sound; and Don Martinez, after making every profession of civility to Mr Colnet, the commander, took possession of the said ship in the name of his master, and made prisoners of the crew. Soon after, the Princess Royal returning to receive instructions from Mr Colnet, director of the enterprise, was also seized by the Spanish captain.

The crews of the British vessels were variously disposed of, some being sent to China by the American vessels, and others to Spanish America; but the Chinese were all detained, and employed in the mines which were opened in the lands purchased by Captain Meares. What these mines consisted of we are nowhere informed. Mr Colnet was so much affected at the failure of the enterprise that he lost his reason.

This proceeding, as soon as it became known, occasioned a spirited representation from the British court to that of Spain; at the same time that vigorous preparations were made for war in case adequate satisfaction should be refused. Matters, however, were prevented from coming to extremities, by a compliance on the part of Spain, after many delays and much artifice of negotiation, with the requisitions of Britain; in consequence of which, among other advantages unnecessary to be here recited, the whole trade from California to China was completely laid open, and the British allowed the full exercise of navigation and commerce in those parts of the world which formed the subject of discussion.

In some accounts of the voyages above mentioned, the fur trade in those parts has been greatly magnified. In that published by Captain Portlock, however, this officer observes, that the gains hitherto have certainly not been enviably great, although the merchants have no doubt found the trade lucrative.

Considerable success having attended the Russian voyages to the Aleutian Islands, and along the north-western shore of North America, in the middle of the last century, two Russian mercantile houses, of the names of Schelikoff and Galikoff, projected, in 1785, the formation of a regular company, to encourage the fur trade in those regions, under the denomination of the Russian American Fur Company. Schelikoff himself, the head of one of the establishments, was the commander of all their early expeditions. They erected forts for the protection of a chain of factories on most of the islands, and induced a number of respectable merchants to join in their extensive and lucrative adventures at the expense of the natives, from whom they did not fail to take every opportunity of wresting the staple of the district. Many cruelties were charged against them at this time; and the Emperor Paul was upon the eve of suppressing the association altogether, when the company pledged itself, through its active agent M. Von Resanoff, to follow more regular proceedings. In

1799 it was formally established with considerable privileges. The present emperor took it under his particular patronage at his accession; and the intelligent minister Romanzoff has introduced many useful changes in its constitution. The condition of the fur-collectors of the company is said, however, to be still wretched in the extreme, and only to be exceeded by that of the oppressed Aleutians, who are in turn their slaves.

From about the year 1806 till 1823 a very extensive trade was carried on in the South Seas in procuring seal-skins, which in that part of the world are covered with a very fine fur. These were obtained in vast abundance by the first traders, and yielded a very large profit; but the traffic has now become nearly extinct, on account of the almost entire destruction of the animals. The price of seal-skins is in consequence very high, averaging from 30s. to 50s. per skin; a price which has effectually prevented the use of the fur for felting purposes, to which it was a few years since extensively applied, and confined it entirely to objects of ornament in dress.

Within these last twenty years a great trade has been carried on with some of the South American provinces for the skins of a little animal called the nuetra. It is of the rat species, and is found in immense quantities in most of the rivers in that part of the world. The fur of it is now considered as quite a staple article in the hat trade. The traffic is entirely in the hands of private adventurers; and great numbers of these skins are imported annually into the port of Liverpool by the hat manufacturers in Lancashire, who send their goods to the South American market, and obtain nuetra-skins in exchange.

From the period of the establishment of the North-West Company till 1809, they had succeeded in establishing trading posts adjoining the different factories of the Hudson's Bay Company in all the interior ports of America; and were still, by their enterprise and skill, making considerable progress both to the north and west. They had numerous trading establishments at Athabasca, Peace River, Great and Lesser Slave Lakes, New Caledonia, St Columbia, &c. to none of which places did the Hudson's Bay Company attempt to follow them. By these means the North-West Company became undisputed masters of the interior and south-western states. Their influence with the natives was all-powerful; and no single trader, without incurring imminent danger from the Indians, or encountering the risk of starvation, could attempt to penetrate into their territories.

A few independent individuals unconnected with either company, the chief of whom was Mr John Jacob Astor, a wealthy merchant of New York, still carried on a fluctuating trade with the Indians whose lands border on Canada and the United States; but their competition proved injurious to themselves, as prices far above their value were frequently given to the natives for their furs.

With the interior thus inaccessible, and the confines not worth disputing, Mr Astor turned his thoughts to the opposite side of the American continent; and accordingly made proposals to the North-West Company to join with him in forming an establishment on the Columbia River. This proposition was submitted to the consideration of a general meeting of the wintering proprietors; but, after some negotiations as to the details, it was rejected. Mr Astor, therefore, determined to make the attempt without their co-operation; and, in the winter of 1809, he succeeded in forming an association called the Pacific Fur Company, of which he himself was the chief proprietor. As able and experienced traders were necessary to ensure success, he induced several of the gentlemen connected with the North-West Company to quit that establishment and join in his speculation.

It was intended, in the first instance, to form a trading establishment at the entrance of the Columbia, and as many more subsequently on its tributary streams as the nature and the productions of the country would admit. It was also arranged that a vessel laden with goods for the Indian market should sail every year from New York to the Columbia, and, after discharging her cargo at the establishment, take on board the produce of the year's trade, and thence proceed to Canton, which affords a ready market for furs of every description. On disposing of her stock of peltries at the latter place, she was to return to New York freighted with the productions of China.

The first vessel fitted out by the Pacific Fur Company was the Tonquin, commanded by Captain Jonathan Thorne, formerly a lieutenant in the service of the United States. She sailed from New York in the autumn of 1810, and had on board four partners, nine clerks, with a number of mechanics and *voyageurs*, and a large and well-assorted cargo for the Indian and Chinese trade. Much about the same period a party under the command of Messrs W. P. Hunt and Donald Mackenzie, left St Louis on the Missouri, with the intention of proceeding as nearly as possible by Lewis and Clarke's route across the continent to the mouth of the Columbia. This party consisted, besides the above gentlemen, who were partners, of three clerks and upwards of seventy men.

The following year, 1811, another vessel, the Beaver, of four hundred and eighty tons, commanded by Captain Cornelius Sowles, sailed for Columbia. She had on board one partner, six clerks, and a number of artisans and *voyageurs*, with a plentiful supply of every thing which could contribute to the comfort of the passengers and crew. After a voyage of nearly seven months, she arrived at the mouth of the Columbia.

An establishment was here formed, which was called Fort Astoria, in honour of Mr Astor. There were at this fort, when the Tonquin and the Beaver united their respective forces, five proprietors, and as many clerks, artisans, canoe-men, and others, as amounted to a hundred and forty men. The Tonquin was dispatched on a short cruise to the northward, as far as Nootka Sound, with a view of obtaining a few furs there; whilst the party at the Columbia were endeavouring to obtain what would complete her cargo, when she was to be sent forthwith to Canton. But she was destined never to return to St Columbia. The captain and the natives quarrelled, when she was plundered, and every one on board put to death.

This melancholy circumstance threw a great gloom over the establishment at Astoria, which, three years after this, was doomed to entire dissolution. In 1812, war having been declared by Great Britain against the United States, the company found, that in consequence of the strict blockade maintained by the English cruisers, no vessel could venture to trade to such a remote part of the world; added to which, information was received that the Beaver, which had proceeded a short time before to Canton, was blockaded there. These untoward events decided the fate of the Pacific Fur Company. Many of the most active persons in its employment offered their services to the North-West Company, which were readily accepted.

The standard of exchange established between the fur traders and the Indians, from whom the skins are obtained, is quite of an arbitrary description, and has very little reference to the intrinsic value of the skins when brought into this country. The beaver-skin is taken as the standard of value. Three martens, eight musk-rats, or a single lynx or wolverene skin, are equivalent to one beaver; a silver fox, a white fox, or otter, is reckoned two beavers; and a black fox, or large black bear, is equal to four; a mode of reckoning which has very little connection with the real value of these different skins in the European market. Neither has any attention been paid to the original cost of

Fur Trade.

European articles, in fixing the tariff by which they are sold to the Indians. A coarse butcher's knife is one skin, a woollen blanket or fathom of coarse cloth eight, and a fowling-piece fifteen. The Indians receive their principal outfit of clothing and ammunition on credit in the autumn, to be repaid by their winter hunts; the amount intrusted to each of the hunters varies with their individual reputation for industry and skill, from twenty to a hundred and fifty skins.

From 1810 to 1821, the North-West Company continued to prosecute their trading speculations with the most indefatigable activity and considerable success. They had established their trading forts over almost the whole length and breadth of North America. The Hudson's Bay Company were not less enterprising and industrious; and from their having been the original possessors of a large portion of the hunting territory, long established and protected by a charter, they had a decided advantage over the other company. But this keen rivalship produced a multitude of evils, both to the companies and to the poor Indians themselves. Each company had to keep an extra number of men in their employment, to collect the skins during winter; for every thing depended upon who should get first among the Indians. The hunters having obtained from either the one or the other of these companies a considerable sum in advance upon the success of their hunting exertions, were often strongly tempted to break through their engagements, by the statements and artifices of rival agents. The Indians, often deceived themselves, became deceivers in their turn; and not unfrequently, after having incurred a heavy debt at one trading post, they would move off to another, and play the same game. In some cases mutual agreements were entered into by both companies, to put a stop to these dishonest proceedings; but such treaties were no sooner made than indirectly violated by the zeal and cupidity of individual agents; so that they proved fertile subjects for disputes and differences, which were more than once decided by force of arms.

These, with many other serious evils arising out of this keen commercial rivalry, threatened ultimately to destroy both companies, and ruin the fur trade altogether. Both parties, therefore, saw it for their interest to come to a friendly understanding. In 1821 they became united into one body; and the result has hitherto shown that they have since done a great deal more business, the profits upon which have yielded a considerably increased per centage. They possess at this time (1834) a decided monopoly in the fur trade; and though this may seem to a casual observer as likely to enhance the price of furs, and operate like an additional tax upon the community, yet the whole history of this traffic clearly shows that it cannot be carried on by individual capital and enterprise.

The amount of foreign furs of every description imported into Great Britain cannot be less than from one and a half to two millions annually; whilst the value of the hare and rabbit furs of our own country may be valued at another million. The following are the duties to which skins and furs are at present subjected.

Imports.

Beaver (British possessions)	4s. per skin.
Do. foreign	8s. per do.
Nuetra	1s. per 100.
Musquash	1s. per 100.
Otter (British possessions)	1s. per skin.
Foreign	1s. 6d. per do.

Exports.

Foreign skins	No duty.
British rabbit fur	1s. per 100.
Hare do.	1s. per do.

On the Manufacturing of Fur for Felting purposes.

In the manufacturing of furs for the making of hats, the principal kinds of skins used are the hare, rabbit, beaver, and nuetra. All these sorts of skins, in the northern parts of Europe, as well as in America, are divided by furriers into two distinct kinds; namely, the *seasoned* and *unseasoned* skins. The former are those which are taken off the animal in winter, when the fur is at its full growth, and in the highest state of perfection as to fineness; the latter are those obtained in spring, summer, and autumn. The fur in the unseasoned skins is short, coarse, and hairy, and is generally not worth more than a third of the value of furs cut off the best-seasoned skins. The mode of manufacturing both descriptions is, however, the same; of which we shall now endeavour to give the reader a brief account.

Hare-Skins.—The first mechanical operation performed on the hare-skin is to open it with a knife down between the middle of the forelegs, taking great care that the skin be not torn; for there is a considerable waste of the fur if this precaution be not attended to. The skin must now be rubbed with what is called a *rake*, which resembles a common dinner-knife, with teeth like a saw. This is used for the purpose of clearing away all manner of dirt and dried blood which may happen to be upon the skin. This cleaning is of very great importance; for the smallest particle of dirt or blood will greatly injure the fur for felting purposes. The operation requires to be carefully and judiciously performed for another reason. If the workman be not attentive, he will tear up, along with the bloody and dirty parts, a considerable part of the good and clean fur; and thus great loss will be incurred.

Hare-skins, after being thus opened and cleaned, must be damped on the pelt side with a little water, and placed under a heavy weight, pelt to pelt, to press them, so that all ridges and inequalities in the pelt may be removed. The skins are now fit for what is called *shearing*. Their outsides are all covered over with a kind of hair, which possesses no felting properties whatever; and this must be taken off with hand shears. These are of two kinds; the one the common shears used for clipping the wool off sheep; the other kind resembles the cutting shears of tailors, only the bowl is made equally large on both sides, for the admission of all the fingers. Some furriers prefer one kind of shears and some another. Those like tailors' shears make the prettiest work when skilfully used; but the other requires less time for their management. The shearing of the skins forms a very important part of their manufacture; for if you cut too far down, you will seriously destroy both quality and quantity of the fur, as well as disfigure its appearance. On this account many furriers confine a part of their work-people to this branch of the business alone; for the greater part of the profits of a master depends upon the manner in which this shearing process is performed.

After a hare-skin has been submitted to the process of shearing, it presents an appearance altogether different from what it did before. A stranger would not know it to be the same skin. Before, it was of a uniform brown colour; now, it is down the whole of the back of a most beautiful jet black, which gradually becomes fainter as it approaches the sides of the skin. After it undergoes the process of *rounding*, which consists in taking off all the irregular or angular pieces of skin, and making the pelt smooth and even, it is then fit for the cutting board.

The cutting boards of furriers are made of the willow tree, and are commonly about twenty inches wide, and from two to three feet broad. They ought to be wet with a little water at short intervals, when used, to make the wood soft, and prevent the edge of the cutting knife from being taken off too soon. These knives are sometimes made of common sheet-iron, but more frequently of steel, which are to be preferred to the former, on account of keeping their edge longer, and being much lighter for the hand. A fine edge will not cut the fur off the skins; it must be a rough edge, which is obtained from rubbing the knife about every two or three minutes upon a piece of common free-stone, of not too fine a grain. These knives are from five to six inches in length and three in breadth, and resemble in some measure those knives used by grocers for the cutting up of cheeses. The skins are all, before cutting, split down the middle of the back into two halves. The cutting then commences at the head or cheeks of the skin, and always in the line of direction in which the fur lies. The cutting knife is run quickly backward and forward against the first joint of the fingers across the skin; whilst at every two or three strokes the hand must be lifted up, to gather in the fur that has been cut, and preserve it in as fleecy a form as possible. Care must be taken against *chopping* the fur; because, when this takes place, the felting principle in all furs is considerably weakened, and in some entirely destroyed.

An important point in the getting up of furs for sale is, to keep them in as unbroken or fleecy consistency as possible. This, abstractedly considered, is of no consequence to their felting power; but the practice of the trade as to this matter has arisen from a desire to keep the different kinds of fur from being mixed with one another, and thereby in some degree to prevent adulteration. From this cause, the above mode of cutting the hare-skin has been very recently much improved, by the use of instruments made of tin, against which the cutting knives run, and which are so contrived as to gather in the whole fur off the largest skin with as much ease as the fur of a half skin could be gathered by the hand when the knife runs against the fingers. This simple invention preserves all the most valuable parts of the skin in one lump or fleece, and enables the workman to sort the fur with more ease and readiness than before.

The fur of the common hare-skin is sorted into five distinct kinds: 1*st*, Fine backs, value from 20s. to 24s. per lb.; 2*d*, second backs, value 12s.; 3*d*, sides, from 8s. to 10s.; 4*th*, bellies, or white sides, from 4s. to 5s.; and, 5*th*, tail wool, from 1s. 6d. to 2s. 6d.

Rabbit-Skins.—The rabbit-skin is cut in precisely the same manner as that of the hare, only there is a considerable difference in the mode of dressing or preparing the former. The rabbit-skin is covered over on the pelt side with large quantities of grease or fat, from which the hare-skin is comparatively free. This must be removed when the rabbit-skin is first opened. The knife used in opening the skin must be pressed down upon that part of the pelt where the fatty substance is, till it gets beneath the cuticle on which it rests, when the whole of the greasy matter may be removed, and a little whitening rubbed on the spot. If this operation be not well attended to, the grease will get mixed with the fur, and damage it considerably. The rabbit, like the hare skin, is covered over with hair upon the top of the fur; but this hair cannot be taken off by shearing, as in the case of the former, but must be removed by *pulling* it out. This is done with a short knife about three inches long, which is held so as to grasp the hair between the thumb and it, which is secured from injury by having a piece of buckskin leather placed over it. The hand of the workman ought to fall lightly upon the skin, otherwise the hair will be cut and the fur pulled out also, which will deteriorate its quality and diminish its quantity very considerably. Rabbit fur is divided into six kinds: 1*st*, Fine backs, value from 10s. to 13s. per lb.; 2*d*, sides, 6s.; 3*d*, seconds, 5s.; 4*th*, redneck, 12s.; 5*th*, pate wool, 4s.; and 6*th*, tail wool, 2s. 6d.

Beaver-Skins.—The skin of the beaver is manufactured in the same way as that of the rabbit. The fat, however, in the former is much greater in quantity and more firmly imbedded in the pelt than in the latter; and of course greater care and trouble are required to remove it. Fuller's earth, mixed with whitening, are used to imbibe the fatty particles. The pulling the outside hair off is of great importance. The cutting of the beaver has been for some years performed by machines; the thickness and regularity in the pelt affording facilities for this mode of operation, which the generality of other skins do not.

The fur of the beaver is sorted into three or four different kinds; but that which is cut off the cheek of the skin bears the highest price. White beaver is comparatively scarce, and is much esteemed for fine drab hats. The prices of beaver fur fluctuate very much; the following are the present quotations of its value. Best cheek, 194s. per lb.; best brown wooms, 130s.; stage, 100s.

Nuetra-Skins.—These are dressed like rabbit-skins, only the hair on the outside of the skins is much stronger than in the rabbit, and requires a sharper knife and greater strength to remove it. Nuetra skins are full of fat; and before they are submitted to the pulling process, they must be well washed with soap and boiling water. The skin is laid with the pelt downwards, and well scrubbed on the fur side with a brush, till the grease is entirely removed. They must then be well washed in cold spring water, which is drawn out from amongst the fur by a piece of wood made for the purpose. After this they are placed before a stove or hot fire to dry, and are then fit to go through the other manufacturing processes. The fur is divided into three kinds; and the price at present averages about 60s. per lb.

Both the beaver and nuetra furs, before they are used for hat purposes, must go through the operation of *blowing*. This is done for the purpose of clearing them of those short black hairs which remain amongst the fur after it is separated from the pelt. A blowing machine consists principally of a cylinder, into which the fur is placed; and by means of a fly-wheel, situated within it, the stuff is thrown up, and the hairs, by reason of their greater specific gravity, fall to the bottom, and leave all the fine fur upon the top. Hare and rabbit furs are also partially used in a blown state for the nap or outside covering of hats.

Though the hare, rabbit, beaver, and nuetra furs are the staple articles of hat manufacture, yet there are other furs occasionally used in their stead, or in conjunction with them. These are the furs of the otter, the seal, musquash, and the mole. The otter is fully as fine as the beaver itself; but the principal objection hatters have to its use is, that it does not retain a good black, but a brown or coppery shade. The seal is not so fine as the otter. It finishes dull upon a hat, and, in consequence, is not much used at present. Musquash is a useful fur. The mole is the only skin known to furriers which for felting purposes needs no preparatory dressing before cutting. Its fur is alike fine throughout. But notwithstanding its fineness, it is so very short as to prevent its being extensively used in the hat manufacture.

Within these last forty or fifty years many attempts have been made to apply machinery to the cutting off the various kinds of fur, but, with the exception of the beaver, these attempts have hitherto been but partially successful. The great difficulties in the way of machinery for cutting purposes are, the unevenness on the surface, and the inequalities in the thickness of the pelt in different skins. The smallest particles of the fleshy part of the skin getting among the fur will injure it; so much so, that a piece of pelt not larger than a pin's head will destroy the finest hat. This circumstance has greatly increased the difficulty of bringing machinery to bear upon the fur trade. There are, however, at this moment some machines employed in the cutting of hare and rabbit skins in England; but if reports are to be relied upon, they are not likely, from the obstacles above adverted to, to realise the expectations of gain at first entertained by those employing them, either in the saving of labour, or in the superior manner in which the fur is manufactured.

Many experiments have also been made to dispense with the usual processes of cutting the different kinds of fur with knives, by applying chemical substances to the pelts, so as to loosen the roots of the fur, and make it leave the pelt upon a slight application of force. Lime has often been tried for this purpose, by using it in the same manner as skinners do in the management of sheep-skins. Some furriers have also tried a partial state of putrefaction; but this, as well as the lime preparation, has proved abortive. The fur obtained off different kinds of skins by such means looks in every respect as well to the eye as if it had been manufactured in the usual manner; but the felting principle is by all such means entirely destroyed.

Carroted Fur. Sulphuric acid has the property of increasing the felting power of most kinds of fur. When this is applied the fur is called *carroted*, from the colour which the acid gives it. The most common kind of fur submitted to this process is that belonging to the rabbit-skin; and it is generally employed in small quantities for the manufacture of all fine stuff hats. Carroted coney wool is made in the following manner: You mix one part of sulphuric acid with two parts of pure spring water, in a dish of some kind; then take and wet the rabbit-skin with a brush all over, making the liquid penetrate as near to the bottom of the fur as possible; care being used, in this process, not to touch the skin with the fingers, lest they be burned, but with a piece of iron hoop made like unto a pair of sugar-nippers. When the skins are thus wet, they must be placed over a very hot fire to dry; but they must not be placed too near, lest they take fire, which they are very apt to do from the application of the acid. Instead of drying them before the fire in this manner, some run a hatter's finishing iron, heated to a certain degree, over the skins, and allow them to dry gradually in the sun. This is found to be a very good plan. When the skins are dry, they ought to be gently beaten with a rod, and slightly wet on the pelt side with water, previously to their being put under the pressing stone. They are then cut in the usual manner. Skins prepared in this way attract a great quantity of moisture from the atmosphere; and carroted fur always feels to the hand as if it had been partially wet with water.

The fur off the rabbit-skin improves in its felting capabilities by being kept a moderate length of time after being taken off the skin; but hare fur does not. Great attention ought to be paid by hat manufacturers, who keep considerable stocks of fur on hand, as to the place they are deposited. If it be too damp, they will rot; if too dry, they will fearfully diminish in weight; therefore a moderately dry and cool place ought to be chosen. The great enemy to all furs is the common moth. This destroys the felting principle. Whenever the slightest appearance in the fur indicates the secure lodgment of this little creature, it ought immediately to be used; or, if this cannot be done, it should be taken out of the paper bags, and broken all over with a small switch rod, or, what will answer the purpose still better, a hatter's bow. The same rules apply to the keeping of skins in good condition as to fur. The situation ought to be cool, dry, and well aired. They will seldom keep longer than twelve or eighteen months, without running great risk of suffering injury from the moth or black beetle. Too many ought not to be heaped together, and particularly if they be rabbit-skins, because the fat or grease about these skins will get heated, run amongst the fur, and become of such an acrid nature as to corrode the very pelt itself. Many persons are inclined to keep hare and rabbit skins a long time, from a notion that the fur upon them will increase in length from the moisture left in the pelt. This is an entirely erroneous opinion. Any one who will make the experiment will find that the amount of fur obtained off any given quantity of skins is much greater in weight when manufactured immediately after they are taken off the animal, than after having been kept for six or twelve months.

The qualities of all kinds of furs differ very considerably, from climate and other local circumstances. The best rabbit fur, used for the manufacture of the finest London hats, is commonly considered as the produce of the east coast of England, particularly from Lincolnshire to Berwick inclusively. The rabbit fur is always stronger in the felting principle when got off rabbits bred on the sea-coast, than in those found in inland places, however favourable in other respects these places may be for the rearing of the animals. The skins along the tract of coast already mentioned seem all of the same size and quality. North of Berwick the rabbit-skin grows less, and the fur weaker and shorter; and the further north, along the coast, the more inferior it becomes. The same thing takes place on the west side of the island. The fur of rabbit-skins procured on the western coast of Scotland is very inferior, and quite unfit for the manufacture of fine stuff hats. Along the west of England the skins become larger and finer in quality, but they are always considered as of less value than those obtained on the eastern coast. The rabbit fur from Ireland is generally of an average quality; but what forms a curious circumstance in the natural history of that country is, that the hare-skins, through every part of it, are of no value whatever. Their fur is totally useless, and consists principally of a kind of hair. The Irish hat manufacturers have, in consequence, to import all their hare fur from England.

The hare fur in Great Britain is superior, for hat purposes, to any in the world. It is finer in its grain, and stronger in its felting properties, than any found in the other countries of Europe. Large quantities of German hare fur are imported into this country, and used along with the produce of our own island; but, on account of its being of a coarser nature, it is generally disposed of at a reduced price. The hare and rabbit furs in all parts of America are very inferior in quality.

The pelts of skins used for felting purposes, after the fur is taken off them, are of little value. They are generally sent to the west of England, and sold for the purpose of making a fine kind of glue, much used in the manufacture of fine cloth. Their present value is only about eighteen shillings per hundredweight.

On the Manufacture of Furs for Ornament and Clothing.

It was not till the later ages that the furs of beasts became an article of luxury. The more refined nations of ancient times never made use of them; those alone whom the former stigmatized as barbarians were clothed in the skins of animals. Strabo describes the Indians as covered with the skins of lions, panthers, and bears; and Seneca, the Scythians as clothed with the skins of foxes and the lesser quadrupeds. Virgil exhibits a picture of the savage Hyperboreans, similar to that which our late circumnavigators have witnessed in the clothing of the wild Americans, unseen before by any polished people. Most part of Europe was at this time in similar circumstances. Cæsar might be as much amazed with the skin-dressed heroes of Britain, as our celebrated Cook was at those of his newly-discovered regions. What time has done to us, time, under humane conquerors, may effect for them. Civilization may take place; and those spoils of animals, which are at present essential for clothing, become the mere objects of ornament and luxury.

It does not appear that the ancient Greeks or Romans ever made use of furs. It originated in those regions where they most abounded, and where the severity of the climate required that species of clothing. At first it consisted of the skins only, almost in the state in which they were torn from the body of the beast; but as soon as civilization took place, and manufactures were introduced, furs became the lining of the dress, and often the elegant facing of the robes. It is probable that the northern conquerors introduced the fashion into Europe. We find, that about the year 522, when Totila, king of the Visigoths, reigned in Italy, the Suethons, a people of modern Sweden, found means, by help of the commerce of numberless intervening people, to transmit, for the use of the Romans, the precious skins of the sable. As luxury advanced, furs, even of the most valuable species, were used by princes as linings for their tents. Thus, Marco Polo, in 1252, found those of the Cham of Tartary lined with ermines and sables, the last of which he calls *zibelines* and *zambolines*. He says that these and other precious furs were brought from countries far north; from the *land of darkness*, and regions almost inaccessible by reason of morasses and ice. The Welsh set a high value on furs as early as the time of Howel Dda, who began his reign about 940. In the next age furs became the fashionable magnificence of Europe. When Godfrey of Boulogne and his followers appeared before the Emperor Alexis Comnenus, on their way to the Holy Land, he was struck with the richness of their dresses. How different was the advance of luxury in France from the time of their great monarch Charlemagne, who contented himself with the plain fur of the otter. Our Henry I. wore furs, yet in his distress was obliged to change them for warm Welsh flannel. But in the year 1337 the luxury had got to such a head that Edward III. enacted, that all persons who could not spend a hundred pounds a year should absolutely be prohibited the use of this species of finery. These, from their great expense, must have been foreign furs, obtained from the Italian states, the traffic of which was at this period boundless. How strange is the revolution in the fur trade. The north of Asia at that time supplied us with every valuable kind; at present we send, by means of the possessions of Hudson's Bay, furs to an immense amount, even to Turkey and to China.

The business of preparing skins for articles of dress is much more simple, and employs a great deal fewer hands, than the trade of manufacturing furs for felting purposes. The first thing to be attended to by those who follow the former occupation is to examine the skin as to the manner in which it has been dried. If it has experienced the slightest degree of putrefaction, it will never be of any use for the purpose of dressing as fur. Great attention is, therefore, paid by the hunters, and those who are engaged in bringing the furs to market, as to the drying of the skins, and the proper manner of packing and preserving them when they are dried. Exposure to the air is the best method of drying a skin after it is taken off the animal, or hanging it up in a dry and cool room where there is no fire. If skins be once thoroughly dried in this manner, they may be preserved for a great length of time, and transported to any distance without injury.

In the dressing of furs for clothing or ornament two things are necessary; to remove the fat or grease from the pelt; and to extract the oiliness from the fur itself, and impart to it a bright and shining appearance. In the accomplishment of these two things the whole art consists. The clearing of the pelt is effected by applying a composition of bran, alum, and salt to it; and the cleansing of the fur by a mixture of soda and fine soap. The skins, after having undergone these processes, are washed with cold water, and dried gradually in the air.

After the skins are prepared in this manner, the next thing is to cut them to advantage. In almost all the articles of the fur kind used as clothing, we find them made up of small and detached pieces of skin, to give these articles a uniform appearance as to the length and colour of the fur. Hence it becomes a point of great importance to a furrier not to have his skins cut to a disadvantage, but to make the most of every part of them.

Very few of the skins used for felting purposes are manufactured for dress. The principal of the latter kind are the grey, silver, and black fox, the ermine, the sable, the chinchilla, the fitchet, the bear, the marten, the mink, the lynx, and the wolf.

FURBISHER, a person who furbishes, polishes, or cleans arms, as guns, swords, pistols, &c. which is chiefly performed with emery.

FURCA, in *Antiquity*, a piece of timber resembling a fork, which was used by the Romans as an instrument of punishment.

There were three methods of punishing by the furca. The first, which was only ignominious, consisted in a master, for small offences, forcing a servant to carry a furca on his shoulders through the city. In the second, which was penal, the party was led round the circus, or other place, with the furca upon his neck, and whipped all the way. The third was capital. In this instance the malefactor having his head fastened on the furca, was whipped to death.

FURCHÉ, in *Heraldry*, a cross forked at the ends.

FURETIERE, ANTHONY, an eminent French philological writer, was born at Paris in the year 1620. He first studied law, and was a counsellor of parliament; but he abandoned these pursuits, adopted the ecclesiastical profession, and became abbot of Chalivoi and Cluines. He now composed various works in prose and verse, by which he greatly distinguished himself and extended his reputation. He was elected a member of the French Academy, the meetings of which learned society he assiduously attended; but having engaged in the compilation of a dictionary of the French language, at a time when his brother academicians collectively were employed in a similar undertaking, his conduct was deemed disrespectful to his colleagues; and a specimen of his work having been published in 1684, he was in the year following expelled the academy. He retaliated by publishing a *Factum* in his own defence, which, on account of its keen satire and invective, served to render his exclusion from that learned body permanent. He died in the year 1688. His dictionary was published in 1690 in two vols. folio. It was republished with improvements by Basnage de Beauval in 1701, in three vols. It afterwards received a further enlargement, and served as the basis of the *Dictionnaire de Trevoux*, of which an edition appeared in 1771, in eight vols. folio. Furetière's other works were Five Satires in verse, Gospel Parables in prose, Le Roman Bourgeois, &c. There is also a collection of anecdotes by him entitled *Furetieriana*. (R. R. R.)

FURIES, in pagan antiquity, were goddesses whose office it was to punish the guilty after death. They were three in number, Alecto, Megæra, and Tisiphone, and were described as having snakes instead of hair, and eyes like lightning, carrying iron chains and whips in one hand, and in the other flaming torches; the latter to discover, and the former to punish, the guilty. They were supposed to be constantly hovering over such persons as had been guilty of any enormous crime.

Mythologists suppose that Tisiphone punished the crimes which sprang from hatred or anger; Megæra those from envy; and Alecto those arising from an insatiable pursuit after riches and pleasure.

FURLING, in naval affairs, signifies the operation of wrapping up and binding any sail close to the yard.

FURLONG, an English long measure, equal to one eighth of a mile, or 660 feet.

FURLOUGH, in the military language, is a license granted by an officer to a soldier to be absent from his duty for a limited time.

FURNACE,

A GENERAL name for those contrivances used in the arts and in chemistry, by which an extraordinary degree of heat is generated, much more intense than what obtains in our ordinary fire-places. These are of very extensive use, particularly where metals and minerals are the subjects of manufacture or of examination, such substances requiring a very powerful heat for their reduction, calcination, or fusion. Hence the various kinds of furnaces which occur in the manufacture of iron, steel, brass, copper, zinc, &c. in smelting, casting, and forging the metal, and in numerous other processes connected with the formation of it. In other cases, such as glass-works, potteries, and various others, it is in general not so much a very intense heat that is wanted, as a steady temperature, and the fire of such magnitude as will keep a large body of material in fusion, and at a very equable state for working. Another large and extensive class of furnaces, and one which is becoming every day of more and more importance, is that applied to the generation of steam in the boilers of steam-engines; and here also it is not so much an intense heat which is necessary, as a very large quantity for a rapid production of the elastic fluid. The construction of furnaces therefore forms an interesting and very important branch of practical mechanics. We shall endeavour at present to explain the general principles of their construction, and describe a few of those most generally in use; and further information will be found in treating of the different arts, manufactures, and processes where the furnaces are chiefly employed.

In regard to the general principles on which the operation of furnaces depends, the exact nature of the process of combustion is, we believe, hardly yet settled among chemical philosophers; and experiments are wanting to determine many points which might be practically useful. It was thought, for example, by Sir Humphry Davy, that by a vivid and rapid combustion of our fuel, a much greater quantity of heat would be generated than by a slow and languid action; and this theory, were it consistent with fact, would often be of great importance where economy of fuel is the object. Be this, however, as it may, it is certain that, in our ordinary furnaces, whatever be the fuel, the grand supporter of combustion is the atmospheric air, or rather the oxygen, which forms one of its constituent parts; and it is the combination of this aerial element with the solid mass of the combustible material in the furnace, which somehow or other, not well understood, produces all the heat that we obtain. To provide, therefore, a supply of this vital principle is the first object in the construction of every furnace. It appears, from some experiments on the products of combustion made by our celebrated chemist Dr Thomson of Glasgow, that for every pound weight of good caking coal consumed in a furnace, there will be required at least 150 cubic feet of common air; and adding fifty more for what cannot be rendered effective, we may allow at least 200 cubic feet to each pound of coal; and this may give us some idea of the vast quantity of air which must be required for many of the large furnaces and fires which are frequently used. In many of the furnaces, for instance, for the boilers of our steam-vessels, the consumpt of coal is more than twenty cwt. each hour; and by the above calculation this will require 7400 cubic feet of air per minute.

Draught by chimney.

It may seem at first no easy matter to supply so large a stream, and to make it pass regularly through the fire; yet this is done in the simplest manner, by means of the chimney, on the principle of the ascensional power of heated air; and few examples occur in practical mechanics of so simple, beautiful, and highly useful an application of a general principle. Air, like every other substance, is expanded by heat, and this in a remarkable degree, owing to the feeble aggregation of its elementary parts. With every degree of Fahrenheit, from the temperature of freezing to that of boiling mercury, or 680°, it expands the 488th part of its bulk. This is according to the accurate experiments of Messrs Petit and Dulong; and these philosophers also found the important law to obtain exactly within the above range of the thermometer, that equal increments of heat produced equal increments of expansion. Hence with a heat of 488°, which is far surpassed in our fires, the volume of the air is doubled; but with every such expansion the air becomes in proportion specifically lighter, and ascends by its buoyancy through the colder and of course denser medium around it. The fire therefore heating the air above it, this ascends, and the chimney forming a tube or perpendicular shaft, either directly above the fire-place, or in communication with it, the heated air fills it, and forms a rarefied column standing in the midst of the ordinary medium. The external columns, therefore, pressing on all sides into the partial vacuity, must rush in below where there is a free communication through the fire: thus a constant draught of air sets in towards the fire and up the chimney; and by this means the combustion in the furnace is kept up. It is exactly what takes place on a great scale over the globe itself, by the sun heating excessively the regions under the line; and this causing everywhere a current of heated air upwards, draws continually a current of cold air from the regions on each side of the tropics; and it is this which produces the phenomenon of the trade-winds, the opposite currents coming into collision under the equator, and destroying each other's effect as to north or south, while the rotation of the earth gives the whole an apparent motion nearly due east. The chimney then is the most essential part of every furnace, and its use is not only to create a draught of heated air, but to receive and discharge the smoke and other aerial products which arise from the combustion. In ordinary fire-places, where only a very moderate degree of heat is wanted to heat our apartments comfortably, the chimney is left open below, immediately above the fire-place, for the convenience of getting fuel or cooking utensils put on. In that case only a very small portion of the air which ascends up the chimney passes through the fire, namely, that which ascends from under the grating, and perhaps a little in the front. The greater proportion ascends above the fire-place, and this mixing with the heated air, cools it, and moderates the draught, which would otherwise become too great. In furnaces, however, where all the heat is required which can be produced, a different arrangement becomes necessary. The fire-place in these must be closed on all sides, and every access to the air excluded, excepting below, where the fuel rests on an open grating, consisting of iron bars laid parallel to each other, and at such distances apart as will retain the fuel, while the air is admitted through them, and the ashes and other refuse drop down into the ash-pit below.

Essential parts.

Hence arises the same general construction in every furnace; and, however they may vary in particular forms and dimensions, each contains a *fire-place, grating, ash-pit,* and *chimney.* It is very essential, particularly where an intense temperature is wanted, that the fire-place should be surrounded with substances of a very slow conducting power for heat, otherwise this would be soon dissipated in the surrounding atmosphere, and no high degree of temperature attained. Clay is found very useful for this purpose in small furnaces intended for experiments; and the effect is most strikingly exhibited if we try the action of a fire-place of sheet iron: the heat is extremely feeble, and is observed dissipating itself on all sides; but if we line it with an inch thickness of clay or pounded charcoal, a very intense heat may then be generated. In large furnaces there is no material so useful for this purpose as brick, which is not only a slow conductor, but can be made to withstand very intense heats.

Grating.

The magnitude of the fire must evidently be determined by the size of the grating; for, however large the fire-place be made, or great the quantity of fuel in it, unless the grating is such as will admit a sufficiency of air, the combustion will not proceed. In large fires, therefore, intended to generate a great quantity of heat, such as those for steam-engine boilers, the grates must be made large in proportion. In fires, again, where it is not so much quantity as an intense temperature, the grate may be quite small, as the temperature will depend chiefly on the power of the draught. Most of the operations of the brass-founder, and of gold and silver-smiths, are performed with furnaces of which the grate does not exceed two feet in area. It may be reckoned generally, that for every ten pounds of coal consumed in an hour, there should be a square foot of area in the grating. The spaces between the bars should be about three eighths or half an inch. The bars themselves should be loose, and made to rest on two cross bars, one at each end, so that they can be taken out and renewed at pleasure. In that case they are made about an inch thick, and with a swell in the middle for greater strength. They are seldom made more than two feet or two and a half feet in length, one or more of such lengths being used if required.

Power of the draught.

But the grating itself, though it will admit it, will not determine any air to enter and pass through the fire. This is done by the draught in the chimney; and according as this is more or less powerful, the fire will burn with greater or less force. It is of the first importance, therefore, to determine what are the circumstances in the form and dimensions of the chimney on which the effect of this draught depends, and by which it may be regulated to our purposes. It is evident, in the first place, that the warmer the air is in the chimney, the greater will be its buoyant force, and the more powerful, therefore, the draught upwards. Every means, therefore, should be taken to preserve the heat in the chimney; and hence the great advantage in dwelling-houses of conducting the vents as much as possible through the interior walls, which are not exposed to the cooling effects of the atmosphere, or of wind and rain, and also carrying them up in a mass together, by which each protects the other from the cold; secondly, the interior of the chimney should be as straight, smooth, and regular as possible, that the current of air may traverse it with the least possible degree of impediment. There should be no projections, nor any sudden inequalities in width, which are sure to create eddies, and obstruct the progress of the air. Hence even the cylindrical form of a chimney will be found to improve the draught, because it presents a larger area than a square in proportion to its circumference, and therefore presents less obstruction. A decided improvement has lately been introduced in the construction of domestic chimneys, by the use of cylindrical cans of fire-brick, about a foot long, and built in, one above the other, to the top of the chimney. These are glazed inside, and present on the whole a very smooth and equal bore for the heated air. The cylindrical form of a chimney also presents externally less extent of cooling surface than the square. Still there are facilities of construction in the square form which give them an advantage. But whether circular or square, as the air becomes necessarily rather cooler at the top of the chimney than the bottom, and therefore denser, hence the chimney should have a slight degree of taper in proportion to this.

Height of chimney.

But of all the circumstances affecting the draught of furnaces, that which has the most powerful influence is the height of the chimney. The reason of this will be evident, if we consider that the mechanical force producing the draught is nothing else than the superior weight of the external air over that within the chimney. The latter forms a column expanded by heat, and having thus lost part of the air which it would have contained had it been at the same temperature with the external air. The external column, therefore, presses on the internal with a force exactly equal to this difference, and which is evidently proportional to the height of the chimney. For suppose we had a chimney fifteen feet high, and the air within it heated to 488°, then one half of the air originally in the chimney will be expelled. The column of fifteen feet would now, if the tube were extended, occupy thirty feet. This fifteen feet, therefore, of the expanded air, being taken out of the scale of the internal column, it is evident that the external air will now act with a preponderating force exactly equal, or with such a pressure as will be due to a column of the expanded air fifteen feet high, which is just equal to a column of the ordinary air seven and a half feet high. But suppose the chimney is thirty feet high under the same circumstances, then the column of expanded air expelled by the heat will be thirty feet high, and the preponderating column of ordinary air fifteen feet, just double of the former, in proportion to the double altitude, and so of every other height; and hence we deduce an important rule, that the *height* of the preponderating part of the column of air, by which the draught is produced in the chimney, is in every case *proportional to the height of the chimney itself;* and it is easy, from what has been stated, to form a calculation of this height in every case. Let H be the height of the chimney, n the number of degrees by which the internal air is heated beyond the external, taking of course the average heat of the top and bottom of the chimney, or any other rule for giving a true average from top to bottom, then $H + \frac{nH}{488}$ will be the height of the internal column when expanded by the heat, and $\frac{nH}{488}$ the height of the preponderating part of the external column, supposing it to have the density of the internal. But suppose it to be of the ordinary density, it will be $\frac{nH}{488 + n}$.

These principles then being established, it is easy now to calculate the velocity with which the external air will rush into the chimney; and this is the most important point to arrive at, as it is this which must determine the rate of supply, and whether it will be more or less than what is calculated on. This velocity, then, or V, according to the well-known formula, will be each second eight times the square root of the height of the preponderating part of the column; and as this height is proportional to that of the chimney itself, hence the rule that *the velocity is proportional to the square root of the height of the chimney.* Taking then the above expression for the height of the preponderating part of the column, we have the velocity of the external air rushing into the chimney $V = 8\sqrt{\frac{nH}{480 + n}}$. But in passing along the sides of the chimney, the air, particularly with great velocities, encounters considerable obstruction; and for this, and for what may arise from inequalities or other causes, we may allow 6 instead of 8 for the co-efficient in the above formula; this gives $V = 6\sqrt{\frac{nH}{480 + n}}$. The air is also greatly obstructed at the grating, and in passing through the interstices of the fuel; but this is supposed to be allowed for by giving the grating an enlarged capacity on this account, so that it may have the same facility in passing through the fire as it has in the chimney. This source of obstruction therefore need not be taken into account.

The above simple formula will be found to agree very nearly with facts; and we have been thus particular in deducing it from well-known and established principles, as rules and calculations have been given on this subject by different authors, the results of which differ considerably from each other. In cases of this nature, it is really superfluous to enter into all the refinements of calculation; there are in actual practice so many anomalies and deranging circumstances, that the only rules of any utility are those which embody simply, but with accuracy, the leading principles involved in the action; more complicated formulæ, even though rigidly exact, instead of guiding, serve often rather to deter the practical engineer from any calculation at all. In an ingenious paper on this subject, by an eminent mathematician, in the *Quarterly Journal of Science,* rigorous formulæ are given for the above calculations; but they are more complex, and the accuracy of some parts may be doubted. The rarefaction of the air by heat, for example, is calculated by a rule which makes it, for 1500°, to be expanded upwards of twenty times its natural volume; whereas, by Petit and Du Long's experiments, it would not exceed $4\frac{1}{4}$ times. Let us now take an example. Suppose we have a chimney thirty feet in height, and the average temperature of the air in it 300° above the external atmosphere, What will be the velocity with which the external air will enter the chimney? Here $H = 30$ $n = 300$, therefore $V = 6\sqrt{\frac{9000}{788}}$, or about 20 feet per second. Hence a chimney at this height, and one foot square, ought to supply 1200 feet per minute; and, from what we have seen, this would be sufficient to consume six pounds of coal per hour; and by enlarging the area of the chimney it would be adapted to a larger fire. But suppose it is raised to 100 feet, the velocity being in every case as the square root of the height, this would give the ratio of $5\frac{1}{2}$ to 10, or 37 feet per second, and a supply, with a one-foot chimney, of 2220 feet a minute. This shows how slowly the effect of raising the chimney proceeds. It requires the height to be raised four times to double the effect, and nine times to triple it; and this explains the great effect, comparatively, which is often produced by chimneys of moderate height judiciously constructed.

In this manner it is easy to calculate the effect of different heights and areas of chimneys, and proportion our dimensions to the nature of the fire to be used. In the above calculations it must be kept in view that the velocity referred to is always the velocity of the external air entering under the fire. The velocity in the chimney itself may be often very different; and by not attending to this distinction, serious mistakes may be committed. The formula for this velocity is simpler, being $V = 6\sqrt{\frac{nH}{480}}$, and in the above case it is twenty-five in place of twenty, and the supply 1500 feet in place of 1200.

Blast-furnace.

In the smelting of iron, and other uses, where a more intense temperature is required than can be produced by the natural draught of a chimney, it is necessary to resort to artificial means for increasing the effect; and this gives rise to the *blast-furnace,* where the draught is produced by the action of bellows or blowing cylinders throwing by mechanical force a violent current of air into the fire. The same object has recently been attained in a very convenient manner by means of fanners, which was originally proposed, we believe, by Desaguliers in the *Philosophical Transactions,* under the name of the centrifugal wheel, for the purpose of ventilating hospitals, ships, &c., and was a few years ago revived and successfully adapted to the blast-furnace by Messrs Carmichael, engineers, Dundee, and is now employed, not only for smelting, but instead of the bellows in the smith's forge, eight or ten forges being in some manufactories all supplied from one fan-wheel.

Description of furnaces.

We shall now describe a few of the furnaces most generally in use. The first is the common air-furnace used chiefly for melting the metals. In this, the metal being placed in a crucible, is set in the heart of the fire, and the heat is communicated directly from the materials in combustion, of which charcoal or coke is the most powerful. The draft is produced by a chimney of proper capacity and height, and the heat generated is retained by a building of brick. The most perfect form of air-furnace of this description would be to have the chimney ascending right above the fire-grate, and to be nearly of the same capacity. In that case, the draft would operate with the most powerful effect. But in practice it is found more convenient to have the use of the space immediately above the fire-place for getting in and out the crucibles and the metal. The chimney is therefore set to a side, and the draft directed into it by a sloping vent, or even by a level flue, the height of the chimney making up for any deficiency in the direct course of the heated air. Plate CCLI. fig. 1, shows a furnace of this description, being a section and side elevation. A shows the fire-place or body of the furnace, with a smelting-pot or crucible on its stand. The stand is often omitted, but is useful in raising the crucible above the grate, so as to allow the bottom of it to receive the full heat of the fire. B is the sloping flue, terminating in the chimney C, and D is the cover or door for closing the opening when the crucible is set. The angle E at the top of the inclined vent serves for setting a crucible to heat when necessary. *a* is the grate, and F the ash-pit opening through the outer wall, or into a cellar below, which serves to prevent the cold air rushing in from injuring the workmen. *d* is the damper. Fig. 2 is a plan of the same furnace, showing the furnace-bars, &c.

Common air-furnace.

Fig. 3 is a section of another air-furnace, with a horizontal flue above the fire-place. Fig. 4 is a section of a brass-founder's melting-furnace, which is found to answer the purpose extremely well. The body of the furnace is circular, composed of three courses of bricks formed to the arch, as shown in the plan, fig. 5. At the top and bottom, and at the two intermediate joints of the bricks, the whole is bound with hoops like a barrel, forming a very strong and durable construction. The flue is horizontal, and of small capacity compared with the fire-place. Above all there is an iron plate, with a flanch in front, holding the brick-work together, and an iron cover, *a*, shutting the opening. A is the ash-pit; B the pavement on the floor of the workshop.

Reverberatory furnaces.

The next sort of air-furnace is what is termed the reverberatory furnace. In this the metal is acted on, not by the heat generated among the combustible materials in the heart of the fire, but by the action of the flame and the heated air striking against it as it ascends up the chimney. The fuel best suited for this furnace, therefore, is coal, not coke; and for the purpose of directing the current, the space above the fire-place is arched over, and a horizontal or slightly descending flue is extended from this space to about three or four times the length of the fire-place, until it terminates in the bottom of the chimney. In this flue the metal is placed, and the flame and heated air striking against the top of the arch above the fire-place, is from thence reflected with full force against the metal, and from this sort of reverberation which takes place the furnace takes its name. From this action, and from the flame heating the interior of the chimney, the effect of this furnace is very powerful; and it is most extensively used in the iron manufacture.

At Plate CCLI. figs. 6, 7, and 8, are represented a plan and sections of one of these reverberatory furnaces. A is the fire-place with the arch above; B the descending flue; C the chimney; *d* the damper; E the ash-pit; F is an opening for introducing the metal or other substance to be acted on, which is laid on the inclined hearth at B, where the flame, reverberating from the top of the arch, strikes with full force. If the substance is intended to be melted, it runs down, and can be taken out at the opening G.

At fig. 9 is a view of another reverberatory furnace, contrived by Dr Black. The hearth or bottom of the flue B here is horizontal. Immediately above the fire-place there is an arched cover, H, of iron, from the top of which an arch of brick-work is extended all the way to the chimney, in which the flame reverberates down upon the hearth. There is only one opening, F, for the introduction of the metal. This furnace may be used with advantage for roasting various substances, such as the ores of metals, for the purpose of expelling their volatile matter. It may also be employed for the cupellation of metals, the door, F, being a little opened for admitting atmospheric air.

Furnace by Mushet.

A furnace of great power was constructed and employed by Mr Mushet, in his numerous and valuable experiments on iron and steel, and was found very convenient for such operations. It is represented at Plate CCLII. figs. 1, 2, 3. Fig. 1 is the section of an assay or melting and annealing furnace, and also a small reverberatory furnace for fusing in very high heats with the flame of pit-coal.

The assay-furnace is cased in cast iron, with a flanch projecting inward the breadth of a brick, and about half an inch more, which serves instead of bearers for the bars (see fig. 2 at D). Upon this flanch the brick-work is reared. It ought to be of good fire-bricks on the bed. The furnace is nine inches square; total height twenty-seven inches. From the top of the flanch to the bottom of the flue the interval is eighteen inches; the flue is four inches high; the height above is five inches; flue seven inches long, and keeps opening into the chimney, as may be seen at fig. 3 at E. If the chimney is under twenty-five feet in height, a larger flue is requisite; and if beyond thirty-five feet, a smaller flue will throw the heat more regularly through the furnace. In general, however, more harm ensues from too small than too large a flue. G is the floor-line, and also represents the edge of a grate which covers the ash-pit, which is better seen on the ground-plan, fig. 3, and in fig. 2 at H. This grate lies nine inches from the bars, having an open space for the admission of air. It projects twenty-four inches outwards, and serves the operator to stand upon.

I I, in figs. 1 and 2, is the ash-pit. In fig. 3, which is a ground-plan of the chimney and furnaces, C is the annealing or cementing furnace, in which the crucibles are annealed or baked to a bright red heat, and from thence introduced, along with the matter to be operated upon, into the assay-furnace. It also serves instead of a cementing furnace, being easily made to produce a heat of 100° of Wedgewood. It may be made of any size, from nine to fourteen inches square; a nine-inch chimney being sufficiently wide to the extent of an eighteen-inch furnace.

The chimney to each furnace is carried up five feet perpendicular; they then gradually incline to the centre opening, which they enter about twelve feet above the flues. L, L, L are dampers. From the grates of this assay-furnace to the top of the chimney the interval is thirty-three feet.

This furnace has melted 400 grains of malleable iron in ten minutes, and half a pound from lumps in forty minutes. If the materials to be operated upon are prepared with judgment, any experiment to the extent of half a pound of matter may be performed in half an hour, and less quantities in much less time. When approaching to its highest heat, a Stourbridge clay crucible (which drops in 168° of Wedgewood) will disappear in fifteen minutes from the time that it is put in. The first five bring it to 140° of Wedgewood, at which cast iron boils. Steel boils in it at 160°, and malleable iron boils in it at 170° to 172° of Wedgewood. It is probable, however, that the advantages of this furnace do not result from the height of the chimney (which is not so great), or from the size of its opening. More, it is likely, depends upon the flue, the opening of the grate bars, the size of the fuel, and particularly the feeding of the fire.

Muffle furnaces.

In many cases it is desirable to heat the articles of manufacture without exposing them to the smoke or dust arising from the fire or flame. This gives rise to a variety of furnaces variously adapted to the purpose; a kitchen oven is a furnace of this description; also the brass-founder's hot-plate or lacquering furnace; the furnaces used by enamellers; and all the different kinds known by the name of muffle-furnaces, in which a close vessel or cavity is formed above the fire-place, or in the draft of heated air from it, with a door opening externally, and by this the articles to be heated are introduced. Plate CCLII. fig. 4, represents a very convenient lacquering furnace or hot-plate for brass-founders. It stands at some distance from the wall of the apartment. The fire-place is immediately under the plate, and the flue carried horizontally into the chimney. Above the plate there is a square cover or box of tin plate, open below, which can be let down over the plate, and encloses the articles as in an oven.

Figs. 5 and 6 represent a convenient furnace for enamellers. It is merely a common air-furnace, similar to those already described, with a close vessel of earthenware placed over the fire-place, the latter being swelled out to allow the heated air to ascend on each side of the vessel. A is the fire-place; B the ash-pit; *a* the grate; C the vessel with its door; D the chimney; and *d* the damper; the other parts to be understood. This furnace may also be used for assaying metals by cupellation.

Figs. 7, 8, and 9, represent a muffle-furnace for producing very intense degrees of heat, and which was employed by Pott, and afterwards by D'Arcet, in their experiments on earths and stones exposed to a continued and violent heat. The fire-place or body of the furnace, B B, is in the form of an oblong coffer, swelling out in the middle. A shows the hole for the muffle; and the dome or upper part of the furnace is shown in D D, with a large door C, for introducing the fuel; *g* is the grate, *s* the ash-pit; and the other parts will be understood.

For an account of the glass-house furnaces, and those in the potteries and other manufactories, we must refer to the respective articles in this work.

In regard to furnaces for steam-boilers, the object of these, as already mentioned, is to produce rapidly a large quantity of heat for the generation of the steam. For this purpose the fire-place and grate are of great extent, and the flame and heated air, after striking the bottom of the boiler, is conveyed in flues along the bottom, and then round and round the sides, so as to deliver the whole of the heat, or as much of it as possible, to the water, before it ascends into the chimney. Figs. 8, 9, 10, Plate CCLIII. represent a furnace and boiler of this description. A is the fire-place; B, B, the grate bars; C, C, the boiler; D, D, D, the flues running under and around the boiler, and terminating in the chimney, E. For a more particular account, we must refer to the article Steam-Engine.

In all these furnaces, and particularly those for steam-engines, a very important object has often been attempted, namely, a consumption of the immense volumes of smoke occasioned by the large fires which must be kept up for their use. For an account of these, see Smoke and Steam-Engine.

Figs. 11, 12, 13, and 14, represent the forms of fire-tongs found useful in the operations connected with furnaces.

Furnaces are of very extensive use in the numerous processes of chemistry, and are variously constructed, according to the notion of the chemist, the uses required, or the means within his reach. They may be divided into three kinds; crucible-furnaces, wind-furnaces, and blast-furnaces. The first are used with charcoal, or, in the larger ones, with charcoal mixed with coke. The draft for the supply of air is obtained from the mere height of the crucible, or by the addition of a funnel pipe. In the wind-furnaces, the draft is obtained by connecting them with the chimney of the laboratory, and therefore more powerful, and better adapted for various uses. In the blast-furnace, again, the air is supplied by bellows; and furnaces of this kind are capable of producing the most intense degree of heat required. The crucible-furnaces are thus described by Professor Faraday, in his well-known work on Chemical Manipulation.

An exceedingly useful furnace, either in a large or small laboratory, may be made out of a black-lead or earthen crucible. The proper crucibles for this purpose are known by the name of *blue pots*, and may be had of almost every size less than the height of twenty-two inches, and of twelve or fourteen inches diameter in the top. They are made of clay and plumbago mixed, and are easily cut by a saw, rasp, or file. The price of one which will make a very good furnace for small operations is about six shillings.

One of these vessels, of the height of twelve inches, and seven inches in width at the top within (Plate CCLIII. fig 1), will make a very useful furnace for the igniting of a small crucible, heating a tube, or distilling with large glass retorts at moderate temperatures, or with smaller glass or earthen retorts at higher temperatures. It is first, in the course of preparation, necessary to have certain round holes pierced in it. These are easily made; a gimlet, bradawl, or other small instrument, is to be used to penetrate the sides; and the small apertures thus produced are to be enlarged with a rat's-tail and round rasp, and ultimately finished with a half-round rasp, which will make them of the size required. Four of these holes are to be placed at equal distances from each other, and about two inches from the bottom of the pot. They may be one and a fourth or one and a half inch in diameter. A second ring of holes, five or six in number, is to be made half way between the top and bottom of the pot, and a third row of five or six within two inches of the top. These holes should be rather smaller than the four lower ones.

The pot should now be bound round with iron or copper wire, to hold it together when it cracks, and a handle made to it of iron wire.

A small round grate of cast iron is only wanting to render this furnace complete for many operations; and several of these grates of different sizes should be ready at hand to drop in, and fit at different heights, as may be required. The part below the grate then forms the ash-pit, and the part above forms the body of the furnace. For the purpose of regulating the fire, if this requires to be diminished, the air-holes can be closed with stoppers made of soft brick or old blue pots; and, to increase the temperature, the body of the furnace itself may be enlarged by setting on the top of it a portion of an old pot, as in fig. 2, cut off so as to form a ring, several of which may be added as occasion requires; and they increase considerably the draft as well as the capacity of the furnace. Another simple method of increasing the power of these furnaces is to set on the top a piece of straight funnel pipe, as at fig. 3, two feet long, four inches diameter, opening out below like a funnel, till it is about eight inches diameter, with a wooden handle for the convenience of taking off or putting on. These simple furnaces are very powerful, and are capable, without difficulty, of raising a crucible two and a half inches in diameter to a white heat. In fact, all the ignitings and heatings which belong to the analysis of siliceous and other minerals have long been made in furnaces of this kind at the Royal Institution.

If the funnel-pipe in one of these crucible furnaces be connected with any chimney or flue in the laboratory, which is easily done by kneeing the pipe at the top, and having two or three short pieces to fit in for adjusting it to different lengths, as at fig. 4, its power is greatly increased, and in fact it becomes a wind furnace. The funnel termination at the bottom should be lined with fire-clay, and have an opening for the introduction of fuel, to be closed by a stopper when the fire is in order; or a still better arrangement is to continue the furnace upwards by a deep ring with the feeding apertures in it, as at fig. 5.

On the same principle with the crucible-furnace is a small portable furnace contrived by Mr Knight, and represented at Plate CCLIV. fig. 1, and consisting of a cylinder of sheet-iron lined with an earthy composition. A B is the fire-place; B C the ash-pit, closed on all sides excepting at the register door, D, where air is admitted; E is an opening for fuel; F a recess for the neck of a retort. Fig. 2 is a funnel top for the furnace, with a pipe above extending by other lengths into the chimney. Fig. 3 is a sand-bath, which can be used in place of the dome, with a pipe rising up from it.

Dr Black's portable furnace.

On the same principle is the well-known portable furnace of Dr Black, represented at fig. 4, Plate CCLIV. which is the most complete of the kind which has yet been contrived. It is made of sheet iron, formed into an elliptic shape for the purpose of getting a chimney separate from the body of the fire-place, and is carefully lined with clay well tempered. A B is the fire-place; B C the ash-pit; E a sliding door for the admission of fuel; D another door for the same purpose, and also for the introduction of a muffle. Fig. 5 is a cover, and fig. 6 a sand-bath. F is the chimney, which is lengthened by pipes, and connected with the chimney of the house.

On the same general principle of the wind-furnace is the general laboratory or table-furnace, which, being of considerable magnitude, is fixed in the laboratory, and forms one of the most important and useful pieces of apparatus which the chemist employs. From the extreme facility which, if conveniently arranged, it gives to every operation, its use is partly domestic, partly chemical;

for it has to warm and air the place, occasionally to heat water, as well as to supply the means of raising a crucible to ignition, or of affording a high temperature to flasks through the agency of a sand-bath.

These objects are best obtained by those furnaces which are built with a table top. The fire-place itself is constructed of brick-work with iron front and fittings; and the flue being carried horizontally for three or four feet, is afterwards carried off to and connected with the main flue existing in the wall. The fire-place and horizontal flue are covered with a large plate of cast iron, of from two to three feet in width. This is formed in the middle, over the heated part, into sand-baths; a round moveable one over the fire itself, and a long fixed one over the flue. The sand-baths supply every gradation of heat, from dull redness, if required, down to a temperature of 100° or lower; whilst on each side of them exists a level surface, which answers every purpose of an ordinary table, and supplies extraordinary facilities to experiments going on in the sand-bath or furnace. Nor are these advantages gained by any serious sacrifice of heating power in the furnace itself; for it is easy so to construct it as to make its ordinary combustion not more rapid than that of a common fire, and yet, by closing the fire-door and opening the ash-pit, to obtain a heat that will readily melt gold, silver, or cast iron.

A furnace like this is best placed in the middle, or towards one end of the laboratory, independent of the wall; for then it most effectually warms the air of the place, and there is working room all round it. The flue may then either descend and be carried off for a short distance under ground, or it may be connected by a funnel pipe with the upright draught chimney. But if more convenient, either as occupying less of the room of a small laboratory, or for other reasons, it may be placed with advantage against one side; and where the laboratory is made out of a room previously built, the best situation is generally against the fire-place, and the flue of the furnace is then easily connected with the chimney previously existing. When a furnace of this kind stands against the wall, it is frequently advantageous to construct a wooden hood over the sand-bath, to receive the fumes evolved during the digestions and solutions made upon it, and conduct them away to the chimney.

Being in constant requisition as a table, a furnace of this kind should be about thirty-four or thirty-five inches in height; its other dimensions, and even its form, must depend upon the space that can be allotted for it; and the following is a more particular description of the one in the laboratory of the Royal Institution, constructed under the direction of Mr Brande. It is represented at fig. 7, Plate CCLIV., and in section at fig. 8 through the line AB. It has the brick-work fifty-two inches in length and thirty-eight in width; the iron plate, including sand-bath, being fifty-seven inches by forty-two. Others have been constructed, the plates of which are only forty inches by twenty-seven. The principal part of this furnace is necessarily of brick-work, only the top plate, with the backs and the front, being of iron. The front is a curved iron plate, having two apertures closed by iron doors, one belonging to the fire-place, and the other to the ash-pit. It is thirty-four inches high and fourteen inches wide. The ash-hole door moves over the flooring beneath; the bottom of the fire-place door is twenty-two inches from the ground, and the door itself is eight and a half inches by seven. This front is guarded within, at the part which encloses the fire, by a strong cast-iron plate, having an opening through it, corresponding to the door of the fire-place. It has clamps attached to it, which, when the furnace is built up, are enclosed in the brick-work. In the setting or building of the furnace, two lateral brick walls are raised on each side the front plate, and a back wall at such a distance from it as to leave space for the ash-hole and fire-place. These walls are lined with Welsh lumps where they form the fire-chamber. Two iron bars are inserted in the course of the work, to support the loose grate bars in the usual manner, the grate being raised nineteen inches from the ground. The side walls are continued until of the height of the front, and are carried backward from the front until in two parallel lines, so as to afford support for the iron plate which is to cover the whole. The back wall of the fire-place is not raised so high as the side walls by six inches and a half, the interval which is left between it and the bottom of the sand-bath being the commencement of the flue or throat of the furnace. In this way the fire-place, which is fourteen inches from back to front, and nine inches wide, is formed, and also the two sides of the portion of the horizontal flue which belongs to the furnace, and is intended to heat the larger sand-bath. The bottom of this part of the flue may be made of brick-work, resting upon bearers laid on the two side walls; or it may be a plate of cast iron, resting upon a ledge of the brick-work on each side, and on the top of the wall which forms the back of the fire-place. When such an arrangement is adopted, the plate must not be built into the brick-work, but suffered to lie on the ledges, which are to be made flat and true for the purpose; for, if attached to the walls, it will by alternate expansion and contraction disturb and throw them down. The ends of the side walls, forming as it were the back of the furnace, may be finished either by being carried to the wall against which the furnace is built, or enclosed by a piece of connecting brick-work, to make the whole square and complete; or a warm air cupboard may be built in the cavity beneath the flue, and the door made to occupy the opening between the walls. Occasionally the flue may be required to descend there, and pass some distance under ground. These joints should be arranged and prepared before the plate constituting the top of the furnace is put on to the brick-work, so that when the plate with its sand-baths are in their places, they may complete the portion of the horizontal flue by forming its upper side.

The size of this plate is the first thing to be considered, and having been determined upon from a consideration of the situation to be occupied by the furnace, and the places of the sand-bath also having been arranged, the brick-work must then be carried up, so as to correspond with these determinations, and with the plate itself, which in the mean time is to be cast. The sand-bath and the plate are to be formed in separate pieces. The bath over the fire is best of a circular form, and of such diameter, that when lifted out of its place, it may leave an aperture in the plate equal in width to the upper part of the fire-place beneath; so that a still or cast-iron pot, or a set of rings, may be put into its place over the fire. The other sand-bath must be of such a form as to correspond with the shape and size of the flue beneath. These vessels are to be of cast iron, about three tenths of an inch thick; their depth is to be two and a half inches or three inches, and they are to be cast with flanches, so as to act in the corresponding depressions of the plate, that the level of the junctions may be uniform. This will be understood from the accompanying sections of the furnace, see fig. 8, given through the line A B of the view. It is essential that these sand-baths be of such dimensions as to fit very loosely into the apertures in the plate, a space of the eighth of an inch or more being left all round them when cold, as shown in the section, otherwise, when heated, they will expand so much as entirely to fill the apertures, and even break the plate. The plate itself should be half an inch thick.

When the plate and its sand-baths are prepared, and the brick-work is ready, the furnace is finished by laying the plate on the brick-work, with a bed of mortar intervening. If the walls are thin, or any peculiarity in their arrangement occasions weakness, they should be bound together, within by cranks built into the work, and without by iron bands. The alternate changes of temperature from high to low and low to high, to which the furnace is constantly subject, renders it liable to mechanical injury, in a degree much surpassing that which would occur to a similar piece of brick-work always retained nearly at one temperature.

The sand-baths which have been described are liable to an accident that has induced some chemists to substitute others made of wrought iron. When first heated, they frequently, indeed generally, crack from the unequal expansion in different parts; and the plate itself is subject to the same accident. If constructed of wrought iron, this effect is not produced; but then, after being used some time, they warp into very irregular and inconvenient forms, especially if made of thin metal; whilst, on the contrary, those of cast iron, when cracked, are rarely injured for the uses to which they are to be applied, and seldom suffer further change.

These baths should have washed sea-sand put into them. It is heavy, and occasions no dust when moved; whilst, on the contrary, unwashed and bad sand contains much dirt, and occasions great injury in experimenting. A piece of straightened iron hoop, about twelve inches in length, should lie on the furnace, as an accompaniment to the baths, being a sort of coarse spatula with which to move away the sand.

The circular sand-bath is frequently replaced by a set of concentric rings, or a cast-iron pot, see fig. 9. The rings are convenient for leaving an aperture over the fire of larger dimension, according as a larger or smaller number are used at once; and being levelled at the edges, fit accurately into each other, without any risk of becoming fixed by expansion. The external one, like the sand-baths, should be made smaller than the depression in the furnace plate in which it rests. The iron pots are of various sizes, and adapted to the furnace by means of the rings. A red heat is easily obtained in them for sublimation.

In cases where a greater heat is required than can be obtained by the table furnace, or any of the portable furnaces already described, other wind furnaces may be constructed by proportioning the size of the chimney to that of the furnace, much surpassing these in the intensity of heat produced; but in these and other cases it is better to have recourse at once to the *blast-furnace*, the operations being more manageable and expeditious, the heat greater, and the consumption of fuel smaller. By a little contrivance, one of the crucible furnaces before described is easily converted into a blast-furnace, and a very high temperature for small vessels obtained. This is done by closing the holes of the ash-pit with the stoppers, except one, and applying to that the nozzle of a pair of double-hand bellows, from which a draft is to be urged, and the furnace aided at the same time by the piece of upright funnel pipe; the fuel is to be charcoal.

A very powerful blast-furnace on a small scale has been contrived by Mr Aikin; it is represented at fig. 10, and is all made out of broken pots. The lower piece, A, is the bottom of one of these pots, cut off so low as only to leave a cavity of about an inch deep, and ground smooth above and below. The outside diameter over the top is five and a half inches. The middle piece or fire-place, B, is a larger portion of a similar pot, with a cavity about six inches deep, and measuring seven and a half inches over the top, outside diameter, and perforated with six blast-holes at the bottom. These two pots are all that are essentially necessary to the furnace for most operations; but when it is wished to heap up fuel above the top of a crucible contained, and especially to protect the eyes from the intolerable glare of the fire when in full height, an upper pot, C, is added, of the same dimensions as the middle one, and with a large opening in the side, cut to allow the exit of the smoke and flame. It has also an iron stem with a wooden handle (an old chisel answers the purpose very well), for removing it occasionally. The bellows, which are double, D, are firmly fixed by a little contrivance, which will take off and on, to a heavy stool, as represented in the plate; and their handle should be lengthened so as to make them work easier to the hand. To increase their force on particular occasions, a plate of lead may be firmly tied on the wood of the upper flap. The nozzle is received into a hole in the pot, A, which conducts the blast into its cavity. Hence the air passes into the fire-place, through six holes of the size of a large gimlet, drilled at equal distances through the bottom of the pot, and all converging in an inward direction, so that if prolonged, they would meet about the centre of the upper part of the fire. No luting is necessary in using this furnace, so that it may be set up and taken down immediately. Coke, or common cinders taken from the fire when the coal ceases to blaze, sifted from the dust, and broken into very small pieces, form the best fuel for higher heats. The fire may be kindled at first by a few lighted cinders and a small quantity of wood charcoal. The heat which this little furnace will afford is so intense, that its power was at first discovered accidentally by the fusion of a thick piece of cast iron. The utmost heat procured by it was 167° of Wedgewood's pyrometer, when a Hessian crucible was actually sinking down in a state of porcelaneous fusion. A steady heat of 155° or 160° may be depended on if the fire be properly managed and the bellows worked with vigour.

The following is a description of a most excellent blast-furnace, which has been in use for some years in the laboratory of the Royal Institution, and is represented at fig. 11. It is sufficiently powerful to melt pure iron in a crucible in twelve or fifteen minutes, the fire having been previously lighted. It will effect the fusion of rhodium; and even pieces of pure platinum have sunk together into one button in a crucible subjected to its heat. All kinds of crucibles, including the Cornish and the Hessian, soften, fuse, and become frothy in it; and it is the want of vessels which has hitherto put a limit to its applications. The exterior consists of a blue pot, eighteen inches in height and thirteen inches in external diameter at the top. A small blue pot of seven and a half inches internal diameter at the top had the lower part cut off so as to leave an aperture of five inches. This, when put into the larger pot, rested upon its lower external edge, the tops of the two being level. The interval between them, which gradually increased from the lower to the upper part, was filled with pulverized glass-blowers' pots, to which enough of water had been added to moisten the powder, which was pressed down by sticks, so as to make the whole a compact mass. A round grate was then dropped into the furnace, of such a size that it rested about an inch above the lower edge of the inner pot: the space beneath it, therefore, constituted the air chamber, and the part above the body of the furnace. The former was seven and a half inches from the grate to the bottom, and the latter seven and a half inches from the grate to the top. Finally, a horizontal hole, conical in form, and one and a half inch in diameter on the exterior, was cut through the outer pot, forming an opening into the air-chamber at the lower part, its use being to receive the nozzle of the bellows by which the blast was to be thrown in. The furnace being thus completed, the next object was to dry it gradually, that when used it might not be blown to pieces by confined aqueous vapour; a charcoal fire was therefore made in it, and left to burn some hours, being supplied with air only by the draught through the hole into the chamber beneath. When vapours ceased to be formed, the furnace was considered to be ready for use.

This furnace has always been used with a pair of large double bellows mounted in an iron frame, the furnace being raised upon a stool, so as to bring the aperture of the air-chamber to a level with the nozzle of the bellows. The latter has generally been inserted in the aperture; for this and similar furnaces are of such depth compared to their width, that when charged with a crucible and fuel, there is so much resistance to the passage of the air, when urged by a blast competent to create and sustain a vivid combustion, that a part returns by the side of the nozzle, if the aperture be left open. The bellows spoken of is far larger than necessary for the furnace described, and is rarely worked to one third of its power; for otherwise the heat rises so high as to destroy the crucible, and the results are lost. It is, however, at all times advisable to have an abundant command of air.

The heat produced in this furnace is such as at every violent operation to cause the production of some slag from the melting of the inner surface of the furnace itself, where the combustion has been most vivid. The slag running down the interior, collects round the edge of the grate, and should be removed with a chisel and hammer, or with an iron rod, after each operation, that the grate may be clear and free of obstruction for the next process. When in the course of time the interior of the furnace is so far injured as to become thin and weak, it must be displaced, and the furnace restored to its original state by the introduction of a new inside, as before.

The fuel to be used in this furnace is coke. Its consumption is very small, considering the heat that is obtained in consequence of the short period of each operation. The superiority of the blast-furnace over the wind-furnace, in many operations for which high temperatures are required, depends upon the rapidity of its action. It is requisite to employ this furnace in the open air, or under a well-arranged vent; for an immense number of sparks, much flame, and a current of hot air, are projected during its operation, which might occasion serious mischief in a room, unless the ceiling were at a considerable height, or guarded by a metal screen.

The *fuel* to be used in furnaces is of three kinds, coal, coke, and charcoal. *Coal* is the ordinary fuel for the laboratory table furnace, or that intended to be in use every day, and to serve for fusions, roastings, and other operations, for which its temperature may be sufficient. It is very desirable that this coal should be good, and not of the kind which contains much sulphur, or an abundance of earthy matter; for the first interferes with various fusions and ignitions, and the latter renders the fire dirty and dusty, and, when the temperature is raised to a high point, causes an abundance of clinkers. On certain occasions to be hereafter distinguished, especially if the coal be sulphureous and bad, it may be necessary at times to use both coke and charcoal in the table-furnace. Coal should never be used in the blast-furnace; for, in consequence of its softening and swelling by heat, it aggregates, closes the small channels by which the air finds a passage through the fuel, and impedes the combustion.

Coke is in constant requisition. It varies in quality with the coal from which it is obtained. Such as is intended for the service of the blast-furnace should be free from sulphureous, earthy, and metallic matter. Of this kind is the Staffordshire coke, which may be obtained at various wharfs on the canals near London. It is frequently so little altered in appearance as to resemble the original coal. It burns completely away in a blast-furnace, leaving scarcely a trace of slag, so that after several successive portions have been introduced, no material quantity of refuse is produced upon the grate, nor any thing that will act seriously on the crucible as a flux.

On the contrary, if common gas-coke be used in this furnace, the oxide of iron and earthy matter which it contains is so abundant, that slag is soon produced, which flowing over the crucible, corrodes and destroys it.

The *charcoal* intended for laboratory use may be of the ordinary kind, and must not be either too large or too small. If large, the pieces should be broken down, or they will be unfit for use in the crucible furnaces, for which it is principally intended. Charcoal is a quick fuel; but burning with facility, a small quantity of it can be easily retained in a state of regular combustion; and hence, in cases where but little space intervenes between the substance to be heated and the side of the furnace, or when a small temporary fire is required in the air, it is very convenient. Where Staffordshire coke will burn, and, by means of a blast or a draught of air, will give sufficient intensity of heat, it is very superior to charcoal in duration. Occasionally a mixture of coke and charcoal is convenient, since it affords a combination possessing the qualities of permanency and freedom of combustion.

A charcoal box is almost as essential in a laboratory as one for coal, and should have its appointed place.

It must be remembered, that all operations with furnaces should be carried on in safe situations; care being taken that no danger be incurred by the ascent of sparks, flame, or hot air, by lateral vicinity to combustible bodies, or by standing on an unprotected wooden surface.

When small furnaces are placed upon tables, stools, or trays, a brick or a piece of sheet iron should be interposed, according to the mode by which the heat is likely to be communicated.

For further information on the subject of furnaces, see the articles already referred to, and others connected with particular arts where they are used. See also Lewis's *Philosophical Commerce of Arts;* Faraday's *Chemical Manipulation;* Parke's *Chemical Essays;* Aikin's *Dictionary of Chemistry;* Tredgold *on Warming and Ventilating Buildings;* Tredgold's *Account of the Steam-Engine;* Davies Gilbert, *Quarterly Journal of Science*, vol. xiii.; Watt's Patent Furnaces, *Repertory of Arts*, vol. iv. p. 226; Raley's Patent Furnaces, *Repertory of Arts*, vol. x. p. 155; Miche on Reverberatory Furnaces, in Rozier's *Journal*, vol. xxxii. p. 385; Howard's Improved Air Furnace, in Tilloch's *Philosophical Magazine*, vol. v. p. 190; Perceval's Chamber Lamp Furnace, *Repertory of Arts*, vol. iii. p. 29, and in the *Transactions of the Royal Irish Academy*, vol. iv. p. 91; Accum's Improved Universal Furnace of Dr Black, in his *System of Practical Chemistry*, vol. ii. p. 357, and in Nicholson's *Journal*, vol. vi. p. 273, 8vo; Curaudeu's new Evaporating Furnace is described in the *Annales de Chimie*, No. 149, an. xii.; and in Nicholson's *Journal*, vol. ix. p. 204, 8vo. (c.)

FURNEAUX ISLANDS, a cluster of islands in Bass Strait, between New Holland and Van Diemen's Land. The exact number of these islands has never been ascertained. The principal are, Great Island, which exceeds forty miles in length, Cape Barren Island, and Clarke's and Preservation Islands. There are, besides, several other smaller islands, and numerous islets. These islands are barren and unproductive, being sandy in the lower parts, containing swamps and pools, and being overrun with brushwood and stunted trees, which rarely exceed the height of twelve feet. A singular phenomenon appears in Preservation Island, where, in a certain spot, the trees have undergone a partial petrifaction towards the roots. Two species of seals are found here; as also the kangaroo, wombat, and duck-billed ant-eater. Innumerable flocks of sea-birds, amongst which is the sooty peterel, haunt the shores. These islands are resorted to for the seal fishery, and afford a temporary residence to those employed in it, the islands being uninhabited. The navigation is intricate; and there is a scarcity of fresh water. These islands were first visited by Mr Bass, along with Captain Flinders, in 1798.

FURNES, a city of the province of West Flanders, about two miles from the sea, on the canal from Dunkirk to Bruges. It is strongly fortified, and contains 3452 inhabitants. Long. 2. 34. 31. E. Lat. 51. 4. 23. N. It is the capital of a circle divided into four cantons, extending over 266 square miles, containing 76,547 inhabitants.

FURNITURE, a term in dialling, which denotes certain additional points and lines drawn on a dial, by way of ornament, such as the signs of the zodiac, length of days, parallels of declination, azimuths, points of the compass, meridians of chief cities, Babylonian, Jewish, or Italian hours, and the like.

FURRUCKABAD, a fortified town of Hindustan, in the province of Agra, and capital of the district of the same name. The town was built by a Patan colony about a hundred years ago, and is situated about a mile from the western bank of the Ganges. It contains a small citadel, and the palace of the nabob. The streets are wide, and the houses and open places are shaded with trees. It carries on an extensive trade with Cashmere and other parts of India, and derives considerable benefit from the extensive military cantonments of Futtehghur in its vicinity. A civil establishment for the administration of justice and the collection of the revenue was settled here, subordinate to the Bareilly court of circuit and appeal. Its inhabitants consist nearly in an equal proportion of Hindus and Mahommedans. It was under the walls of this place that, in the year 1804, Lord Lake defeated Holkar, who narrowly escaped being made prisoner. Long. 79. 33. E. Lat. 27. 33. N.

The district of Furruckabad is situated in a country enclosed between the Ganges and the Jumna, and between the twenty-seventh and twenty-eighth degrees of north latitude. It extends west along the banks of the Ganges, and formerly belonged to Canange; but in the early part of the last century it was assigned as a jagheer to an Afghan, whose descendants, after shaking off their dependence on the court of Delhi, became tributary to the nabob of Oude. In the year 1801 it was taken under the protection of the British, who assumed the civil and military administration of the country. Prior to this the country was in a wretched state; but tranquillity being now secured by the paramount power of the British, the country is in consequence improving.

FURTH, a city of the circle of the Rezat, in the kingdom of Bavaria. It stands at the junction of the rivers Rednitz and Pegnitz. It contains 1179 houses, and 12,705 inhabitants, of whom 2673 are Jews, which people have here an university with 200 students, two Hebrew printing presses, three Jewish schools, and an hospital. It is the most active manufacturing town in the kingdom; and though none of the establishments are upon a large scale, great quantities of goods are produced by them. The principal fabric consists of looking-glasses, innumerable small ones being made and distributed throughout Europe. Some hundreds of people are employed in making turnery ware; many in making locks, snuff-boxes, watches, leaf-gold, foil, spectacles, and the various other articles usually called Nuremburg goods.

FURTHCOMING, in *Scotch Law*, the name of an action competent to any person who has used arrestment in the hands of his debtor's creditor, for having the subject arrested declared his property.

FUSAROLE, in *Architecture*, a moulding or ornament placed immediately under the echinus, in the Doric, Ionic, and Composite capitals.

FUSE, or FUZE, in artillery. See FUSEE.

FUSEE, in clock-work, is that conical part drawn by the spring, and around which the chain or spring is wound.

FUSEE, *Fuze*, or *Fuse*, is a tube, generally made of very dry beech-wood, and sometimes of horn-beam, taken near the root, which, being filled with a composition of saltpetre, sulphur, and mealed powder, hard rammed, is driven into a loaded shell, which it serves to explode. The fuze must be of such length as to continue burning all the time the shell is in its flight or range, and to inflame the powder within as soon as it reaches the ground. Fuzes are of various kinds, according to the purposes to which they are applied. *Fusées à bombes à feu mort*, or bomb-fuzes with dead light, differ from the ordinary ones in this, that the eye, instead of being pierced and hollow, is full, and of a half spherical shape. *Fusées à grénades*, or fuzes for grenades, are made of the same quality of wood as that adopted for bombs, and required to be charged with the same care and precision. *Fusées d'obus*, or howitzer fuzes, are generally made of the same wood and composition as those of bombs, and are loaded in a similar manner. *Fusées volantes*, or rockets, are made of various dimensions, and serve as signals in time of war.

FUSIL, in *Heraldry*, a bearing of a rhomboidal figure, longer than the lozenge, and having its upper and lower angles more acute than the other two in the middle. It is called in Latin *fusus*, a spindle, from its shape.

FUSELI, HENRY, a celebrated painter, was born at Zurich, in Switzerland, in the year 1741. He was the second son of Gaspard Fuessli, who had obtained some distinction as a portrait and landscape painter. Henry chose to alter the orthography of the family name, and also to place the date of his birth in the year 1745, instead of 1741. From his earliest years he was inspired with a love of painting, particularly of those works which have a sublime or imaginative character. Michel Angelo was his favourite artist; and he familiarized himself with his style, by making numerous copies of some prints of that great master's productions. Fuseli made rapid progress in learning, and united the love of literature, particularly of the poetry of Greece and Rome, with his devotion to painting. At the Humanity College of Zurich he became the intimate friend of the celebrated physiognomist Lavater. Here he studied the English language, and conceived such an ardent admiration of Shakspeare, that he translated Macbeth into German. He was induced, however, to leave his native place on account of a circumstance in nowise discreditable to his character. A magistrate in one of the bailiwicks of Zurich having committed some flagrant act of oppression, Lavater and he published a pamphlet exposing the affair, and so effectually did the friends succeed in their attempt, that the unjust ruler was compelled to leave the country. His friends, however, so annoyed Fuseli, that after taking his degree of master of arts, he quitted Zurich, first for Vienna and then for Berlin, whither he was accompanied by Lavater. In the capital of Prussia the two friends prosecuted their studies under the learned Sulzer; and here Fuseli extended his acquaintance with English literature. His genius and talents attracted the attention of Sir Robert Smith, British ambassador at the court of Berlin, and by the advice of that gentle-

Fuseli.

man he was induced to visit England, where he arrived in the year 1762. He had letters of introduction to several influential individuals, through whose instrumentality he obtained the situation of tutor to the son of a nobleman, whom he accompanied to Paris. His governorship, however, was short, and after returning to England he subsisted for some time by the labours of his pen. He wrote a number of pieces, but acknowledged none save the translation of Winkelman's work on painting and sculpture. About this period an angry controversy raged between Voltaire and Rousseau, and Fuseli printed a pamphlet in defence of the latter; but the whole impression caught fire, much to the satisfaction of the author, who afterwards felt ashamed of his production. Having shown some of his sketches to Sir Joshua Reynolds, the highly favourable opinion of that great painter determined the fate of our young artist, and he resolved on devoting himself entirely to the pencil. His first work was Joseph interpreting the Dreams of the Chief Baker and Butler; but nothing is known as to the manner in which it was executed or received, and the picture is now lost. In 1770 he visited Italy in company with Armstrong the poet. From his boyhood an enthusiastic admirer of Michel Angelo, he had an opportunity in Rome of studying that great artist in all his sublimity and grandeur, and for weeks together, as he loved to repeat, he would repose on his back gazing upon the magnificent ceiling of the Sistine chapel, and the lofty grandeur of the Florentine. Nor was the milder radiance which sheds such an inexpressible charm over the works of Raffaelle overlooked by our ardent student. But still, although he acknowledged the genius of that great master, he considered him as inferior to Michel Angelo, upon whom, fulfilling the injunctions of Reynolds, "he eat, he drank, he slept, he waked." From Rome he transmitted several pictures to England, two of which were taken from Shakspeare; namely, the Death of Beaufort, and a scene from Macbeth. After visiting his father at Zurich, he returned to London in 1779. In 1782 appeared his celebrated work entitled Nightmare, a subject peculiarly adapted to his genius, and which at once stamped him as a great and original genius. The idea of the Shakspeare gallery having been started at the table of Alderman Boydell, it was eagerly caught up by Fuseli and other painters present. It was soon afterwards realized, and, as might have been expected, our artist grappled with the wildest passages of the dramatist. For this institution he painted eight of his best pictures, of which the Ghost in Hamlet is considered as the noblest. Other pictures followed, the subjects of which were taken from Dante, Virgil, Sophocles, and other poets; and the fame of Fuseli having spread far and wide, he was in 1790 elected a royal academician. In the course of the next nine years he painted forty-seven pictures from Milton, which were afterwards exhibited as the Milton gallery. They all more or less evince the vigorous imagination of the painter. The Lazar House is most admired by men of vertù; but the rising of Satan at the touch of Ithuriel's spear is the favourite of the multitude. In 1799 he succeeded Barry in the professorship of painting, and, in 1804, Wilton as keeper of the Royal Academy. In the year following he published an improved edition of Pilkington's *Dictionary of Painters*, which, however, added but little to his reputation, although he introduced a great number of new names as candidates for pictorial celebrity. In 1807 the students of the Royal Academy presented him with a silver vase designed by Flaxman; and ten years afterwards he was presented with the diploma of the first class in the Roman Academy of St Luke. From this period until his death Fuseli exhibited twelve pictures at the academy, neither the fervour of his fancy nor his skill of hand having in the least failed. Whilst on a visit to the Countess of Guildford at Putney Hill, he became seriously unwell; and his indisposition increasing, he expired there, on the 16th of April 1825, in the eighty-fourth year of his age.

As a painter, the merits of Fuseli are of a high order in the line to which he applied himself. His mind was daring, and in dealing with themes of terror and imagination he evinced an originality and skill not surpassed amongst English artists, for to England he belongs by adoption. As a professor of painting, his chief aim was to impress his audience with a sense of the nobleness of art, and the high purposes to which alone it ought to be dedicated. His lectures and other literary compositions evince the same characteristic attributes of mind. In many of his criticisms upon painters and painting, particularly his celebrated disquisition upon invention, he displays great originality of mind, with a lofty and impassioned eloquence. His lectures were published in one volume 4to.

FUSILIERS, Fusileers, or *Fuzileers*, are men armed with fusils or light muskets. When pikes were in use amongst the French, each regiment had only four fusileers, exclusively of ten grenadiers who also carried muskets. At present, fusils or muskets are universally adopted in all European armies, though some regiments still retain the name of fusileers, which was anciently applied only to that one which was exclusively armed with fusils.

FUST, John, a goldsmith of Mayence, in the middle of the fifteenth century, and a man not more distinguished for his riches than for his knowledge of the arts, shares with Guttemberg and Schœffer the glory of having invented printing. Guttemberg is generally considered as the first inventor of this art; and, according to some, Fust had only the merit, by no means a slight one, of supplying him with money; whilst others are of opinion that the goldsmith contributed both his funds and his industry towards the completion of the invention. But, however this may be, a partnership was formed between them in 1450, and it appears that these associates practised successively three sorts of impressions; first, the *tabellary*, that is, in carved tablets or plates, like our engravings on wood; secondly, the *xylographic*, or in moveable characters of wood; and, lastly, the impression in characters cast in moulds or matrices, analogous to, if not identical with, the stereotype founding of the present day. There is reason to believe, however, that Fust, notwithstanding his acquirements, contributed but little of his own invention to the operations of the partnership contracted with Guttemberg; since the latter appears to have been the first who thought of applying to regular compositions the same mode which had been long practised at the foot of engravings for their explanation; and since Schœffer, in inventing the punch, completed the discovery, if indeed this ought not to be considered as the discovery itself. Fust, zealous in favour of all that regarded his art, was so much delighted with the invention of Schœffer, that he gave the latter his daughter in marriage. The *Biblia Sacra Latina*, without date, in folio, and consisting of 637 leaves, is probably the first production of printing, and seems to have been executed between 1450 and 1455, during the partnership of Fust and Guttemberg; but some think that the impression was struck from the characters invented by Schœffer. In 1455, difficulties arose between Fust and Guttemberg, who, in consequence, separated on the 6th of November. But, in reimbursements of the sums he had advanced, Fust remained proprietor of the establishment, which he now carried on with Schœffer; and to this new partnership we are indebted for the Psalter, *Psalmorum Codex*, of 1457, the most ancient work printed with a date (reprinted in 1459, from the same characters, which also served for the re-impressions of 1490, 1502, and 1516); the *Durandi Rationale Divinorum Officiorum*, 1459; the *Constitutiones Clementis Quinti*, 1460; the celebrated *Biblia Latina*, of 1462, the first Bible with a date; and the treatise *De Officiis* of Cicero. Fust and Schœffer exercised printing until 1466, when Fust went to Paris, and is thought to have died of the plague which then ravaged that city.

Fust, the goldsmith of Mayence, and the promoter of printing, has, however, been sometimes confounded with Faust the magician, whose name is associated with so many imaginary horrors. The latter, born about the commencement of the sixteenth century, was the son of a peasant of Weimar, or, as some say, of Kundling. He was educated by one of his uncles, who caused him to study theology, and, notwithstanding a strong propensity to debauchery, he completed his course, and obtained the degree of doctor. But having become disgusted with this pursuit, he cultivated medicine and astrology, and in particular applied himself to the study of magic. From this time his historians are only insipid romancers, who relate a thousand absurdities respecting him. They make him conjure up the devil himself; employ an infernal spirit named Mephistopheles, with whom he made a paction for twenty-four years; descend into hell, and travel through the celestial spheres, as well as through all the countries of this sublunary world, everywhere surrounding himself with illusions, playing mischievous pranks, having commerce with Helen the wife of Menelaus, causing Alexander the Great to appear to Charles V., and, lastly, to terminate the whole in a suitable manner, having his neck twisted by the devil at the expiration of his compact with that personage. Much more infallible than even the illustrious Mathew Laensberg, Faust yearly circulated in Germany almanacks, which, being dictated by Beelzebub, could scarcely fail to have great success. Such are the marvellous feats related by George Rodolph Widman, who published at Franckfort, in 1587, 8vo, the history of John Faust, and Christopher Wagner his valet. This history, or rather this romance, reprinted at Berlin in 1590, and at Franckfort in 1591, re-appeared at Hamburg, 1598–1600, in three volumes 4to, with historical, physical, and moral commentaries, filled with ignorance and folly; and it was also translated into English, Dutch, and French. Adelung has honoured Faust with an article at the end of his History of Human Follies, where will also be found the *Conjurationes Fausti*, but without the mysterious figures which ought to have accompanied them, and by means of which the reader might easily perform the same prodigies as the magician of Weimar. The Germans, who are fond of the marvellous, have often brought upon the scene the descent of Dr Faust to the infernal regions. Of this number are the celebrated Goethe, Klinger, and J. F. Schink; whilst Trithemus, the most ancient of all, J. Manlius, Schaller, Wier, Del Rio, and even Camerarius and Gesner, have discoursed of Faust and his enchantments, of which Peter-Frederick Arpe has favoured the world with a catalogue. But notwithstanding the testimony of these writers, many others, perhaps with reason, regard this personage as entirely imaginary, and consider his history as a romance intended merely for amusement. Some, indeed, including Conrad Durius, are disposed to think that the legend of Faust is a satire fabricated by the monks against John Fust, one of the inventors of printing, who had incurred the resentment of these cenobites by being concerned in a discovery which superseded their useful functions as copyists of manuscripts; but others have shown that this opinion is not well founded. Upon the subject of Faust, the curious reader may consult Zeltner's *Schediasma de Fausto præstigiatore ex Joanne Fausto a quibusdam ficto;* Struvius in his *Introductio in not. Rei Litterar.* and in his *Bibl. Antiq.;* and Neumann's *Dissertatio Historica de Fausto præstigiatore*, Wittemberg, 1683, 1693, 1711, in 4to. (A.)

Fust, in *Architecture*, the shaft of a column, or the part comprehended between the base and the capital, and also called the naked.

FUSTIAN, in *Commerce*, a kind of cotton stuff, tweelled or ribbed on one side. Fustians should be altogether made of cotton yarn, both woof and warp; but a great many are made, the warp of which is flax, or even hemp. Fustians are made of several kinds, wide, narrow, fine, coarse; with shag or nap, and without it.

Fustian is also employed to denote an inflated or bombastical style of composition.

FUSTIGATIO, in the Roman customs, a punishment inflicted by beating with a cudgel. This punishment was peculiar to freemen; for the slaves were scourged with thongs.

FUTTEHGHUR, a town of Hindustan, situated on the western bank of the Ganges, three miles from the city of Furruckabad, formerly a very extensive military cantonment, but now occupied by the civil establishment of the Furruckabad district.

FUTTEHPOOR, a town of Hindustan, in the province of Agra, twenty-four miles from the town of that name. It was enlarged and embellished by Akbar, in honour of a celebrated saint, to whose prayers the Emperor Akbar thought that he was indebted for a son. The tomb of this saint is situated on a mountain near the town, and is still the resort of Mahommedan pilgrims. The place is enclosed with a high stone wall of great extent; but the space within appears never to have been filled with buildings. It presents at present a wide extent of ruined houses and mosques, interspersed with fields cultivated with rice and mustard, and a few tamarind trees; and nearly in the middle, on a high ridge of rocky hills, is a range of numerous palaces, serais, and other public buildings, in the best style of Mussulman architecture, with a noble mosque in good repair. Long. 77. 34. E. Lat. 27. 5. N.

FUTTOCKS, in a ship, the timbers raised over the keel, or the encompassing timbers which form her breadth and capacity.

FUTWA, a town of Hindustan, in the province of Bahar, situated at the confluence of the river Pompon with the Ganges, nine miles south of Patna, over which is a good bridge, built of brick. In the year 1574, when the Afghan army was retreating before Akbar, the bridge broke down, and they were mostly either drowned or put to the sword. It is noted for the manufacture of table-cloths and sheeting. Long. 85. 28. E. Lat. 25. 30. N.

FUTTYPOOR, a town of Hindustan, in the province of Ajmeer, within the territory of the Teynagur rajpoots, and seventy miles north-north-west from Teynagur. Long. 75. 7. E. Lat. 27. 51. N.

FUTURE, something to be, or to come hereafter.

Future, or *Future Tense*, in *Grammar*, denotes an inflection of verbs, denoting that a thing will be in some time yet to come. See Grammar.

FYZABAD, a town of Hindustan, in the province of Oude, situated on the southern bank of the river Dewah or Gogra. This city is said to have owed its origin to the nabob Sufder Jung, who, in 1740, erected some temporary houses in an extensive garden at this place. His son Shuja Addowleh, after the battle of Buxar, removed his residence to this place, and gave orders for erecting a palace and other public buildings. The city was in consequence quickly enlarged, and rose into importance; but the nabob Assup Addowleh having transferred his residence to Lucknow, many of the houses, having been hastily built, fell into decay. It is still, however, a considerable city, and contains a numerous population, chiefly of the lower classes, the merchants and bankers having removed to Lucknow along with the court. It was the residence of the two celebrated Begums, the mother and grandmother of the last-mentioned nabob. Adjoining is the ancient city of Oude or Ayodha, the capital of the great Ram, who conquered Ceylon. The city contains some handsome tombs belonging to the reigning family; and its gardens are celebrated for grapes and other fruits. It is eighty miles east from Lucknow. Long. 82. 10. E. Lat. 26. 46. N.

G.

G, THE seventh letter and fifth consonant of our alphabet, though in the alphabets of all the oriental languages, the Hebrew, Phœnician, Chaldee, Syriac, Samaritan, Arabic, and even Greek, G is the third letter. The Hebrews call it *ghimel* or *gimel*, a camel, by reason of its supposed resemblance to the hump on the back of that animal; and it bears the same appellation in the Samaritan, Phœnician, and Chaldee; in the Syriac it is called *gamel*, in Arabic *giim*, and in Greek *gamma*. The gamma, Γ, of the Greeks is manifestly the ghimel, ג, of the Hebrews or Samaritans; the difference between the gamma and ghimel consisting in this, that the one is turned to the right and the other to the left, according to the different manners of writing and reading which obtained amongst these different nations. From the Greeks the Latins borrowed their form of this letter; the Latin G being certainly a corruption of the Greek gamma, Γ, as might be easily shown, if our printers had all the characters and forms of this letter to be met with in the Greek and Latin manuscripts, through which the latter passed from Γ to G. Diomedes (lib. ii. cap. *De Litera*) calls G a new letter. His reason is, that the Romans had not introduced it before the first Punic war, as appears from the *Columna Rostrata* erected by Duilius, in which C is everywhere found instead of G. It was Sp. Carvilius who, as we learn from Terentius Scaurus, first distinguished between these two letters, and invented the figure of the G.

The G, however, is found instead of C on several medals (Vaillant, *Num. Imperat.* tom. i. p. 39); and Beger produces a medal of the *Familia Ogulnia*, where we find *Gar* instead of *Car*, which is the reading on those of Pâlin. But the C is more frequently seen on medals instead of G, as *Aucustalis*, *Callæcia*, *Cartacinensis*, &c.; not that the pronunciation of these words was altered, but only that the G was unskilfully or negligently cut by the workmen; as may be seen in different inscriptions of the eastern empire, where AVC is frequently found for AUG, and so in other cases. The northern nations frequently changed the G into V or W, as in *Gallus*, *Wallus*; *Gallia*, *Wallia*, *Vallia*, &c. But it must not be supposed that the French have changed the W into G; because they wrote *Gallus* long before *Wallus* or *Wallia* was known, as appears from all the ancient Greek and Roman writers. And yet it is equally true that the French change the W of the northern nations, and V consonant, into G; as *Willielmus*, William, into *Guillaume*; *Wulphilas* into *Gulphilas*; *Vascon* into *Gascon*, and so in other cases.

The letter G is a mute, and cannot be any way sounded without the help of a vowel. It is formed by the reflection of the air against the palate by the tongue, as the air passes out of the throat, or, as Martianus Capella expresses it, G *spiritus cum palato*; so that G is a palatal letter. The modern G takes its form from that of the Latins. In English it has two sounds; one from the Greek Γ, which is called that of the hard G, because it is formed by a pressure somewhat hard of part of the tongue against the upper gum, a sound which it retains before *a*, *o*, *u*, *l*, *r*; and the other, called that of the soft G, resembles that of *j*, and is commonly, though not always, found before *e* and *i*, as in *gesture*, *giant*, whilst at the end of a word it is always hard. To this rule, however, there are many exceptions. G is often hard before *i*, as *give*, &c. and sometimes before *e*, as *get*, &c. It is also hard in derivatives from words ending in *g*, as *singing*, *stronger*, &c. and generally before *er* at the ends of words, as *finger*. G is mute before *n*, as *gnash*, *sign*. G*h* has the sound of the hard G in the beginning of a word, as *ghostly*; in the middle, and sometimes at the end, it is quite silent, as *right*, *though*. At the end of a word *Gh* has often the sound of *f*, as *laugh*, *rough*, *tough*.

As a numeral, G was anciently used to denote 400; and with a dash over it thus, $\overline{\mathrm{G}}$, 40,000. As an abbreviature, G. stands for *Gaius*, *Gellius*, *gens*, *genius*, &c. G. G. for *gemina*, *gessit*, *gesserunt*, &c. G. C. for *genio civitatis* or *Cæsaris*. G. L. for *Gaius libertus*, or *genius loci*. G. V. S. for *genio urbis sacrum*; G. B. for *genio bono*; and G. T. for *genio tutelari*. In music, G is the character or mark of the treble cleff; and from its being placed at the head, or marking the first sound in Guido's scale, the whole scale took the name of *gamut*.

GABALE, in *Mythology*, a deity worshipped at Heliopolis under the figure of a lion with a radiant head.

GABARA, or GABBARA, in *Antiquity*, the dead bodies which the Egyptians embalmed and kept in their houses, especially those of such of their friends as had died with the reputation of great piety and holiness, or as martyrs.

GABARDINE, from the Italian *gavardina*, has been sometimes used to denote a coarse frock, or mean dress. In this sense it is used by Shakspeare in his Tempest and Merchant of Venice, and by Butler in his Hudibras.

GABEL (*Gabella*, *Gablum*, *Gablagium*), in French *Gabelle*, that is, *Vectigal*, has the same signification among the ancient English writers which *gabelle* has in France. It is a tax, but the term has been variously used for a rent, custom, service, and the like. Where it was a payment of rent, those who paid it were termed *gablatores*. When the word was used without any addition to it, it signified the tax on salt, though afterwards it was applied to all other taxes. See the article FRANCE.

GABEL, or *Gablona*, a city of the Austrian kingdom of Bohemia, in the circle of Buntzlau. It is surrounded with walls, and contains 380 houses, and 1980 inhabitants, who are chiefly employed in making woollen cloths. It is celebrated for a battle fought there in 1757, with the Prussians.

GABINIAN LAWS, in Roman antiquities, laws instituted upon several occasions by persons of the name of *Gabinius*.

GABINIUS, AULUS, a Roman general, the chief events of whose life are included between his tribunate, B. C. 67, and his death, B. C. 49. He seems to have been of an active, enterprising disposition, but without principle, and ready to prostitute his talents to advance his interests.

In the Mithridatic war, B. C. 81, he served under Sylla with considerable distinction; but it was not till he had reached the dignity of tribune that he took an important share in public transactions. He proposed to the people a law, by which an unlimited power over the Mediterranean was intrusted to Pompey, on the pretence of putting down the Cilician pirates; and though the senate could not prevent its enactment, they determined that Gabinius should not succeed in his desire of being appointed lieutenant to Pompey. Through the interest of Cæsar we find him consul, B. C. 58, and lending his official influence to Clodius to procure the banishment of Cicero. Neither the known wishes of the senate, nor the entreaties of the knights, could alter his determination, and Cicero found himself obliged to yield to the storm. The reward he received for this conduct was the province of Syria, and money from Clodius to enable him to equip his troops. Upon his arrival in Syria he made war on the Jews, and, having defeated Aristobulus, their king, compelled him to sue for peace. Gabinius addressed a public letter to the senate announcing his victory, and demanding that a day of public thanksgiving should be appointed. This the senate refused, and ordered him to return; but he was not of a disposition likely to attend to their orders, if it did not suit his inclination. He continued in Syria, and was preparing an expedition against the Arabians, when he received a letter from Pompey, requesting him to restore the exiled Ptolemy to his kingdom of Egypt. Though both the Sibylline books and the senate forbade an army to be led into Egypt, Gabinius disregarded all consequences, and immediately restored Ptolemy. Such conduct was heard with astonishment at Rome, and imperative orders were given him to return home. This time he thought proper to obey, and the exertions of Pompey and his friends procured his acquittal. In the civil wars he joined the party of Cæsar, and we find him commanding the troops in Illyria, where he was cut off by a body of the enemy, or, according to others, being shut up in Salona, died of vexation. (Appian. *Mithr.* 66, 94; *Bell. Civ.* 11, 14; *Syr.* 51; *Illyr.* 12, 25; Dion. Cass. xxxix. 55–63; *Hist. Alex.* 43.)

GABION, in *Fortification*, is a kind of basket made of ozier twigs, of a cylindrical form, having different dimensions, according to the purpose for which it is used. Some gabions are five or six feet in height and three feet in diameter, and serve in sieges to carry on the approaches, when these have advanced near the body of the place. Those used in field-works are from three to four feet in height, and from two and a half to three feet in diameter. Gabions of a still smaller size are placed along the top of the parapet, to cover the troops in firing over it.

GABLE, or GABEL *End*, of a house (from *gaval*, Welsh), is the upright triangular end from the cornice or eaves to the top of the house.

GABRES, or GAVRES, called also *Gebres*, *Guebres*, *Gevres*, and *Giaours*, a religious sect in Persia and India. The Turks call the Christians Giaours, or people of a false religion, or rather, as Leunclavius observes, Heathens or Gentiles; the word amongst the Turks having the same signification as Pagan or Infidel amongst the Christians, and denoting any thing not Mahommedan. In Persia the word has a more peculiar signification, being applied to a sect dispersed throughout the country, and said to be the remains of the ancient Persians, or followers of Zoroaster.

GABRIEL, the name of one of the principal angels in heaven. The name signifies The Strength of God.

GABRIELITES, in *Ecclesiastical History*, a sect of Anabaptists who appeared in Pomerania in 1530. They derive their name from Gabriel Scherling, who, after having been for some time tolerated in that country, was at length obliged to remove, and died in Poland.

GAD, a Jewish prophet, the seer or domestic prophet of King David, and his adviser in all matters of importance.

GAD, in *Ancient Geography*, a district of the Transjordan Palestine, situated between Gilead and the kingdom of Bashan on the north, and the kingdom of the Amorites on the south, having the Jordan on the west, and bounded by various tribes on the east. It is so called from a tribe of that name.

GADES, called by the Greeks *Gadeira*, an ancient city of Spain, situated on an island of the same name, now *Isla de Leon*, 750 stadia west of Calpe, the Straits of Gibraltar. It was placed on the western side of the island, being, it is said, founded by a colony from Tyre, 348 years before the building of Rome. It seems to have been a flourishing city at a very early period, being the central point from which the Phœnicians directed all their commercial expeditions to the west of Africa and Europe. From this city Hanno started in his exploratory expedition towards the western coasts of Africa, and the Carthaginian Himilco in his voyage to the north-western parts of Europe. Gades and Carthage alone reaped the fruits of their discoveries; they concealed the knowledge thus acquired from the rest of the world. Gades thus became one of the richest cities in Europe; and, as a proof, Strabo states that she could produce in his time five hundred knights, a greater number than could be found in any city of Italy excepting Rome and Padua.

In the first Punic war Gades submitted to the Carthaginians, and at the conclusion of the second it followed the example of the rest of Iberia, in yielding to the superior arms of Rome. From Julius Cæsar it received the privileges of a Roman colony, and at a later period the honorary title of Angusta Julia Gaditana. It was celebrated for a temple of Hercules, the ruins of which are said to be still seen at the tower of Saint Peter, on the side of the island nearest to the main land.

Gades gradually sunk, till in the fourth century we find Avienus lamenting bitterly over its fallen state, and adding that it afforded nothing worthy of notice, excepting the festival which was celebrated in honour of Saturn. In later times the city of Cadiz occupied the position of the ancient Gades.

GAETA, a fortified maritime city of the province Terra di Lavoro, in the kingdom of Naples. It is a very irregular and ill-built place, with a cathedral, several other churches and monasteries, and 14,125 inhabitants, who subsist chiefly on the coasting trade and the fisheries. The country around supplies good wine, oil, and fruit. On a hill opposite stands the walled castle of Otranto. Long. 13. 27. E. Lat. 41. 50. N.

GAFFAREL, JAMES, a French divine, and learned writer, born about 1601. He acquired great skill in the oriental and several other languages, and was particularly conversant in the cabalistic and occult sciences, which he learned, exposed, and refuted. Cardinal Richelieu made choice of him as his librarian, and sent him into Italy to collect the best manuscripts and books. He published a work entitled *Curiositez Innouies*. It is said the cardinal designed to employ him in his grand project for the reunion of religions. He died in 1681, aged fourscore.

GAGA, a small uninhabited island in the Eastern Seas, between the two islands of Waygiou and Gilolo. It has a harbour on the south side of the island, and produces sago and timber in abundance. Long. 126. 40. E. Lat. 0. 18. S.

GAGE, in our ancient customs, signifies a pledge or pawn, given by way of security. If the gage perish, the person who received it is not answerable for it, except in the case of extreme negligence.

GAGE was also used to signify a challenge to combat. In this sense it was a pledge, which the accuser or challenger cast on the ground, and the other took up as accepting the challenge. The gage was usually a glove, gauntlet, chaperoon, or the like.

GAGE, in nautical language. When one ship is to windward of another, she is said to have the weather-gage of such ship. The number of feet that a vessel sinks in the water is likewise called the ship's *gage;* and this is found by driving a nail into a pike near the end, and putting it down beside the rudder till the nail catch hold under it; then as many feet as the pike is under the water is the ship's gage.

GAGE, amongst letter-founders, is a piece of box, or other hard wood, variously notched, the use of which is to adjust the dimensions, slopes, &c. of the different sorts of letters.

GAGE, in joinery, is an instrument made to strike a line truly parallel to the straight side of any board or piece of stuff.

Sliding-GAGE, a tool used by the mathematical-instrument makers for measuring and setting off distances.

Sea-GAGE, an instrument invented by Dr Hales and Dr Desaguliers for finding the depth of the sea.

Bucket Sea-GAGE, an instrument contrived by Dr Hales to find the different degrees of coolness and saltness of the sea at different depths.

Aqueo-mercurial GAGE is the name of an apparatus contrived by Dr Hales, and applied in various forms to the branches of trees, for the purpose of determining the force with which they imbibe moisture.

Tide-GAGE is the name of an instrument used for determining the height of the tides.

Wind-GAGE is an instrument for measuring the force of the wind upon any given surface. See METEOROLOGY.

GAHRAH, a small town of Hindustan, in the province of Sinde, situated on the banks of a salt-water creek communicating with the sea, and navigable for small boats. The surrounding country is barren and sandy; and the dry and parching wind blows up the sand in clouds, so as nearly to blind both man and beast. Long. 67. 56. E. Lat. 24. 46. N.

GAILDORF, a bailiwick of the circle of the Jaxt, in the kingdom of Wurtemberg, extending over 148 square miles, and comprehending one city, two market-towns, and 253 villages, with 21,498 inhabitants. It is a mountainous district, better adapted to the breeding of cattle than the growth of corn. The capital, of the same name, situated on the river Kocher, contains 1341 inhabitants.

GAILLAC, an arrondissement of the department of the Tarn, in France, extending over 511 square miles. It is divided into eight cantons and eighty-four communes, and contains 63,376 inhabitants. The chief place is a city of the same name, situated on the Tarn, which is navigable as far as this town. The ware made near this city is the best of the department, and chiefly exported from Bordeaux to foreign markets. Gaillac contains 1503 houses and 6636 inhabitants. Long. 1. 45. E. Lat. 43. 30. N.

GAIN, the profit or lucre a person reaps from his trade, employment, or industry.

GAIN, in *Architecture,* is the workmen's term for the bevelling shoulder of a joist or other timber.

To GAIN the Wind, in nautical language, is to arrive on the weather side or to windward of some other vessel in sight, when both are plying to windward, or sailing as near the wind as possible.

GAINAGE, GAINAGIUM, in our ancient writers, signifies the draught oxen, horses, wain, plough, and furniture, for carrying on the work of tillage by the baser sort of sokemen and villeins.

GAINAGE is also used to signify the land itself, or the profit raised by cultivating it.

GAINSBOROUGH, a market-town of the county of Lincoln, in the hundred of Corringham, and the Lindsay division, 148 miles from London. It is advantageously situated on the right bank of the river Trent, by which it is divided from Nottinghamshire. The tide comes in with more rapidity, and rises higher, than in any other of the ports of England except Chepstow, though it is nearly forty miles from the Humber. The Trent being thus far navigable, conveys the agricultural produce of the vicinity to distant markets, and makes Gainsborough a kind of emporium for such heavy articles as coal, salt, timber, iron, and others; but it has no manufactures, and little other trade. There is no corporate body of magistrates. The market is held on Tuesday. The population amounted in 1801 to 4506, in 1811 to 5172, in 1821 to 5893, and in 1831 to 6658.

GALACTOPHAGI, and GALACTOPOTÆ, in *Antiquity;* persons who lived wholly on milk, without corn or the use of any other food. The words are compounded of *γαλα, γαλακτος, milk; φαγειν, to eat;* and ποτης, from πινω, *I drink.*

GALASHIELS, a town of Scotland, situated in a parish of the same name, which lies partly in the county of Roxburgh, and partly in that of Selkirk. The town stands upon a low piece of ground on the right bank of the Gala, about a mile above its embouchure into the Tweed. The old village of the same name is now abandoned and destroyed, and the new town has been built within the last fifty years. It consists of one long street, with some small lanes striking off from it, and also scattered clusters of houses, the whole being built of blue whinstone, and slated. Galashiels being situated in the midst of an extensive pastoral country, which yields abundance of wool, the manufacture of woollen cloth, and the spinning of woollen yarn, is carried on to a considerable extent, notwithstanding the disadvantage arising from expensive inland carriage, and the distance of the place from coal mines. The value of the manufactures of this description amount to about L.20,000 per annum, and the trade is upon the increase. The cloth produced here, which is coarse and strong, has long been remarkable for its durability; the quality, however, has been much improved within these few years. Only a small quantity of the goods manufactured is exported, the greater part of them being consumed at home. Flannels and blankets of an excellent quality are also made here from foreign wool. The tanning of leather and the dressing of skins are likewise carried on to some extent, and the town possesses a brewery. There are here several schools besides that for grammar, a parish church, and two or three dissenting meeting-houses. Galashiels is a burgh of barony. It is situated thirty-one miles from Edinburgh, five from Selkirk, and about five from Melrose. The population of the town and parish amounted in 1821 to 1545, and in 1831 to 1534.

GALATÆA, or GALATHÆA, in fabulous history, a sea nymph, daughter of Nereus and Doris. She was passionately beloved by the Cyclops Polyphemus, whom she treated with coldness and disdain; whilst Acis, a shepherd of Sicily, enjoyed her unbounded affection. But the happiness of these two lovers was disturbed by the jealousy of the Cyclops, who crushed his rival to pieces with a piece of a broken rock whilst he reposed on the bosom of Galatæa. The nymph was inconsolable for the loss of Acis; and as she could not restore him to life, she changed him into a fountain.

GALATIA, or GALLOGRÆCIA, a considerable province in the central part of Asia Minor, the boundaries of which it is impossible to determine with any degree of exactness. It lay towards the sources of the river Sangarius, being bounded on the north by Bithynia and Paphlagonia, on the east by Cappadocia, and on the south by Phrygia.

The Galatæ were a portion of that great Celtic race which is found from the earliest times in the valleys of the Danube and of the lofty Alps, and which began to press towards the east during the weakness of the Macedonian empire under the successors of Alexander. A large body of this people under their leader Brennus (B. C. 278), made their appearance in Dardania, a district of Macedon, with the intention of plundering Greece. Here a dispute arose, and a party of twenty thousand men under Leonorius and Lutarius, separating from the main body, directed their course through Thrace to Byzantium, now Constantinople, and encamping before it, laid this city and all the adjoining country under contribution. Perceiving the beautiful shores of Asia, and being invited by Nicomedes king of Bithynia, who was then at war with his brother Zipætes, to cross the straits, they willingly acceded to the request. They had no difficulty in deciding the contest in favour of Nicomedes, but, like the Saxons, they refused to evacuate the country when their services were no longer required; and so powerful did they find themselves amongst the effeminate inhabitants of Asia, that they even proceeded to parcel out to the three tribes of which they were composed, the Trocmi, Tolistoboii, and Tectosages, the several parts of Asia Minor. They, however, fixed themselves towards the sources of the Sangarius, and at last became so formidable, that even the kings of Syria consented to comply with their demands. It was Attalus king of Pergamus (about 235 B. C.), who first ventured to resist their extortions, and meeting them in the field, gained a complete victory. Not long afterwards Prusias king of Bithynia was also successful in an attack which he made on them. They continued, however, to be the terror of Asia, until the Romans, having defeated Antiochus the Great, king of Syria (B. C. 189), directed their arms against these marauders. A great portion of them were cut to pieces, and the remainder were happy to be allowed to retain quiet possession of their lands.

Strabo tells us that the whole of Galatia was originally divided into four principalities, at the head of each of which was a tetrarch; but in later times they were reduced to one. It seems that this change was made by the Romans in favour of Deiotarus, who had assisted them in the Mithridatic war. Some time afterwards the whole of Galatia came into the possession of the Romans, who made it a province of their empire. St Jerome states, that in his time they spoke the same language as the Treviri in Gaul. St Paul addressed one of his epistles to the Christians of Galatia. The possessions of the Tolistoboii were to the south, and their chief town was Pessinus; the Tectosages occupied the central parts of the province, having Ancyra for their capital; and the Trocmi were found in the north-eastern portion of the country, towards Pontus and Cappadocia, the chief town of which was Tavium. Their history is chiefly found in Livy, xxxviii. 12–27, 40; Polyb. *Fragm.* xxii. 16–24; Appian. *Mithr.* 114; Strab. xii. 566; Plin. v. 32.

GALATZ, a city of Moldavia, in the circle of Kohurlui. It is built on the banks of the Danube, is surrounded with walls, and is by far the best-constructed city in the whole principality. It contains seven Greek churches, 1200 houses, and 7000 resident inhabitants, besides numerous strangers always resorting to it as the chief place of trade for both Wallachia and Moldavia. These consist of Greeks, Arminians, and Jews, who bring German and Austrian manufactured goods, and some from more distant countries. The harbour in the river is very good, and admits ships of 300 tons to lie close to the quays. There are many vessels built as well for sea as for river navigation. Long. 28. 17. E. Lat. 45. 24. N.

GALAXY, in *Astronomy*, the long white luminous track which seems to encompass the heavens like a coronal or girdle, and which is easily perceivable in a clear night, especially when the moon does not appear. The Greeks call it γαλαξιας, *galaxy*, on account of its colour and appearance. The Latins, for the same reason, call it *via lactea*, or *milky way*. It passes between Sagittarius and Gemini, and divides the sphere into two parts. It is unequally broad, and in some parts is single, in others double. See ASTRONOMY.

GALBA, SERGIUS SULPICIUS, a Roman emperor, who was born B. C. 3 and died A. D. 69. He was descended from a family which had first risen to notice towards the latter years of the republic. His father, who was of consular rank, had some pretensions to be considered as an orator; he married Mummia, the grand-niece of L. Mummius, the conqueror of Corinth, and by her he had the emperor Galba. Of his youthful years we can give no account, excepting that he must have evinced early proofs of great abilities. Augustus is said to have foretold that he would be one of his successors on the imperial throne. We find him raised to the highest dignities of the state before he had reached the age fixed by law, consul A. D. 33, and then appointed by Caligula to the command of the troops in Gaul. On the death of that emperor (A. D. 40), he was strongly urged by his friends to put in his claim for the vacant throne; but he seems to have preferred the pleasures of retirement to the anxieties of a court. Claudius was so charmed with the moderation of his conduct, that he admitted him to his intimate friendship, and made him proconsul of Africa as a mark of his particular favour. Here he remained for two years, carrying the strictness of military discipline into all the civil arrangements of the province. On his return to Rome he retired to the privacy of the country, and took no part in public affairs till the middle of the reign of Nero. He was then invited by that emperor to assume the command of Hispania Tarraconensis, and it may be readily imagined that he did not venture to refuse such a request. This province he continued to govern for eight years; at first he distinguished himself by the severity with which he punished even venial faults, though the example given by Suetonius is a curious proof of the state of moral feeling in that age. The author expresses his surprise at the punishment of crucifixion, which Galba inflicted on a guardian who had poisoned his ward. Latterly, however, he changed his policy, and apparently passed his life in indolent repose, that he might give no cause of complaint to the suspicious Nero. That despot, however, thought him too powerful a pasha to be allowed to live, and, like the sultans of later times, sent an order for his death. His friends at Rome informed him of his impending fate, and he had therefore no other alternative than to declare his independence, proclaiming himself lieutenant of the senate and of the Roman people. But as soon as he was informed of the death of Nero, he assumed the title of emperor, being the first person not descended from the family of the Cæsars who reached that high dignity.

His previous life, and the habits which he had acquired, were little suited to the scene of corruption and debasement into which he now emerged. All ranks at Rome had become, by a long course of unrestrained license, so completely demoralized, that they could ill brook the sternness of an old military disciplinarian. He does not appear to have possessed any of the mental qualities of a statesman, nor was his previous education of a character likely to fit him for the position in which he now found himself placed. The affairs of the empire seem to have been chiefly directed by three favourites of very dissimilar characters; T. Vinius, his lieutenant in Spain, a man of unbounded avarice; Laco, prefect of the prætorian band, equally distinguished for his indolence and arrogance; and the freedman Icelus, who had all the follies of a foolish upstart. Every act of theirs was ascribed to the emperor, and all classes were equally dissatisfied with their proceedings. The soldiers were refused their usual largesses, and were deeply mortified by the reply of the emperor, *Legere se militem, non emere, consuesse.* The soldiers in Upper Germany openly refused to take the oath of allegiance to Galba; and at Rome Otho headed a conspiracy, which was embraced by too large a body not to prove successful against a man who stood nearly alone in Rome. He was assassinated in the seventh month of his reign, and in the seventy-third year of his age, *omnium consensu capax imperii nisi imperâsset,* as Tacitus pithily remarks. Suetonius, *Life of Galba;* Tacitus, *Hist.* i. 6–18, 49.

GALE, in nautical language, a term of various import. When the wind blows, but not so hard that a ship may not carry her top-sails a-trip, then they say it is a loom gale. When it blows very strong, they say it is a stiff, strong, or fresh gale. When two ships are near each other at sea, and, there being but little wind blowing, one of them finds more of it than the other, they say that the one ship gales away from the other.

GALE, *Dr John,* an eminent minister amongst the Baptists, was born at London in 1680. He studied at Leyden, where he early distinguished himself, and afterwards at Amsterdam, under Dr Limborch. He was chosen minister of the Baptist congregation at Barbican, where his preaching, being chiefly practical, was greatly resorted to by people of all persuasions. Four volumes of his sermons were published after his death, which happened in 1721. His *Reflections on Dr Wall's History of Infant Baptism* is the best defence of the Baptists ever published; and the reading of that performance induced Mr William Whiston and Dr Foster to become Baptists.

GALE, *Theophilus,* an eminent nonconformist minister, born in 1628. He was invited to Winchester in 1657; and continued a stated preacher there until the re-establishment of the church by Charles II. when he chose rather to suffer the penalties of the act of conformity, than to submit to it contrary to his conscience. He was afterwards engaged by Philip Lord Wharton as tutor to his sons, whom he attended to an academy at Caen in Normandy; and when this duty had been fulfilled, he became pastor of a congregation of private conventiclers in Holborn. He died in 1678, and is principally known by an elaborate work entitled the *Court of the Gentiles,* calculated to show that the Pagan philosophers derived their most sublime sentiments from the Scriptures.

GALE, *Dr Thomas,* a learned divine, born at Scruton, in Yorkshire, in the year 1636, was educated at Cambridge, and at length became professor of the Greek language in that university. He was afterwards chosen head master of St Paul's school, London, and was employed by the city in writing the elegant inscriptions on the monument erected in memory of the conflagration in 1666. In 1676 he was collated to a prebend in the cathedral of St Paul's; and was likewise elected a fellow of the Royal Society, to which he presented a Roman urn with its ashes. About the year 1697, he gave to the new library of Trinity College, Cambridge, a great number of Arabian manuscripts; and in the same year he was admitted as Dean of York. He died in that city in 1702, and was interred in the cathedral, where a monument, with a Latin inscription, was erected to his memory. He was a learned divine, an eminent historian, one of the best Greek scholars of his age, and maintained a correspondence with the most learned men abroad as well as at home. He published, 1. Historiæ Poeticæ Scriptores Antiqui, Paris, 1675, in 8vo; 2. Opuscula Mythologica, Ethica, et Physica, Cambridge, 1671, in 8vo; 3. Herodoti Historiarum libri x. London, 1679, in fol.; 4. Historiæ Anglicanæ Scriptores quinque, Oxford, 1687, in fol.; 5. Historiæ Britannicæ, Saxonicæ, Anglo-Danicæ, Scriptores quindecim, Oxford, 1691, in fol.; 6. Rhetores Selecti, and other works.

GALEN, CLAUDIUS, prince of the Greek physicians after Hippocrates, was born at Pergamus, in Asia Minor, about the year 131. His father was possessed of a considerable fortune, and not only well versed in polite literature, philosophy, astronomy, and geometry, but skilled in architecture. He instructed his son in the rudiments of learning, and afterwards procured him the greatest masters of the age in philosophy and eloquence. Galen having finished his studies under their care, chose physic as his profession, and chiefly studied the works of Hippocrates. Having at length exhausted all the sources of literature which were to be found at home, he resolved to travel, in order to converse with the most able physicians in other countries, intending at the same time to take every opportunity of inspecting on the spot the plants and drugs of the countries through which he passed. With this view he proceeded to Alexandria, where he staid some years; from thence he travelled into Cilicia, passed through Palestine, visited the isles of Crete and Cyprus, and made two voyages to Lemnos, in order to examine the Lemnian earth, which was then esteemed an admirable medicine. With the same view he went into Lower Syria, in order to obtain a thorough insight into the nature of the opobalsamum, or balm of Gilead; and having completed his design, he returned home by the way of Alexandria.

Galen had been four years at Pergamus, where his practice was attended with extraordinary success, when some seditious commotions induced him to repair to Rome, where he resolved to settle; but the proofs he gave of his superior skill, added to the respect shown him by several persons of elevated rank, created him so many enemies amongst his brethren of the faculty, that he was obliged to quit the city, after having resided there four or five years. He had not long returned to Pergamus, however, when he was recalled by the Emperors Aurelius and Verus. After their death, he retired to his native country, where he died about the year 200. He wrote in the Greek language, and is said to have composed two hundred volumes, which were unhappily burnt in the Temple of Peace. Galen was of a delicate constitution, as he himself asserts; but nevertheless, by his temperance and skill in physic, he arrived at a great age; for it was his maxim always to rise from table with some degree of appetite. He is justly considered as the greatest physician of antiquity next to Hippocrates; and he performed such surprising cures that he was accused of magic.

But without entering into any detail of the particular treatises written by Galen, it may be sufficient here to notice the different editions of his collected works. The Greek editions are those of Aldus and Asulanus, printed at Venice, 1527, in five vols. folio; and that of Hieronymus Gemusæus, printed at Basil, 1538, in the same form. The Latin editions are that of Paris, 1536, in folio, printed by Colinæus, and reprinted at Lyons in 1554, with additions and corrections by Frellonius; that of Basil, 1542, in folio, printed by Frobenius, and edited by Gemusæus; the editions published at the same place in 1549, 1550, and 1562, the last of which contains an able preface by Conrad Gesner; the edition of Venice, 1562, with the corrections of Rasario; ten editions published at Venice by the Juntas between 1541 and 1625, the ninth of which, printed in 1609, and the tenth, a reprint of the ninth, are the most correct; and, lastly, an edition printed at Venice in 1541–1545, by Farræus, in seven vols. 8vo, with the notes of Ricci. But the most elegant as well as most complete edition of Galen's works, both in

Greek and in Latin, is that which was published at Paris by René Chartier, 1639–1679, in thirteen vols. folio, which are ordinarily bound in nine or ten. This edition included the works of Hippocrates.

GALENIC, or GALENICAL, in *Medicine*, is the manner of considering and treating diseases, founded on the principles of Galen, or introduced by Galen.

Galenic is more frequently used as contradistinguished to *chemical*. The distinction of *galenical* and *chemical* was occasioned by a division of the practitioners of medicine into two sects, which happened on the introduction of chemistry into medicine. Then the chemists, arrogating to themselves every kind of merit and ability, stirred up an opposition to their pretensions, founded on the invariable adherence of the other party to the ancient practice; and though this division into the two sects of Galenists and chemists has long since ceased, yet the distinction of medicines which resulted from it is still sometimes observed. Galenical medicines are those which are formed by the easier preparations of herbs and roots, by infusion or decoction, and by combining and multiplying ingredients; whilst those of chemistry derive their more remote virtues from elaborate preparations, as calcination, digestion, fermentation, and the like.

GALENISTS, a denomination given to physicians who practise, prescribe, or write, on the Galenical principles, and are opposed to the chemists.

GALENISTS, or *Galenites*, in *Ecclesiastical History*, a branch of Mennonites or Anabaptists, who adopt several of the opinions of the Socinians, or rather Arians, respecting the divinity of our Saviour. In 1664 the Waterlandians were divided into two parties, of which the one was called *Galenists*, and the other *Apostolians*. They are so denominated from their leader Galenus, a learned and eloquent physician of Amsterdam, who considered the Christian religion as a system which laid much less stress on faith than on practice, and who was for admitting into the communion of the Mennonites all those who acknowledged the divine origin of the books of the Old and New Testaments, and led holy and virtuous lives.

GALERICULUM was a cap worn both by men and women amongst the ancient Romans. It consisted of skin, which was so neatly dressed with human hair that the artificial covering could scarcely be distinguished from the natural. It was used by those whose hair was thin; and also by wrestlers, in order to keep their own hair from receiving any injury from the oils with which they were rubbed over before they exercised. It seems to have resembled our wigs.

GALIANI, FERDINAND, an eminent Italian writer, was born at Chieti, in the Neapolitan province of Abruzzo, on the 2d of December 1728. At eight years of age he was sent to his uncle at Naples, who was then first chaplain to the king. Here he received his elementary education, along with his brother Bernard, who was a few years older. In 1740, the uncle being obliged to go to Rome upon a political mission, he gave his two nephews in charge to the Celestine fathers, for the continuance of their studies; and accordingly, in the course of two years, they were instructed in philosophy, the mathematics, and other liberal sciences. The archbishop, on his return to Naples, received them back into his palace, where they studied law, and enjoyed the society and conversation of the most distinguished professors of the university of Naples. Ferdinand, who possessed great talents and vivacity, devoted himself with ardour to the study of history, antiquities, the belles lettres, and philosophy, and more particularly to political economy. At the age of sixteen he produced a *Memoir on the Coins of the period of the Trojan War*; and this early production first inspired him with the idea of his great work on money. He also translated Locke's treatise on *Money and Interest*. At the age of eighteen he undertook a work on the *Ancient History of the Navigation of the Mediterranean*; and in his great work, we find that he there made use of part of the materials which he had collected at this early age. A *jeu d'esprit*, which had nearly been attended with serious consequences, diverted him for some time from his graver studies. Having been charged by his brother Bernard to deliver, in his absence, a discourse in an academy of which he was a member, the president, looking only at the youth of Ferdinand, and being ignorant of his talents, would not permit him to proceed. The latter resolved to revenge himself in a manner that showed more spirit than prudence. It was the custom in this academy, as in several others, that when any great personage died at Naples, all the academicians published, in his praise, a collection of pieces in prose and verse. The executioner at Naples having died, Galiani seized the opportunity of turning the academy into ridicule. With the assistance of a friend, he composed, in the course of a few days, a collection of serious pieces on this event, which were ascribed to each of the members, and in which their peculiar style and manner were so well imitated, that one of them confessed he should have been himself deceived, if he had not been perfectly certain that he had not written the piece to which his name was subscribed. This malicious and witty little volume appeared in 1749, under the title of *Componimenti varj per la Morte di Domenico Jannacone, Carnefice della gran corte della vicaria, raccolti e dati in luce da Gian. Anton. Sergio Avvocato Napoletano.* This Sergio was the president of the academy. The publication was eminently successful, and excited a sensation which the authors had not foreseen; and as they became afraid of being discovered by the publisher, they went directly to the minister Tanucci, confessed the fact, and got off for the performance of some spiritual exercises.

Galiani soon effaced the impression made by this piece of youthful folly, by the publication of his *Treatise on Money*, which had employed the labour of several years. It appeared at Naples in 1750, when the author was only twenty-one. It was first published anonymously, and the author did not make himself known until the success of the work was decided. The Archbishop of Tarentum took this occasion to patronize him, and procured for him several benefices, which induced him to take orders. He afterwards travelled through the whole of Italy, was presented at the various courts, and found himself every where preceded by his reputation. He was well received by the pope and several of the Italian princes; he was admitted a member of some of the most celebrated academies; and he established a correspondence with many of the most eminent literary characters. His next publication was a treatise entitled *Della perfetta Conservazione del Grano*, written, with his usual elegance, for the purpose of recommending an ingenious machine, invented by his friend Intieri, for drying and preserving grain.

The active mind of Galiani was now engaged in investigating several scientific subjects, particularly connected with antiquities and natural history. He was the first who undertook to form a collection of the volcanic productions of Vesuvius; and he wrote a learned treatise upon this subject, which, however, was not printed until about fifteen years afterwards. He presented the manuscript to Pope Benedict XIV. along with the collection itself, which was arranged in seven boxes, according to the order of the treatise. The collection was placed in the Museum of the Institute of Bologna, where it still remains. In presenting this collection to the pope, Galiani had written upon one of the boxes, *Beatissime Pater, fac ut lapides isti panes fiant.* His holiness, understanding the hint, gave him the prebend of Amalfi, worth 400 ducats a year.

In the lifetime of his uncle, whom he lost in 1753, he enjoyed a benefice of 500 ducats, which conferred upon him the episcopal dignity, and another living worth 600 ducats. His funeral oration, on the death of his patron, Benedict XIV., who died in 1758, procured him a high character for eloquence, and was one of his works which he himself most esteemed.

Galiani was one of the members of the academy of Herculaneum, established by King Charles III. for the purpose of illustrating the remains of ancient art discovered among the ruins of that city; and he furnished several memoirs, which were inserted in the first volume of that magnificent work, the *Antiquities of Herculaneum.* With the other academicians who were engaged in this labour, Galiani enjoyed the royal bounty, in a pension of 250 ducats.

In the month of January 1759 he was appointed secretary of state and of the royal household, and, soon afterwards, secretary to the French embassy; and he arrived at Paris in the month of June following. Here his reception was exceedingly flattering, and his company was courted in all polite literary societies. The ambassador was the Count Cantillano, marquis of Castromonte, a Spanish nobleman, of much indolence and little talent. During the absence of the count on a six months' journey to Spain, Galiani remained *chargé d'affaires,* was presented to the king of France, and enjoyed all the advantages of his situation. He applied himself with great zeal and assiduity to the acquisition of a correct French style of writing; and about this time he commenced his learned and ingenious *Commentary on Horace,* of which the Abbé Arnaud inserted some extracts in the fifth, sixth, and seventh volumes of his *Gazette Littéraire* for 1765. About the commencement of that year Galiani had set out for Naples, for the purpose of taking the waters of Ischia. Long after his period of leave had expired, he was retained by the government, employed and consulted in several matters of importance, and at length appointed a member of the Supreme Council of Commerce. With this new title he returned to Paris; and about a year afterwards he obtained permission to travel for a few months in England, having been invited to that country by the Marquis of Caracciolo, who was then ambassador from the court of Naples at London. He returned through Holland to Paris, and soon afterwards wrote in French his celebrated *Dialogues sur le Commerce des Blés;* the style of which is so easy and elegant, that one would never suppose it to be the work of a foreigner. The manuscript was left in the hands of Diderot, and was published in 1770, with the date of London, and without the name of the author. The work excited great attention in France, and the best writers were loud and unanimous in their praise of it. Voltaire wrote to Diderot, who had sent him a copy, in the following terms: "The powers of Plato and Molière seem to be combined in the composition of this work. I have as yet only read about two thirds of it; and I expect the *denouement* of the piece with great impatience." The same author again praises the work in his *Questions sur l'Encyclopédie,* in the article *Bled ou Blé.*

Meanwhile, Galiani had returned to Naples, where, in addition to his office of member of the Council of Commerce, he received that of secretary to the same tribunal. These two situations brought him a revenue of 1600 ducats. In 1777 he was made one of the ministers of the *junto* of the royal domains, who had the charge of every thing connected with the private patrimony of the king; an office which added 200 ducats to his income. His partiality for the writings of Horace inspired him with the idea of a treatise *Des instincts ou des gouts naturels et des habitudes de l'homme, ou Principes du droit de la nature et des gens, tirés des Poësies d'Horace;* a work which he left nearly complete, but which has never been published. There is a life of Horace prefixed, much better and more complete than that which is inserted in the works of Algarotti. The project which he entertained of a dramatic academy induced him to attempt the composition of a comic opera, in a new and singular style. This was *The Imaginary Socrates,* of which he gave the plan to the poet Lorenzi, who put it into verse, and it was set to music by the celebrated Paesiello. The piece was performed with the greatest success throughout Italy, Germany, and even at St Petersburg. Galiani himself was passionately fond of music. He sung agreeably, and played well on the harpsichord. His library was select rather than numerous, and particularly rich in good editions of the Greek and Latin classics. He had also a considerable and very valuable cabinet of ancient coins and rare medals, engraved stones, cameos, and a few statues.

On the 8th of August 1779, a terrible eruption of Vesuvius spread the utmost dismay throughout Naples. For some time the press teemed with new and frightful descriptions of this phenomenon, and the ravages it occasioned; and the minds of the inhabitants were every day filled with fresh terror. In order to efface these disagreeable impressions, Galiani in a single night composed a piece on this eruption, in which he imitated very happily the style of an author who was well known in the city for his ridiculous weakness. This production was printed next day under the following title: *Spaventosissima descrizione dello spaventoso spavento, che ci spavento tutti coll' eruzione delli* 8 *di Agosto del corrente anno, ma (per grazia di Dio) duro poco, di D. Onofrio Galeota, poeta e filosofo all' impronto.* It was a very laughable piece on a very serious subject; and it had the effect of dispelling the melancholy ideas which had got possession of the minds of the people.

Galiani was very fond of the Neapolitan dialect, and took great pleasure in speaking it. In the same year he published anonymously, as was his custom, a work entitled *Del dialetto Napolitano,* in which he gave, for the first time, a grammar and history of this dialect, which he maintained was the primitive language of Italy; and shortly afterwards he composed a lexicon of the words peculiar to the Neapolitan tongue, which was begun to be printed in 1780; but the work was suspended, and has not since been resumed.

A work of a different kind soon afterwards engaged his attention. In the war which broke out in 1778, between England on one side, and France and Spain on the other, Naples and some other powers had remained neutral; but their rights, as they conceived, were not sufficiently respected by the belligerent parties. Numerous writings appeared throughout Europe on the rights and duties of neutrals; and, among others, Galiani produced a treatise in Italian, *On the Duties of Neutrals towards Belligerent Powers, and of the latter towards the former.* It was published at Naples in 1782, in 4to. In the same year he was appointed first assessor to the general council of finance; a situation which he accepted the more readily, as its duties were analogous to his other studies; but he refused to touch the salary. A few months afterwards, however, the king presented him with the abbacy of Scurcoli, which was worth 1200 ducats per annum, after deducting all charges and pensions. The office of assessor of economy in the superintendence of the crown funds, to which he was appointed in 1748, added to his public duties, and likewise increased his income. Meanwhile his health, which was naturally weak, declined daily. On the 13th of May 1785 he had an attack of apoplexy; and in order to prevent a return, he travelled the following year through Puglia. In 1787 he made a longer journey, and went as far as Venice, where he was well received by all the men of letters, as he was also at Modena by Tiraboschi, and by Cesarotti at Padua. On his return to Naples his health rapidly declined; and he died, quietly and resignedly, on the 30th of October 1787, at the age of fifty-nine.

Besides the works already mentioned, Galiani left behind him a variety of interesting manuscripts, which came into the possession of D. Francesco Azzariti, his heir, and many of which, it is said, well deserve publication. Among them are, 1. The Commentary on Horace, with the Life; 2. The Lexicon of Words peculiar to the Neapolitan Dialect; 3. A Poetical Translation of the Anti-Lucretius; 4. A Miscellaneous Collection of Poetical Pieces; 5. Several volumes full of facetious Letters, Novels, and Anecdotes; 6. His Epistolary Correspondence, which would form of itself a pretty voluminous collection. A part of it was published at Paris in 1818, in two vols. 8vo. (See the article GALIANI, by Ginguené, in the *Biographie Universelle*, tom. xvi.) (K.)

GALICIA, the largest province of Spain, and that which contains the greatest number of inhabitants. It is situated in the north-west corner of the peninsula. On the east it is bounded by Asturias and Leon, on the north and west by the ocean, and on the south by Portugal, from which it is separated by the river Mino. The extent of this province is 1330 square leagues, and the number of its inhabitants amounts to 1,585,419

On the coast the climate is mild and temperate; but, from the frequent and heavy rains which fall on the higher land, it is both humid and cold. Scarcely one sixth part of this province is cultivated; for though the natives are of robust frames and industrious habits, yet, as almost all the land belongs to either spiritual or municipal corporations, or is held in mayorazo or entail by private lords, the cultivators have no encouragement to improve, or are too poor to do so. They live in a state of great depression, are fed coarsely, and their houses and clothing bespeak great poverty. From the distress felt in their native province, they emigrate to every part of the peninsula, and procure subsistence by the lowest and severest kinds of labour. The term Galego is hence become synonymous with that of porter in every part of Spain. Wherever they are they seldom fail in regard for their native province; and they often return to it when they have saved enough in service to subsist upon. Their attachment to their families, especially to their aged and infirm relatives, is evinced by sending them pecuniary assistance; and they anxiously seek out employment for those of their younger relations and friends who may be inclined to exchange their condition for better food and more ample wages. Galicia contains more good harbours than the whole of the rest of the north of Spain, and it is crossed by various rivers, so that under a good system of government it might become a country of considerable commerce. One of the greatest hindrances to increasing prosperity is the want of good roads, bridges, and other means of communication. Some few advances towards these improvements had commenced, and would probably have succeeded, but for the war of the invasion, which put aside every object that did not immediately tend to the defence of the country. When fanaticism was more prevalent than it has recently been, the roads to the capital, Santiago, were frequented by numberless pilgrims from every part of Spain, and even France, who came to pay their vows at the shrine of St Jago. At that period roads, bridges, and hospitals were erected, but as the zeal for pilgrimages declined, these establishments decayed. Attempts to revive them were made in the reign of Ferdinand VI. about the year 1750, and roads were formed from Corunna to Santiago, from Corunna towards Madrid by Betanzos and Lugo, and from Santiago to Pontevedra, Puente de San Payo, and Tuy. These pass through the most sterile parts of the province. They are therefore less beneficial than one which was begun when the French entered Spain, which was designed to pass from Benevente to Vigo through Sanabria and Montemy, with branches connecting them with Santiago, Pontevedra, and Tuy. If even this plan is effected it will be of great advantage to all Galicia, but especially to the environs of Orensee, in which much wine is made, and where, for want of roads, the greatest calamity that can happen to the cultivators is a very productive grape season; for having no foreign vent, the price is so low that it does not pay the expense. It is estimated that the district of Orensee, after supplying its own inhabitants with wine, would be able to send to other markets 400,000 gallons annually.

Though Galicia is partially and imperfectly cultivated, it produces wheat and barley, but not in sufficient quantity for its consumption. It yields maize, potatoes, chestnuts, nuts, and wine. It feeds much cattle, especially pigs, from which hams and sausages are great articles of traffic with Castille, Andalusia, and the kingdom of Portugal; but having little or no oil, it receives that article from those parts in exchange. Hemp is grown, but not in sufficient quantity for the demand, which is supplied by the annual importation of about 1000 tons from the ports on the Baltic. Some flax and silk are raised in Galicia, but scarcely sufficient for the domestic consumption.

The plantations of oranges and lemons have gradually disappeared in Galicia, as well as in the neighbouring provinces of Asturias and Santander. In the middle of the seventeenth century both England and France were supplied with these delicious fruits from this province; but, as is supposed, from some change of climate, none are now grown in the north; and the whole commerce in these fruits is transferred to the southern provinces of the peninsula.

The manufactures of Galicia are leather, inferior woollen cloths and blankets, hats, linen, and some silks. Many families in some parts live by weaving, which is performed principally by the females, and there no house is to be found without a loom. The fisheries both on the coast and on the rivers employ many men, whilst their wives are weaving; and produce salmon, lampreys, eels, trouts, and other fish. These are pickled, and furnish a trade with the interior, though complaints are made that the demand is constantly decreasing. The same complaints are made of want of sale for sardinias, a most excellent sea-fish, which used, when caught, to be slightly salted, and conveyed in baskets to the mountainous districts, where no fish is to be had for keeping Lent and other periods of abstinence.

The sea-ports and fisheries of Galicia used to breed the best seamen of Spain, and the number of vessels of different classes once amounted to 1600; but the long wars in which the connection with France has involved Spain, whilst they have annihilated the royal navy, have reduced very considerably the merchant ships, and the seamen, who used to supply the king's fleet with dexterous sailors.

The rivers of Galicia are the Mino, which rises in the north, and after a course of fifty leagues, and receiving various tributary streams, enters the Atlantic Ocean at the boundary between Spain and Portugal; the Tamago, which rises in the province, and entering Portugal, empties itself into the Duero; and the Montemy, which likewise runs to the Duero.

The only mines, though the mountains are said to abound in iron, are some of tin, which were worked on account of the government; but in 1798 the working was abandoned, either because, from the negligence displayed in most royal works, it was too expensive, or the mines were not sufficiently rich in metal to induce a continuance of the operations. These mines are at Ciervas, one league from Montemy. This province contains 18,230 horses, 17,090 mules, 12,050 asses, 88,667 neat cattle, 764,509 sheep, 73,011 goats, and 142,236 swine. The bees produce, of honey 707, and of wax $347\frac{1}{2}$ cwt. The inhabitants make 200,000 dozen stockings, and 5,550,000 varas of linen.

GALILEE, once a province of Judæa, now of Turkey in Asia, was bounded by Mount Lebanon on the north, by the river Jordan and the sea of Galilee on the east, by the Chison on the south, and by the Mediterranean on the west. It was the scene of many of our Saviour's miracles; but the boundaries of the country are not now well known, nor even the places where many of the towns were situated.

GALILEANS, a sect of the Jews. Their founder was one Judas, a native of Galilee, from which place they derived their name. Their chief, esteeming it an indignity for the Jews to pay tribute to strangers, stirred up his countrymen against the edict of the Emperor Augustus, which had ordered an enrolment or taxation of all the subjects of the Roman empire. They pretended that God alone should be owned as master and lord, and in other respects they were of the opinion of the Pharisees; but as they judged it unlawful to pray for infidel princes, they separated themselves from the rest of the Jews, and performed their sacrifices apart. As our Saviour and his apostles were of Galilee, they were suspected to belong to the sect of Galileans; and it was upon this principle, as St Jerome observes, that the Pharisees laid a snare for him, asking, whether it was lawful to give tribute to Cæsar, that if he denied it, they might have an occasion of accusing him.

GALILEO GALILEI, the founder of experimental science, was born at Pisa on the 15th of February 1564, being descended of a noble and ancient Florentine family, which, under the surname of Bonajuti, afterwards changed to that of Galilei, had filled distinguished offices in the state. His father, Vincenzo Galilei, was a man of considerable talent and learning, with a competent knowledge of the mathematics, and particularly devoted to the study of music, on the theory and practice of which he published several treatises. Vincenzo had three sons, Galileo, Michel Angelo, and Benedetto, and the same number of daughters, Giulia, Virginia, and Livia; but he was not opulent, and being burdened with a numerous family, was unable to provide for them expensive instructors. The subject of this notice exhibited early symptoms of an active and original mind, and even in his childhood showed a singular aptitude for mechanical contrivances, imitating with infinite address all sorts of machines, inventing new ones, or when, as often happened, he wanted the necessary materials for constructing these, adding new pieces to old ones. It is worthy of observation, that the boyhood of his great follower, Newton, whose genius in many respects closely resembled his own, was marked by a similar talent. Galileo commenced his literary studies at Florence, where his family resided; but, for the reason already stated, his masters were of the humblest kind. Knowing the disadvantages of his situation, however, Galileo resolved to supply by industry the want of better opportunities; and he applied with so much assiduity to the study of the classic models, that he soon laid the foundations of that extensive and solid literature to which he was afterwards indebted for the purity of his language and the elegance of his writings. His leisure hours were applied to the cultivation of music and drawing, in both of which arts he excelled. For the former he inherited his father's talent, which he displayed by performing skilfully on several instruments, especially the lute; and during the whole of his life this continued to be his favourite recreation amidst more serious pursuits. In the latter, which he had at one time thoughts of cultivating as a profession, he acquired so perfect a taste, that eminent contemporary artists did not scruple to own their obligations to him for his counsel and suggestions. Such was Galileo at the age of eighteen, when his father, becoming daily more sensible of the extent of his genius, determined, at whatever sacrifice, to give him the advantage of an university education. In 1581 he accordingly commenced his academical career in the university of Pisa, which he entered with the intention of studying medicine, from the profession of which his father hoped that he might one day procure an easy and honourable subsistence.[1] And, that he might not lose any kind of instruction which was to be obtained, he attended a course of peripatetic philosophy, such as it was then taught, in addition to that of medicine. But, called by the predestination of genius to unveil to mankind those wonders of nature, which their fanatical confidence in the opinions of Aristotle prevented them from seeing even when revealed, he could not bring himself to assent without conviction, nor to admit the authority of a master in questions which reason and experiment ought alone to decide. Actuated by this spirit, he several times ventured, in the academical discussions, to combat the firmest supporters of the Aristotelian dogmas, and in consequence he obtained the reputation of possessing an obstinate and contradictory disposition; for men do not easily reconcile themselves to the subversion of opinions, the stability of which they have long been accustomed to consider as incapable of being shaken; and hence the partisans of Aristotle found as great difficulty in doubting as Galileo did in admitting the authority of that master. It is not a little remarkable that, some years later, Descartes commenced in France, as Bacon did in England, the same war which Galileo had so boldly declared at Pisa; thus proving that the great regenerative efforts of the human mind are inevitably brought on by the force of circumstances and the natural progress of ideas, and that the men of genius who attach their names to these memorable revolutions, are themselves carried onward by their age, and precede it only by a few steps.

It was at this period, 1582, when he had scarcely completed his eighteenth year, that Galileo made the first and perhaps the finest of his discoveries. Happening one day to be in the metropolitan church of Pisa, he remarked the regular and periodic movement of a lamp suspended from the roof of the cathedral; he also observed the equal duration of its oscillations, whether great or small; and this he confirmed by repeated experiments. Having satisfied himself as to the phenomenon itself, he immediately perceived the use to which it might be applied for the exact measurement of time; and this idea having remained in his mind, he employed it fifty years afterwards (in 1633) for the construction of a clock intended for astronomical observations. In what manner this instrument was constructed, does not exactly appear; but it seems certain that it was employed for the purpose stated; and this, in our opinion, is sufficient to entitle Galileo to the honour of having been the first to make an application which afterwards became of so much importance to astronomy; for Huygens, who, in truth, rendered it incomparably more perfect, by employing the pendulum as the regulator of clocks, and not as the motive power alone, did not publish his researches on this subject until about the year 1658.

At the time of which we are here speaking, Galileo had no knowledge of the mathematics, nor even the least desire to learn them, not conceiving in what respect triangles and circles could conduce to the advancement of philosophy. The study of geometry was then at a very low ebb, not only in Italy, but in every country of Europe. Commandine, it is true, had recently revived a taste for the writings of Euclid and Archimedes; Vieta, Tartalea, and others had made considerable progress in algebra; and Guido Ubaldi and Benedetti had done something towards establishing the principles of statics, the only branch of mechanics as yet cultivated. But, with these exceptions, the application of mathematics to the phenomena of nature was scarcely thought of. Galileo's first inducement to acquire a knowledge of geometry arose from his partiality for music and drawing; he had heard his father repeatedly state, that these arts, of which he was passionately fond, had their principles in the relations of numbers and of position taught by the mathematics; and he now entreated to be instructed in a subject which promised to unfold to him the true theory of his favourite pursuits. But his father, apprehensive that a study which so strongly attaches those who take pleasure in it would diminish his zeal for medicine, told him to wait until he had completed his course. Galileo, however, was not satisfied; and as Ostilio Ricci, professor of mathematics in the university, frequently visited at his father's house, he besought this person to give him secretly some lessons in geometry. The professor consented, after having privately asked and obtained the consent of the father. But the young man had no sooner entered into that field of investigation for which nature had destined him, than his mind became engrossed by the pleasure he felt in the certain and entire possession of truth; from that moment medicine and philosophy were abandoned for Euclid; and all the efforts and remonstrances of his father, who desired to recall him to pursuits which he thought more useful, and even went so far as to prohibit him from holding any intercourse with Ricci, proved unavailing. The impulse had been given, and all attempts to counteract it were fortunately useless. Galileo had learned enough to study alone. He accordingly continued in secret the perusal of Euclid, at the same time keeping open beside him a Galen or an Hippocrates, in order to conceal the favourite book when his father entered. Having thus by stealth advanced as far as the sixth book, and being transported with the utility which he discovered in the science of geometry for giving force and method to the understanding, he resolved to avow his progress to his father, and entreat the latter no longer to oppose the decided bent of his mind. Vincenzo, perceiving that he was born for the mathematics, yielded to the irresistible predilection of his son, and permitted him to enter freely upon those speculations to which he thenceforward devoted all the energies of his highly-gifted intellect.

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[1] In the matriculation lists of Pisa he is styled Galileo, the son of Vincenzo Galilei, a Florentine, scholar in arts. His entry is dated the 5th November 1581.

Having thus abandoned medicine, Galileo read with avidity the works of the ancient geometers, and then proceeded to study the treatise of Archimedes on floating bodies, which greatly delighted him. He now sought to multiply the applications of the method employed by the illustrious ancient in determining the proportions of an alloy of silver and of gold by successive weighings in water and in air; and for this purpose he invented an instrument similar in its uses to that which was afterwards called the hydrostatic balance. This invention, joined to his previous discovery respecting the movement of oscillation, and his new and free method of discussing subjects in philosophy, had already procured him considerable reputation, when he formed a connection with the Marquis Guido Ubaldi, then one of the most learned mathematicians of Italy. At the suggestion of this distinguished person, Galileo applied himself to consider the position of the centre of gravity in solid bodies; a choice of subject sufficiently indicating the estimate which Ubaldi had formed of his powers, considering that the question was one on which Commandine had recently written, and which at that time engaged the attention of geometricians of the highest order. Galileo, however, discontinued his researches on meeting with Valerio's treatise upon the same subject; but Ubaldi was so much struck with the genius displayed in the essay which Galileo presented to him, that he introduced the young geometer to his brother the Cardinal del Monte, who again warmly recommended him to John de' Medici and the Grand Duke Ferdinand of Tuscany, as a person of the highest promise. These illustrious personages gave him a most favourable reception, and soon afterwards bestowed on him the chair of mathematics in the university of Pisa, although he had as yet scarcely completed his twenty-fifth year.

Excited by this distinction, Galileo neglected nothing calculated to justify the preference which had been given him; and conceiving that a knowledge of the laws of motion is the basis of all solid study of nature, he undertook to establish them, not by hypothetical reasonings, as was the practice in the schools, but by real experiments. He thus demonstrated that all bodies, whatever be their nature, are equally affected by gravity; and that, if the spaces through which they descend in equal times are different, this depends on the unequal resistance opposed to them by the air, according to their different volumes. This important proposition Galileo completed long afterwards, in a work entitled *Dialoghi delle Scienze Nuove*, in which he established the true theory of uniformly accelerated motion. The novelty and beauty of his first experiments, performed before an immense concourse of spectators, excited great enthusiasm. But they at the same time embittered the animosity of the partisans of the ancient philosophy, who, seeing their whole science attacked, sought to destroy the innovator in the opinion of persons in power, and at length succeeded in raising against him such a host of annoyances and persecutions, that, in 1592, he was obliged to resign his chair at Pisa. He returned to Florence without employment, but durst not present himself in the house of his father, who had already made so many sacrifices on his account. He had the good fortune, however, to obtain from Guido Ubaldi a letter of recommendation to an opulent gentleman of Florence, of the family of the Salviati, who received him with extreme kindness, and afforded him the means of prosecuting his discoveries, until he could find some employment. With a view to serve him, Salviati also made him known to a Venetian nobleman of the name of Sagredo; an enlightened and influential man, who soon afterwards obtained for the youthful philosopher the chair of mathematics at Padua, which was conferred on him for six years. It was in gratitude for these seasonable benefits that Galileo gave the names of Sagredo and Salviati to the two interlocutors in his dialogues who support the true philosophy.

In his new situation, where he enjoyed greater freedom than he had done at Pisa, Galileo continued, with still more brilliant success, both his public lessons and his experimental researches. He constructed, for the service of the state, various machines of great utility; and he wrote for his pupils treatises on gnomonics, mechanics, spherical astronomy, and even fortification, according to the usage of the age, when many things were united which the progress of knowledge has since separated. In 1597, he invented the thermometer[1] and the proportional compass or sector, which he called the military compass, because he had principally intended it for the use of engineers. In 1599, his commission having expired, the senate renewed it for another six years, with an increase of salary, which Galileo repaid to the republic by new discoveries. In 1604, an unknown star of extraordinary brightness having suddenly appeared in the constellation of Serpentarius, Galileo demonstrated, by his observations, that this body was placed far beyond what the peripatetics called the elementary region; nay, that it was much more remote than all the planets, contrary to the formal and infallible opinion of Aristotle, who maintains that the heavens are incorruptible and free from all mutation. He also made researches on natural magnets, and succeeded in considerably augmenting their power by means of capping or casing them. His commission as professor was renewed a second time in 1606, with additional advantages, for which he testified his gratitude, as before, by increased diligence in the prosecution of his discoveries. But envy, which had never lost sight of him, exerted herself to disturb that peace which is so necessary to the successful pursuit of science. In 1604, on the occasion of his researches respecting the new star, he had been grossly abused by one Baltasar Capra of Milan. This man had the audacity to publish a Latin treatise on the proportional compass, in which he represented himself as the real inventor of that instrument; but the calumny was so gross that nobody was deceived by it; Galileo confounded his adversary, and the work of Capra was prohibited as a defamatory libel. Nor was this the only instance in which he had to vindicate his right of property in his own inventions. He frequently found himself ill recompensed for the readiness with which he communicated the results of his investigations; but he always raised himself by new discoveries, far above these disgraceful attempts to appropriate the fruits of his genius.

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[1] The original idea of this instrument belongs to the Greek mathematician Hero; and even Santorio, who has been named by Italian writers as the inventor, and, at one time, claimed the invention as his own, refers it to him. In 1613, Sagredo, who has been

The year 1609 was signalised by a discovery on the part of Galileo, which forms one of the most solid foundations of his glory. In the month of April or of May, a rumour was circulated in Venice that a Dutchman had presented to Count Maurice of Nassau an instrument, by which means distant objects appeared as if they were near at hand. On this slight and cursory hint Galileo immediately applied himself to discover whether the thing was possible, conformably with the passage of the luminous rays through spherical glasses of various forms. Some attempts made with lenses which he had at hand produced the desired effect; and next day he gave an account of his success to his friends, which, in fact, was nothing less than the invention of the telescope. A short time afterwards he presented several of these instruments to the senate of Venice, accompanied with a description in which he unfolded the immense consequences for nautical and astronomical observations which would certainly result from the discovery; and in recompense of his ingenuity his commission as professor was continued for life, with an allowance of salary triple that which he had previously received. Galileo neglected nothing calculated to evince his gratitude, or to add to the claims which had merited these favours. Indefatigable in his researches, he invented the microscope; he also improved his telescope, and soon brought it to a state fit to be applied to the observation of the heavens. He then perceived what as yet no mortal eye had ever seen; the surface of the moon, like that of the earth, bristled with high mountains and ploughed with deep valleys; Venus, presenting, like the moon, phases which prove her rotundity; Jupiter environed with four satellites, who accompany him in his course; the milky way; the nebulæ; in a word, the whole heavens bespangled with a countless multitude of stars too small to be even perceived by the naked eye. It is more easy to conceive than describe the surprise and delight which the first view of so many wonders must have inspired him withal, as well as the admiration which they could not fail to produce when they were known. A few days having sufficed to pass them in review, he hastened to announce his observations to the world in a publication entitled *Nuncius Sidereus*, or Celestial Courier, which he dedicated to the princes of Medici, and which he continued at intervals, in proportion as he discovered new objects. He also observed that Saturn sometimes appeared under the form of a simple disc, and sometimes with two appendages which seemed two small planets; but it was reserved for another astronomer (see HUYGENS) to demonstrate that these appearances were produced by the ring with which Saturn is surrounded. Galileo also discovered moveable spots on the globe or disc of the sun, whom the peripatetics had declared incorruptible, and did not hesitate from these to infer the rotation of that planet. He remarked that feeble light which, in the first and last quarter of the moon, renders visible, by means of the telescope, the part of her disc which is not then directly enlightened by the sun; and he concluded rightly that this effect was owing to the light reflected towards the moon by the earth. The continued observation of the spots of the moon satisfied him that that planet always presents nearly the same aspect; but in these he nevertheless recognised a species of periodic oscillation, to which he gave the name of libration, the exact laws of which were afterwards made known by Dominic Cassini. In a word, not less profound in following new truths to their consequences than subtile in discovering them, Galileo perceived the use to which the motions and eclipses of the satellites of Jupiter might be turned for the measure of longitudes; and he even undertook to make a sufficient number of observations of these stars to enable him to construct tables for the use of navigators.

After so many and so admirable discoveries, we have good reason to be astonished that any one should dream of denying to Galileo the invention of the telescope, with which he had made them; as if, in such a case, the inventor was not he who, guided by certain rules and by great views, knew how to perform wonders with that which chance had thrown rude and unfashioned into incapable hands. If he who, in Holland, accidentally joined two glasses of unequal curvature, was really the inventor of the telescope, why then did he not turn it towards the heavens, the most beautiful and sublime application of that instru-

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already mentioned as the friend of Galileo, writes to him in the following terms :—"I have brought the instrument which you invented, into several convenient forms, so that the difference of temperature between two rooms is seen as far as a hundred degrees." The date of this communication, which incidentally establishes the invention of Galileo, is anterior to the claims of Santorio, and also to those of Drebbel, a Dutch physician, who obtained, and still preserves in Germany, the honour of having invented this instrument. Another testimony may be added. In 1638, Castelli wrote to Cesarini that he remembered an experiment shown to him more than thirty years before by Galileo, who took a small glass bottle, about the size of a hen's egg, the neck of which was twenty-two inches long, and as narrow as a straw. "Having well heated the bulb in his hands, and then introduced its mouth into a vessel containing water, he withdrew his hand from the bulb, on which the water rose in the neck of the bottle more than eleven inches above the level of that in the vessel; and this principle he employed in the construction of an instrument for measuring heat and cold." Galileo's thermometer, therefore, consisted merely of a glass tube ending in a bulb, the air in which, being partly expelled by heat, was replaced by water from a glass in which the open end of the tube was immersed; and the different degrees of heat were indicated by the expansion of the air which still remained in the bulb, so that the scale would be the reverse of that now in use, as the water would stand at the highest level in the coldest weather. In other words, it was a compound of the barometer and thermometer.

ment? Why did he leave to Galileo the happiness and glory of overturning, in the eyes of all, ancient prejudices, of consolidating by the clearest proofs the system of Copernicus, and of aggrandising the celestial spaces beyond all that the imagination could have conceived? But however this may be, it is easy to comprehend to what a height so many and so great discoveries must have raised the views of Galileo; he perceived all the consequences which resulted from them relatively to the constitution of the universe; and, indeed, how could they escape him who, having taken nature as his guide, had, during his whole life, preserved his mind open to her impressions?[1] He concealed none of these high consequences, which formed as it were the soul of his writings and conversation; and he considered himself as henceforth entitled to despise errors too gross to be honestly maintained.

But, unfortunately for himself, he was no longer under the protection of Venice. Yielding to the instances of the Grand Duke of Tuscany, who had named him mathematician extraordinary, and loaded him with favours, he had quitted Padua, where he enjoyed the utmost freedom, for Florence, where such a thing as liberty was scarcely known. Honoured by the senate of Venice, and united by the ties of friendship with several of the most distinguished senators, he could publish his opinions without danger to himself as long as he remained within the territories of that state. But, in the end, experience proved that he could have no such security at the court of a prince, obliged at least to keep up appearances with the court of Rome. Besides the number of envious persons whom his great merit had exasperated against him, his discoveries made to him enemies of all those who had hitherto taught the ancient doctrines; and of these persons by far the greater part were ecclesiastics. Accordingly, some spread it abroad that his discoveries in the stars were pure visions, comparable only to the voyage of Astolphus; others affirmed that they had had the telescope in their possession during entire nights, and that they had seen nothing of all that which Galileo had announced; and a preacher was found who, malicious enough to convey a dangerous allusion in a pun, took as his text the words of the Gospel, *Viri Galilæi, quid statis adspicientes in cœlum?* It was thus that the countrymen of Copernicus had publicly ridiculed him on the stage; and it was thus that, at a later period, the reformed of Holland persecuted Descartes, who had taken refuge amongst them.

But the most certain method of reaching Galileo was to begin by prohibiting the doctrine of Copernicus, which he supported and propagated with so much distinction. This was accordingly effected by representing it as contrary to Scripture, and denouncing it to the holy see. Galileo endeavoured in vain to allay the storm, by publishing, in 1616, a letter addressed to the Grand Duchess of Tuscany, in which he undertook to prove theologically, and by reasons deduced from the Fathers, that the terms of Scripture might be reconciled with his new discoveries respecting the constitution of the universe. But this production only afforded a new handle to his adversaries, who maintained that he had rested his defence on an opinion which was itself erroneous in point of doctrine. He was cited to appear personally at Rome, and constrained to repair thither to defend himself. But neither the arguments which he urged in support of his opinions, nor the justice which they were forced to render to his knowledge, his merit, and even his catholicity, could prevent an assembly of theology, named by the pope, from coming to the following conclusion: "To maintain that the sun is placed immoveable in the centre of the world, is an opinion absurd in itself, false in philosophy, and formally heretical, because it is expressly contrary to the Scriptures; to maintain that the earth is not placed in the centre of the world, that it is not immoveable, and that it has even a daily motion of rotation, is also an absurd proposition, false in philosophy, and at least erroneous in point of faith." Confounded at this deliverance, Galileo employed all the arguments which the truth suggested to him in defence of a doctrine which his observations had rendered indubitable; but his efforts were unavailing; his reasonings were disregarded; and as he had not showed sufficient deference to the decision of the holy office, he was personally interdicted from professing in future the opinion which had just been condemned.[2]

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[1] "The interpreter of the works of nature is experiment," says Leonardo da Vinci; "that is never wrong: it is our judgment which is sometimes deceived, because we expect results which experiment refuses to give. We must consult experiment, and vary the circumstances, till we have deduced general rules, for it alone can furnish us with them. But, it will be asked, what is the use of these general rules? I answer, that they may direct us in our inquiries into nature and the operations of art. They keep us from deceiving ourselves and others, by promising ourselves results which we can never obtain." (Venturi, *Essai sur les Ouvrages de Leonardo da Vinci.*)

[2] It has been contended that the treatment which Galileo experienced on this and a subsequent occasion was caused, not by his maintaining the true system of the world, which, in the above declaration, is formally condemned as "false in philosophy and erroneous in faith," but solely by his persisting in the endeavour to prove that the Scriptures were reconcilable with the Copernican theory. "Ce philosophe (Galileo)," says Bergier, "ne fut point persécute comme bon astronome, mais comme mauvais théologien. C'est son entêtement à vouloir concilier la Bible avec Copernic, qui lui donna les juges. Mais vingt auteurs, surtout parmi les Protestans, ont écrit que Galilée fut persécuté et imprisonné pour avoir soutenu que la terre tourne autour du soleil, que ce système a été condamné par l'Inquisition comme faut, erroné, et contraire à la Bible." (*Encyclopédie Méthodique*, art. *Sciences humaines*, Paris, 1790.) This is a complete misrepresentation of facts known to every one. So far was Galileo from persisting in an attempt to reconcile the Bible with Copernicus, that he regarded this as a matter altogether indifferent, and indeed beside the real question. "I am inclined to believe," says he in his letter to the Grand Duchess of Tuscany, "that the intention of the sacred Scriptures is to give mankind the information necessary for their salvation, and which, surpassing all human knowledge, can by no other means be accredited than by the mouth of the Holy Spirit. But I do not hold it necessary to believe that the same God who has endowed us with senses, with speech, and with intellect, intended that we should neglect the use of these, and seek by other means for knowledge which they are sufficient to procure us; especially in a science like astronomy, of which so little notice is taken in the Scriptures, that none of the planets, except the sun and moon, and once or twice only Venus, under the name of Lucifer, are so much as named there. This therefore being granted, I think that in the discussion of natural problems we ought not to begin at the authority of texts of Scripture, but at sensible experiments and necessary demonstrations; for from the divine word sacred Scripture and nature did both alike proceed; and I conceive that, concerning natural effects, that which either sensible experience sets before our eyes, or necessary demonstrations prove unto us, ought not upon any account to be called in question, much less condemned, upon the testimony of Scripture texts, which may under their words couch senses seemingly contrary thereto." Can any thing be more explicit than the contradiction of the assertion of Bergier contained in these words? Is there any evidence here of Galileo's alleged "entêtement à vouloir concilier la Bible avec Copernic?" But the philosopher proceeds in continuation: "Again, to command the professors of astronomy that they of themselves should see to the confuting of their own observations and demonstrations, is to enjoin a thing beyond all possibility of being done; for it is not only to command them not to see that which they do see, and not to understand that which they do understand, but it is to order them to seek for and find the contrary of that which they happen to meet with. I would entreat these wise and prudent fathers that they would with all diligence consider the difference which exists between opinionative and demonstrative doctrines; to the end that, well weighing in their own minds with what force necessary inferences urge

Galileo returned to Florence in 1617, and resumed, with what grief may be easily imagined, the course of his astronomical labours. But his love for these sublime truths, of which he considered himself as the depositary, increasing in proportion to the efforts made to extinguish it, he undertook to silence, if he could not persuade, his adversaries, by collecting into a body all the physical proofs of the motion of the earth and the constitution of the heavens; and during sixteen entire years he was engaged in this work. All that the finest genius could imagine in point of ingenuity, or the purest taste admit in point of elegance, he employed to render the truth attractive. But it is not a learned treatise which he presents to us as the fruit of his labour and talents; it is merely a continued simple dialogue between two of the most distinguished personages of Florence and Venice, and a third interlocutor, who, under the name of Simplicius, undertakes to re-produce the "invincible arguments" of the peripatetics; and each perfectly sustains the part assigned to him. The two men of the world possess instruction, without system, and without prejudices; they discuss, examine, propose doubts, and only yield to cogent reasons. The good Simplicius, on the other hand, is altogether scholastic; he neither understands nor desires to comprehend any thing but Aristotle; he judges things true or false according as they are conformable or opposed to the assertions of his master; the least pleasantry on this subject is insupportable to him, and he yields not to any kind of conviction. The style of each of the interlocutors is also perfectly adapted to his character, without ceasing however to preserve, amidst these shades of distinction, an exquisite elegance, united with the most felicitous choice of expressions.

But if great genius was required for the composition of such a work, equal address was necessary to obtain permission to publish it; and this Galileo undertook to procure even in Rome itself. In 1630 he proceeded to that city, and having waited on the master of the sacred palace, boldly presented his work as a collection of new scientific fancies, at the same time requesting him to have the goodness to examine it scrupulously, to retrench whatever might appear to him exceptionable, and indeed to criticise it with the greatest severity. The prelate, not suspecting any thing, read it once and again; handed it to one of his colleagues for his opinion; and, not seeing any thing reprehensible in the work, set his hand to the most ample approbation of its contents. But the permission thus obtained was not sufficient; for, in order to profit by it, the work must be printed at Rome; and the numerous enemies of Galileo in that city would not have failed to explode the mine which the philosopher was himself charging to blow them up. On the pretext of some difficulty of communication between Rome and Florence, occasioned by a contagious distemper which then prevailed, Galileo accordingly wrote to the master of the sacred palace, soliciting permission to print his work at Florence, on the condition of having it again examined in that city. But the prelate, who perhaps began to suspect some deception, made difficulties; pointed out to Galileo a new censor; and demanded to see the approbation which he had previously given, in order, as he said, to revise the terms in which it had been conceived. With this request Galileo could not refuse to comply; but the prelate having once got hold of the document, refused to restore it, or to give any answer in explanation of his conduct; so that Galileo, after making every effort to recover it, and even causing it to be demanded by the ambassador of Tuscany, was compelled to abandon the pursuit as hopeless; and, contenting himself with the approbation of the censor of Florence, which he now managed to obtain, he published his work in 1632.

To shield himself as much as possible from prosecution, he however imagined the singular expedient of presenting his dialogues to the public as an apology for the judgment of Rome, by which the doctrine of Copernicus had been condemned. "Some years ago," says he, in the commencement of the introduction, which is addressed to discreet readers, "a salutary edict was promulgated at Rome, which, in order to obviate the perilous scandals of the age, enjoined an opportune silence as to the Pythagorean opinion of the earth's motion. There were not wanting persons who rashly asserted that this decree had originated, not in a judicious examination, but in ignorance and passion; and complaints were even heard that councillors unexperienced in astronomical observations should have attempted by hasty prohibitions to clip the wings of speculative minds. When I heard these rash lamentations, my zeal would not suffer me to remain silent; and being fully informed in regard to that most prudent determination, I thought it proper to appear publicly on the theatre of the world as a witness of the actual truth. I happened at that time to be in Rome; I was admitted to the audiences, and enjoyed the approbation, of the most eminent prelates of that court; nor did the publication of the decree pass without my receiving some previous intimation of the circumstance.[1] Wherefore it is my intention, in this present work, to show to foreign nations that as much is known of this matter in Italy, and particularly in Rome, as ultramontane diligence ever formed any notion of; and, collecting together all my own speculations on the Copernican system, to give them to understand that the knowledge of these preceded the Roman censures, and that from this country proceed not only dogmas for the salvation of the soul, but also ingenious discoveries for the gratification of the understanding. With this object in view, I have taken up in the dialogue the Copernican side of the question, treating it as purely a mathematical hypothesis, and endeavouring in every artificial manner to represent it as having the advantage, not over the opinion of the stability of the earth absolutely, but according to the manner in which that opinion is defended by some who indeed profess to be peripatetics, but retain only the name, and are contented without improvement to worship shadows, not philosophizing with their own reason, but only from the recollection of four

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us, they might the better assure themselves that it is not in the power of professors of demonstrative sciences to change their opinions at pleasure, and adopt first one side and then another; and that there is a great difference between commanding a mathematician or a philosopher, and the disposing of a lawyer or a merchant; and that the demonstrated conclusions touching the things of nature and of the heavens cannot be changed with the same facility as the opinions are what is lawful or not in a contract, bargain, or bill of exchange. Therefore, first let these men apply themselves to examine the arguments of Copernicus and others, and leave the condemning of them as erroneous and heretical to whom it belongs; yet let them not hope to find such rash and precipitate determinations in the judicious and holy fathers, or in the absolute wisdom of him who cannot err, as those into which they suffer themselves to be hurried by some particular affection or interest of their own. In these and such other positions, which are not directly articles of faith, no man doubts but his holiness has always an absolute power of admitting or condemning them; but *it is not in the power of any creature to make them to be true or false, otherwise than of their own nature and in fact they are.*"

[1] Delambre, whose prejudice against Galileo is as unreasonable as his partiality to Kepler is marked, quotes this sentence as an instance of mis-statement of facts on the part of Galileo. With all his acknowledged ability, the historian of astronomy does not seem to have perceived, what must be obvious to almost every reader, that the whole passage is ironical, and that in the very sentence which he has cited there lurks a bitter sarcasm. (*Histoire de l'Astronomie Moderne*, tome i. p. 666.)

principles imperfectly understood." Any one who peruses a few pages of the dialogues will be at no loss how to interpret this declaration, nor will he feel any surprise that those whom Galileo here pretended to vindicate should have evinced but little gratitude for such a justification. But what can scarcely be imagined now, is the fury which the appearance of this work excited amongst the theologians of Rome, almost all of whom were ardent peripatetics. In vain did Galileo attempt to escape by alleging that his book had been submitted to the judgment of the holy see; in vain did he, as a last resource, protest that his only object had been to expound, in a philosophical manner, the two systems of Ptolemy and Copernicus. His enemies would not suffer any such excuse to be listened to. Still there remained to him some hope, founded upon the personal esteem of Pope Urban VIII., who, on a former occasion, had given him a most gracious reception, and had even paid his astronomical discoveries the compliment of celebrating them in bad verse; but the holy father having been persuaded that Galileo had intended to represent him under the character of Simplicius, his wounded self-love rendered his severity inexorable.[1] Notwithstanding the intercession of the Grand Duke of Tuscany, and the earnest solicitations which this prince caused to be made by his ambassador, the work of Galileo was delated to the Inquisition, and the author himself ordained to appear before that formidable tribunal.

The power of Rome was then supreme; it was necessary to obey. Neither the infirmity of his health, nor the pain he suffered from a rheumatic complaint which afflicted him, could procure an exemption from that sorrowful journey. This was in 1633, Galileo being then in the sixty-ninth year of his age. "I arrived at Rome," says he, in one of his letters, "on the 10th February, and was remitted to the clemency of the Inquisition, and of the sovereign pontiff, Urban VIII. who had some esteem for me, although I could not compose epigrams or write little amatory sonnets. I was put under arrest in the delicious palace of the Trinità de' Monti, the residence of the ambassador of Tuscany. Next day I received a visit from Father Lancio, commissary of the holy office, who took me with him in his coach. By the way he put to me a number of questions, and showed a great desire that I would repair the scandal which I had given to all Italy by maintaining the opinion of the motion of the earth; and to all the mathematical reasons which I could oppose to him, he could make no other answer than this: *Terra autem in æternum stabit, quia terra in æternum stat.* In discoursing thus we arrived at the palace of the holy office. I was presented by the commissary to the assessor, with whom I found two religious Dominicans, who civilly informed me that I would be permitted to explain my reasons before the congregation, and that afterwards I should be heard as to my grounds of excuse, if I was found guilty. The Thursday following I appeared before the congregation, and applied myself to the exposition of my proofs. But, unfortunately for me, they were not apprehended; and, notwithstanding all the pains I took, I could not succeed in making myself understood. My reasonings were cut short by bursts of zeal; they spoke to me only of the scandal which I had occasioned; and always opposed to me the passage of Scripture on the miracle of Joshua as the victorious piece of my process. This brought to my recollection another passage where the language of the sacred book is evidently conformable to popular ideas, since it is said that *the heavens are solid, and polished like a mirror of brass.* This example appeared to me one in point to prove that the expression of Joshua might be similarly interpreted; and the consequence seemed to me perfectly just. But no regard whatever was paid to it; and all the answer I received consisted of shrugs of the shoulders."[2] On the 30th of April Galileo was sent back to the residence of the ambassador, with a prohibition not to go beyond the *enceinte* of the palace, but with permission to walk freely in the extensive gardens attached to it. On the 22d of June he was again brought before the tribunal to hear the sentence read, and pronounce the abjuration dictated to him, according to which the venerable philosopher was made to say, "I abjure, curse, and detest the error and heresy of the motion of the earth," &c. and to promise that he would never more in future say or assert any thing, verbally or in writing, importing "that the sun is the centre of the world, and immoveable; and that the earth is not the centre of the world, and moveable." This expiation being completed, his dialogues were prohibited; he was condemned to suffer imprisonment for an indefinite period; and, as a salutary punishment, he was ordained to recite once a week for three years, the seven penitential psalms. Such was the unworthy recompense of one of the greatest geniuses that has ever enlightened humanity.[3]

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[1] See Letter written by Galileo from Acastri, 26th June 1636, and cited by Targioni-Tozzetti in his History of the Sciences in Tuscany, tome ii. p. 147.

[2] Letter of Galileo, cited by Tiraboschi.

[3] The sentence of the Inquisition on Galileo, one of the most remarkable records of intolerant ignorance and bigoted folly to be found in the history of science, is conceived in the following terms:—"We, the undersigned, by the grace of God, cardinals of the Holy Roman Church, Inquisitors General throughout the whole Christian Republic, Special Deputies of the Holy Apostolical Chair against heretical depravity: Whereas you, Galileo, son of the late Vincenzo Galilei of Florence, aged seventy years, were denounced in 1615 to this holy office, for holding as true a false doctrine taught by many, namely, that the sun is immoveable in the centre of the world, and that the earth moves, and also with a diurnal motion; also, for having pupils whom you instructed in the same opinions; also, for maintaining a correspondence on the same with some German mathematicians; also, for publishing certain letters on the solar spots, in which you developed the same doctrine as true; also, for answering the objections which were continually produced from the holy Scriptures, by glozing the said Scriptures according to your own meaning; and whereas thereupon was produced the copy of a writing, in form of a letter, professedly written by you to a person formerly your pupil, in which, following the hypothesis of Copernicus, you include several propositions contrary to the true sense and authority of the holy Scripture: therefore this holy tribunal, being desirous of providing against the disorder and mischief which was thence proceeding and increasing, to the detriment of the holy faith, by the desire of his holiness, and of the most eminent lords cardinals of this supreme and universal Inquisition, the two propositions of the stability of the sun, and motion of the earth, were *qualified* by the *theological qualifiers* as follows: 1st, *The proposition that the sun is in the centre of the world, and immoveable from its place, is absurd, philosophically false, and formally heretical, because it is expressly contrary to the holy Scripture*; 2dly, *The proposition that the earth is not the centre of the world, nor immoveable, but that it moves, and also with a diurnal motion, is also absurd, philosophically false, and, theologically considered, at least erroneous in faith.* But whereas being pleased at that time to deal mildly with you, it was decreed in the holy congregation, held before his holiness on the 25th day of February 1616, that his eminence the Lord Cardinal Bellarmine should enjoin you to give up altogether the said false doctrine; if you should refuse, that you should be ordered by the commissary of the holy office to relinquish it, not to teach it to others, nor to defend it, nor ever mention it, and in default of acquiescence that you should be imprisoned; and in execution of this decree, on the following day, at the palace, in presence of his eminence the said Lord Cardinal Bellarmine, after you had been mildly admonished by the said lord cardinal, you were commanded by the acting commissary of the holy office, before a notary and witnesses, to relinquish altogether the said false opinion, and in future neither to defend nor teach it in any manner, neither verbally nor in writing; and upon your promising obedience you were dismissed. And in order that so pernicious a doctrine might be altogether rooted out, nor insinuate itself farther to the heavy detriment of the Catholic truth, a decree emanated from the holy congregation of the index prohi-

It is said that, after having pronounced his abjuration, Galileo, as he rose from the kneeling posture, indignant at the monstrous injustice of his age, stamped on the ground, and said in an under tone, *E pur si muove*, It moves notwithstanding. No doubt it does move, and this is the only answer which those who study nature should at all times make to their detractors and persecutors. What signifies the opinion of men when nature herself speaks? Of what value are their prejudices, or even their wisdom, in opposition to her laws? Why denounce as an impiety the observation of the works of God? Such, indeed, are now the sentiments of persons the most enlightened on the subject of theology; the motion of the earth and the immobility of the sun are no longer contrary to the words of Scripture; it is at length admitted that the Holy Spirit spoke to men in the only language which they could comprehend. It is true that this interpretation, which is now universally received, did not appear good in the time of Galileo, since we have seen that he was himself reprehended for having attempted to give it effect; but, from what we have related of the history of his life, it is evident that the persecution exercised against him was the effect, unhappily too common, of the envy which always attaches to great celebrity. There are arms peculiar to every country. Galileo was a heretic in Italy, as Descartes was an atheist in Holland. However, in denouncing to posterity the shameful injustice done to this great man, it must in fairness be admitted that the formidable tribunal by which he was condemned did not exercise towards him its extreme severity. It has been pretended, without any probability, that he was put to the question. But although it is true that, in the inquisitorial style, this seems to be indicated by the words *rigorosum examen* which are found in the text of the judgment, and although, by a singular coincidence, he began about this time to be afflicted with an intestinal hernia, the ordinary consequence of the particular species of torture (*il tormento della corda*) to which he is supposed to have been subjected; yet, for the honour of humanity, these presump-

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biting the books which treat of this doctrine; and it was declared false, and altogether contrary to the holy and divine Scripture. And whereas a book has since appeared, published at Florence last year, the title of which showed that you were the author, which title is, *The Dialogue of Galileo Galilei, on the two principal systems of the world, the Ptolemaic and Copernican;* and whereas the holy congregation has heard that, in consequence of the printing of the said book, the false opinion of the earth's motion and stability of the sun is daily gaining ground, the said book has been taken into careful consideration, and in it has been detected a glaring violation of the said order, which had been intimated to you; inasmuch as in this book you have defended the said opinion, already and in your presence condemned; although in the said book you labour with many circumlocutions to induce the belief that it is left by you undecided, and in express terms probable; which is equally a very grave error, since an opinion can in no way be probable which has been already declared and finally determined contrary to the divine Scripture. Therefore by our order you have been cited to this holy office, where, on your examination upon oath, you have acknowledged the said book as written and printed by you. You also confessed that you began to write the said book ten or twelve years ago, after the order aforesaid had been given. Also, that you demanded license to publish it, but without signifying to those who granted you this permission that you had been commanded not to hold, defend, or teach the said doctrine in any manner. You also confessed that the style of the said book was, in many places, so composed that the reader might think the arguments adduced on the false side to be so worded as more effectually to entangle the understanding than to be easily solved, alleging in excuse that you have thus run into an error, foreign (as you say) to your intention, from writing in the form of a dialogue, and in consequence of the natural complacency which every one feels with regard to his own subtilties, and in showing himself more skilful than the generality of mankind in contriving, even in favour of false propositions, ingenious and apparently probable arguments. And, upon a convenient time being given to you for making your defence, you produced a certificate in the handwriting of his eminence the Lord Cardinal Bellarmine, procured as you said by yourself, that you might defend yourself against the calumnies of your enemies, who reported that you had abjured your opinions, and had been punished by the holy office; in which certificate it is declared that you had not abjured, nor had been punished, but merely that the declaration made by his holiness, and promulgated by the holy congregation of the index, had been announced to you, which declares that the opinion of the motion of the earth, and stability of the sun, is contrary to the holy Scriptures, and therefore cannot be held or defended. Wherefore, since no mention is there made of two articles of the order, to wit, the order 'not to teach,' and 'in any manner,' you argued that we ought to believe that, in the lapse of fourteen or sixteen years they had escaped your memory, and that this was also the reason why you were silent as to the order, when you sought permission to publish your book, and that this is said by you not to excuse your error, but that it may be attributed to vain-glorious ambition rather than to malice. But this very certificate, produced on your behalf, has greatly aggravated your offence, since it is therein declared that the said opinion is contrary to the holy Scripture, and yet you have dared to treat of it, to defend it, and to argue that it is probable; nor is there any extenuation in the license artfully and cunningly extorted by you, since you did not intimate the command imposed upon you. But whereas it appeared to us that you had not disclosed the whole truth with regard to your intentions, we thought it necessary to proceed to the rigorous examination of you, in which (without any prejudice to what you had confessed, and which is above detailed against you, with regard to your said intention) you answered like a good Catholic. Therefore, having seen and maturely considered the merits of your cause, with your said confessions and excuses, and every thing else which ought to be seen and considered, we have come to the underwritten final sentence against you. Invoking, therefore, the most holy name of our Lord Jesus Christ, and of his most glorious Virgin Mother Mary, by this our final sentence, which, sitting in council and judgment for the tribunal of the reverend masters of sacred theology, and doctors of both laws, our assessors, we put forth in this writing touching the matters and controversies before us, between the magnificent Charles Sincerus, doctor of both laws, fiscal proctor of this holy office of the one part, and you, Galileo Galilei, an examined and confessed criminal from this present writing now in progress as above of the other part, we pronounce, judge, and declare, that you, the said Galileo, by reason of these things which have been detailed in the course of this writing, and which, as above, you have confessed, have rendered yourself vehemently suspected by this holy office of heresy; that is to say, that you believe and hold the false doctrine, and contrary to the holy and divine Scriptures, namely, that the sun is the centre of the world, and that it does not move from east to west, and that the earth does move, and is not the centre of the world; also that an opinion can be held and supported as probable after it has been declared and finally decreed contrary to the holy Scripture, and consequently that you have incurred all the censures and penalties enjoined and promulgated in the sacred canons, and other general and particular constitutions against delinquents of this description. From which it is our pleasure that you be absolved, provided that, first, with a sincere heart and unfeigned faith, in our presence, you abjure, curse, and detest the said errors and heresies, and every other error and heresy contrary to the Catholic and apostolic church of Rome, in the form now shown to you. But, that your grievous and pernicious error and transgression may not go altogether unpunished, and that you may be made more cautious in future, and may be a warning to others to abstain from delinquencies of this sort, we decree that the book of the Dialogues of Galileo Galilei be prohibited by a public edict, and we condemn you to the formal prison of this holy office, for a period determinable at our pleasure; and, by way of salutary penance, we order you, during the next three years, to recite once a week the seven penitential psalms, reserving to ourselves the power of moderating, commuting, or taking off the whole or part of the said punishment and penance. And so we say, pronounce, and by our sentence declare, decree, and reserve, in this and in every other better form and manner, which lawfully we may and can use. So we, the subscribing cardinals, pronounce. Felix, Cardinal di Ascoli; Guido, Cardinal Bentivoglio; Desiderio, Cardinal di Cremona; Antonio, Cardinal S. Onofrio; Berlingero, Cardinal Gessi; Fabricio, Cardinal Verospi; Martino, Cardinal Ginetti." This document is decisive as to the fallacy of the allegation, that "Galileo was not persecuted as a good astronomer, but only as a bad theologian."

tions seem completely destroyed by the conduct which was subsequently observed towards him. It is certain, from the letters of the ambassador of Tuscany, that he was not thrown into the dungeons of the holy office, although the judgment bears so. The prison assigned him was the lodging of one of the superior officers of the tribunal, with permission to walk throughout the whole palace; he was allowed to retain his domestic; and, so far from being put in solitary confinement, he was permitted to receive the visits of his friends as often as he pleased. All this is established by numerous letters of Galileo himself, dated at this period, and which, fortunately for the cause of truth and humanity, have been preserved. If he did not at once recover his entire liberty, his captivity was at least mitigated as much as it could well be, since the prison assigned him was the magnificent palace of the Archbishop of Sienna, Piccolomini, his friend and pupil, surrounded with beautiful gardens, in which he was allowed to take exercise at pleasure. In the beginning of December 1633, the pope granted him permission to reside openly in the country near Florence; and at a somewhat later period, he was allowed to enter the city as often as his infirmities required. Nevertheless, these restrictions prove that he still remained under the surveillance of the Inquisition; and the Italian writers even say that he several times received, from that tribunal, threatening letters, on account of the pursuits to which he still applied himself, and on pretence of the too intimate connection which he maintained with the learned in Germany.

It was no doubt too much thus to afflict an old man who had committed no other error than that of unfolding truths previously unknown. This treatment made a deep impression on his mind, as may be seen from the preface to his two new dialogues on the motion and resistance of solids, which he confided in manuscript to the Count de Noailles, when the latter was on his return to France from Rome, where he had been ambassador. "Confounded and afflicted with the bad success of my other works," says he, "and having resolved to publish nothing more, I have wished at least to place in sure hands some copy of my works; and as the particular affection with which you have honoured me will certainly make you desirous to preserve them, I have chosen to confide these to you." The count lost no time in communicating them to the Elzevirs, by whom they were printed at Leyden, in 1628, 4to; and it may be presumed that this publication did not occasion Galileo as much uneasiness as his disciple Viviani, writing, like himself, near Rome, would lead us to believe; a presumption confirmed by several letters, addressed to his intimate friends, which have fortunately been preserved. In these two dialogues Galileo created a science altogether new, namely, that of the resistance of solids; and he established, with admirable sagacity, the laws, not less novel, of the accelerated motion of heavy bodies, whether falling freely through space or descending on inclined planes. Nor is this the only production of Galileo which the French have had the honour of saving from his enemies. It was a Frenchman, Father Mersenne, who first published his mechanics; a book which, in a few pages, contains, among other discoveries, a demonstration of the laws of equilibrium on the inclined plane, and that other principle so fruitful in consequences, since called the principle of virtual velocities, which consists in this, that, in any machine whatsoever, the power and the weight in equilibrio are inversely proportional to the spaces which they would pass through in a time infinitely small, if the equilibrium were ever so little disturbed.

Oppressed with the weight of years and misfortunes, Galileo still pursued his observations, and worked with indefatigable courage to continue his tables of Jupiter's satellites, when the loss of sight obliged him, at the age of seventy-four, to discontinue his labours. But his faculties survived this deprivation, and he did not cease to meditate on nature though it was now concealed from his view. Surrounded by attentive and respectful pupils, and by the most distinguished persons of Florence, he lived four years in this state of blindness, after which a slow fever terminated his long and brilliant career, on the 9th of January 1642 (the same year in which Newton was born), at the advanced age of seventy-eight. His body was transported to Florence, and buried in the church of Santa Croce; but it was not until near a century later that the splendid monument was erected which now covers his remains and those of his celebrated pupil and friend Viviani.

The most masterly, and at the same time the most impartial estimate which has yet appeared of the services rendered to the cause of human knowledge by the Florentine philosopher, will be found in the Third Dissertation prefixed to this work (see particularly p. 469, 470), to which the reader is accordingly referred; more especially with respect to the preference which Biot, supported by Hume, has been pleased to assign to Galileo over Bacon in pointing out the true method of studying nature, and showing the art, if it may be so called, of interrogating her by means of experiment. On this subject Professor Playfair has left little or nothing to be said by those who come after him. The accomplishments of Galileo as a scholar were scarcely less remarkable than his discoveries in science. His style, which has been happily characterised by Hume, is so elegant and pure that it has become a classical authority; and we have already shown by what happy preparation he attained this excellence in the art of writing. He loved literature, especially poetry, and was so passionate an admirer of Ariosto that he knew the whole of the Orlando by heart. This predilection indeed he carried so far as to suffer it to betray him into injustice towards Tasso; at least if we may judge from an early composition published after his death, but which he most probably never intended to see the light. But if the manner in which he speaks of the *Jerusalem Delivered* be not always consistent with the respect due to so great a poet, something must at the same time be allowed for that freedom with which the mind gives scope to its own impressions when it converses as it were with itself alone, and is not obliged to observe any of those restraints which publication imposes. It is probable that Galileo would have softened his criticism if he had published it; and it may be believed that when his taste was formed, he would have judged it proper to suppress it entirely; for in several passages of his letters he renders justice to the merit of Tasso, although Ariosto always appeared to him superior as a poet. We have entered into this detail, because an interest attaches to all the distinctive characteristics or peculiarities of celebrated men. For the same reason, we shall add, that Galileo was a man of amiable character and agreeable appearance, particularly in his old age; that his temperament was animated, his manners cheerful, and his conversation attractive; and that he preferred living in the country, where his favourite relaxations consisted in the cultivation of his garden, and in the conversation of his friends. He was never married; but he left three natural children, a son, and two daughters, who, after his death, entered a convent, and took the veil.

Without pretending to give an accurate list of all the works of Galileo, we shall content ourselves with the following enumeration of his principal productions:—1. Nuncius Sidereus, Florence, 1610, in 4to, reprinted the same year at Venice in 4to, and at Frankfort in 8vo; 2. Il Saggiatore, nel quale, con bilancia esquisita e giusta, si ponderano le cose contenute, &c. Rome, 1623, in 4to, being a refutation of the Libra Astronomica of the Jesuit Grassini; 3. Dialogi quattro sopra i due massimi Sistemi del

Mondo, Tolemaïco e Copernicano, Florence, 1632, in 4to, translated into Latin by Bernegger, with other pieces, under the title of Systema Cosmicum; 4. Epistolæ Tres de conciliatione Sacræ Scripturæ cum Systemate Telluris mobilis, quarum duæ posteriores nunc primum cura M. Nevræi prodeunt, Lyons, 1649; 5. Considerazioni al Tasso, printed for the first time in 1793, Venice, in 12mo, and Rome, in 4to; 6. Lettere inedite di Uomini Illustri, published by Fabroni, Florence, 1773, in 8vo, in which are included several unedited letters of Galileo. His treatise on Fortification and Military Architecture is preserved in manuscript in the Bibliotheca Riccardiana, of which Lami published a catalogue in 1756. The editions of his collected works, in which is contained much that was never published separately, are, 1. Opere di Galileo Galilei, Bologna, Charles Manolessi, 1656, in 2 vols. 4to, but very incomplete; 2. Opere, &c., Florence, Bothni, 1718, in 3 vols. 4to, scarcely less so; 3. Opere, &c., Padua, 1744, in 4 vols. 4to, being the first edition of the collected works, containing the Dialogue on the System of the World, after the copy corrected and improved by the author; 4. Opere, &c., Milan, 1811, in 11 vols. 8vo, which is the most complete of all. The most extended life which has yet appeared of this illustrious philosopher is that by Louis Brenna, which has been inserted by Fabroni in the first volume of his *Vitæ Italorum*, 1778. Many precious notices are also to be found in Tiraboschi, and in the work of Targioni-Tozetti on the History of the Sciences in Tuscany. (See *Biographie Universelle*, art. Galileo Galilei, by Biot; *Saggio della Filosofia del Galileo*, by Andrès; and Drinkwater's Life of Galileo, in the *Library of Useful Knowledge.*) (A.)

GALIPOLI, a city of Turkey, on the peninsula formerly known as the Adriatic Chersonesus, and the capital of the province of the same name. It is situated on the Dardanelles, at the opening of the Sea of Marmora. It is an open city, and is defended by an old but strong citadel on a height near to it. It contains mosques, Greek churches, and Jews' synagogues, and about 17,000 inhabitants, of whom 10,000 are Turks, 3500 are Greeks, and 3500 are Jews. It has two havens, both spacious and safe, and bazars, which are stored with every description of Asiatic and European merchandise. The inhabitants make the best Morocco leather, and carry on manufactures of cotton and silk, spinning and weaving, and have several establishments for making porcelain ware. It is governed by an aga, who represents the Capudan Pasha, the commander in chief of the province. It is in long. 26. 32. 10. E. Lat. 40. 25. 33. N.

GALL, in the animal economy, the same thing as *bile*. Gall was generally given amongst the Jews to persons suffering death under the execution of the law, to make them less sensible of pain; but gall and myrrh are supposed to have been the same thing, because at our Saviour's crucifixion, St Matthew says that they gave him vinegar to drink mingled with gall; whereas St Mark calls it wine mingled with myrrh. The truth of the matter perhaps is, that they distinguished every thing bitter by the name of gall. The Greeks and Romans also gave such a mixture to persons suffering a death of torture.

GALL, in *Natural History*, denotes any protuberance or tumour produced by the puncture of insects on plants and trees of different kinds. These galls are of various forms and sizes, and not less different in their internal structure than in their external form. Some have only one cavity, and others a number of small cells communicating with one another; and some of them are as hard as the wood of the tree they grow on, whilst others are soft and spongy. The former are termed *gall-nuts*, and the latter *berry-galls* or *apple-galls*.

GALL, JOHN JOSEPH, the founder of Phrenology, as it is now called, was descended of a respectable family residing at Tiefenbrunn, two leagues distant from Pforzheim, in Suabia, and born on the 9th of March 1757. His father was a shopkeeper or merchant, and mayor of the village. His parents, who were of the Roman Catholic persuasion, originally intended him for holy orders; but his natural dispositions were adverse to such a destination. He pursued his studies first at Baden, then at Brucksal, and afterwards at Strasburg, where he completed his literary education. Having resolved to study medicine with a view to the practice of physic, he, in 1781, proceeded to Vienna, the medical school of that capital having acquired great celebrity, particularly since the times of Van Swieten and Stoll; and, after passing through the ordinary course, he took his degree.

Being early given to observation, Gall, whilst yet a boy, was struck with the fact, that each of his companions and schoolfellows possessed some peculiarity of talent which distinguished him from the others. One excelled in penmanship, another in arithmetic, a third in the acquisition of languages. The compositions of some were remarkable for elegance, whilst those of others were hard, stiff, formal, and dry; several connected their reasonings in the closest manner, and clothed their arguments in forcible language; many were devoid of the talent for logical arrangement, and incapable of expressing themselves with clearness and precision. Nor were their dispositions less various than their intellectual endowments. Not a few manifested a capacity for employments which they had not been taught, such as cutting figures in wood, or delineating them on paper; some devoted their leisure to drawing or gardening, whilst others abandoned themselves to noisy games, or traversed the woods to gather flowers, search for birds' nests, or catch butterflies. In short, each presented a character peculiar to himself, and Gall did not observe that the individual who, one year, displayed selfish or knavish propensities, became a kind and faithful friend the next. Of his schoolfellows, those with whom he experienced the greatest difficulty in competing, were the boys who committed their lessons to memory with the greatest facility; and such individuals frequently gained from him by their repetitions the places which he had obtained by the merit of his original compositions. Several years afterwards, having changed his place of residence, and still meeting with individuals possessed of the same faculty, he observed that the individuals so gifted had all prominent eyes, and he also recollected that his rivals in the first school had been distinguished by the same peculiarity. On entering the university, he accordingly directed his attention to those students who had large eyes, and, upon inquiry, he found that they all excelled in committing pieces to memory and giving correct recitations, although many of them were by no means remarkable for general talent. As the coincidence thus observed was recognised by the other students in the classes, Gall conceived that it could not be entirely accidental; and hence, from this period, he seems to have come to the conclusion that they stood in an important relation to each other. But if verbal memory was thus indicated by an external sign, it required no great effort of generalization to conceive that the other intellectual powers might have each its appropriate manifestation. Proceeding on this idea or assumption, Gall now directed his attention to individuals distinguished by any remarkable faculty; and, after a course of observation, he conceived himself to have discovered and defined the external characteristics indicative of decided talents for painting, music, and the mechanical arts. Having also become acquainted with several persons remarkable for determination of character, he observed that a particular part of their heads was largely developed, and this development he set down as the external sign or manifestation of the character referred to.

His next step was to look in the head for the indications of the moral sentiments as well as of the intellectual faculties; but here he experienced considerable difficulties. Hitherto he had been ignorant of the opinions of physiologists concerning the brain, and of metaphysicians respecting the mental faculties; and, on turning to books, he became so much perplexed by the discordance of the views therein inculcated, that, for a time, he hesitated as to the correctness of his own observations. He found that, whilst Pythagoras, Plato, Galen, Haller, and others, placed the sentient soul in the brain, Aristotle fixed its residence in the heart, Van Helmont in the stomach, Descartes in the pineal gland, and Drelincourt in the cerebellum; that, according to many philosophers and physiologists, all men are born with equal mental faculties; and that the differences observable amongst mankind are not ascribable to any original or constitutional inequality of powers, but the result partly of education, and partly of the diversified circumstances in which individuals are placed. But if all differences are accidental, it is evident that there can be no natural signs of predominating faculties, and, consequently, that the project of attempting, by observation, to discover the functions of the different portions of the brain, must be abandoned as hopeless. Sensible of this, Gall combated the difficulty by denying the truth of the doctrine of original equality on which it is founded. He contended that persons who have all received the same or very nearly the same education unfold each a distinct character, over which circumstances appear to exercise only a limited control; that individuals, whose education has been conducted with the greatest care, and on whom the labours of instructors have been most freely lavished, frequently remain far behind their companions in attainments; that many, even with the most ardent desire, followed out by the most persevering efforts, cannot, in some pursuits, attain even to mediocrity; that, in point of fact, instructors of youth do not appear to attach much faith to the system which teaches the equality of mental faculties, and think themselves entitled to exact more from one scholar and less from another; that the doctrine of Scripture, according to which, each will be required to render an account only in proportion to the gifts which he has received, serves to confirm this view, and is, moreover, in accordance with observation and experience. On these grounds, Dr Gall concluded that there is a natural and constitutional diversity of talents and dispositions amongst men; and that, supposing the exercise of the mental faculties dependent on the functions of the brain, the external signs of these faculties may be determined by observation.

Abandoning every theory and preconceived opinion, therefore, he applied himself to the discovery of those signs of the existence of which he had thus satisfied his own mind. Being physician to a lunatic asylum at Vienna, he had opportunities of making observations on the insane; he visited prisons, and resorted to the seats of learning; he was introduced to the courts of princes and the tribunals of justice; wherever he heard of an individual remarkable either for his mental endowments or defects, he studied the development of his head; and at length he conceived himself warranted in maintaining that particular mental powers are indicated by particular configurations of the shell or case in which the brain is lodged. Hitherto he had resorted only to physiognomical indications in order to discover the functions of the brain; but, being convinced that physiology is imperfect when separated from anatomy, he felt the necessity of instituting anatomical researches into the structure of the brain.[1] Accordingly, in every instance where an individual whose head he had examined whilst alive happened to die, he used every means to obtain permission to examine the brain, and frequently did so; and he states it as a general fact, that, on the skull being removed, the brain, covered by the dura mater, presented a form corresponding to that which the skull had exhibited in life. Thus, by successive steps, by first observing a concomitance between particular talents and dispositions, and particular forms of the head, and next by ascertaining that the figure and size of the brain were indicated by these external forms, Dr Gall conceived that he had determined the intellectual dispositions corresponding to about twenty organs, or, in other words, ascertained the residences of as many intellectual faculties of the first order; and these organs he named according to the faculty or propensity which he attributed to each respectively. In short, he maintained that the intellectual dispositions being innate, have their seats in the brain, where the organs of the faculties are also situated; that the more prominent any isolated point on the skull is, the greater is the activity of the faculty, the organ of which is there placed; and that the part of the brain where such faculty resides and acts, by pressing on the skull, forms, on its convex surface, a protuberance, which indicates externally the organ, and is, in fact, its invariable sign.

Dr Gall first became known as an author by the publication of two chapters of a work entitled *Philosophisch-Meicinishe Untersuchungen über Natur und Kunst im gesunden und krauken Zustande des Menschen*, Vienna, 1791. This work was not continued; but in the two chapters published, Dr Gall evinced the spirit which subsequently guided his researches into the intellectual and moral nature of man. The first written notice of his inquiries respecting the differences of form observable in the human head was contained in a familiar letter addressed to Baron Retzen, which appeared in the *Deutschen Mercur* of December 1798; but two years before this Dr Gall had commenced giving courses of private lectures at Vienna, where his doctrines soon attracted general attention; and Froriep, Martens, and Walther, were among his hearers. He continued his lectures for five years, with increasing success, when, at length, upon the 8th of January 1802, the Austrian government issued an order, interdicting them, on the ground that the doctrines therein promulgated were dangerous to religion; and, in a general regulation which accompanied the order, all private lectures were prohibited, unless specially permitted by the public authorities. Dr Gall understood the object of this regulation, and never solicited permission; but, as usually happens, the prohibition stimulated curiosity, and the doctrines thus interdicted were studied with greater zeal than before. It is difficult to perceive what object the Austrian government proposed to attain by this foolish interposition, more especially as publications on the subject continued to be permitted, provided they abstained from reflecting on the government for issuing the order above mentioned. On the 6th March 1805, Dr Gall left Vienna, in company with Dr Spurzheim, whom he had now associated with him in his pursuits, and proceeded to Berlin, where he remained a short time; he then visited all the principal towns and universities of Germany, and in November 1807 repaired to Paris, where he established himself as a medical practitioner, and remained till the time of his death. To the charge of Spinozism or atheism, which was strongly urged against him, particularly by some of the French scholars, Dr Gall replied in a work entitled *Des Dispositions innées de l'Ame et de l'Esprit, ou du Matérialisme*, Paris, 1812, in 8vo, which he seems to have intended as an authoritative exposition of the metaphysics of the new science. But a much ruder onset awaited it. In 1815, and again in 1826, craniology was attacked in able articles inserted in the *Edinburgh Review*, where the united powers of argument and ridicule were forcibly directed against it by writers possessing an equal mastery over both; but the results of Dr Gall's observations were not, in the opinion of his followers, destroyed, nor even materially affected, by the critical severity with which these had been examined in the Review; and their confidence in the truth of the system, which to the uninitiated appeared to be overthrown, gained strength from each successive shock to which it was exposed. But whatever may be thought of Dr Gall's discoveries, either in reference to the philosophy of mind, or to the moral and religious opinions of mankind, it seems to be pretty generally conceded, that, by his dissections and observations, he has considerably advanced the knowledge of the cerebral system, and that, even if he be accounted a bad philosopher, he has at least shown himself an able anatomist. He demonstrated, what before was only conjectured, that cerebral matter does not derive its origin from the brain, but from the spinal marrow; which, expanding as it proceeds, at length forms the two hemispheres into which the brain is divided. In conjunction with Spurzheim, Dr Gall published at Paris, in 1810, *Anatomie et Physiologie du Système nerveux en général, et du Cerveau en particulier;* but of this work there only appeared a volume and a half. The most elaborate of his productions, however, is *Organologie, ou Expositions des Instincts Penchans, &c. et du siège de leurs Organes*, which was completed in 1825. His *Histoire des Fonctions du Cerveau* had appeared in 1822, in two vols. 8vo. In 1828 Dr Gall died at Paris, where he had for many years practised medicine with success, leaving his mantle to Dr Spurzheim, who had been long associated with him both in the pursuit and the propagandism of phrenology. (See *Biographie des Hommes Vivants*, art. Gall; and *Transactions of the Phrenological Society*, Edinburgh, 1824; *Nécrologie*, 1828; *Edinburgh Review*, vols. xxv. and xlv.) (A.)

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[1] Having observed a woman, aged fifty-four years, who from her youth had been afflicted with water in the head, yet possessed a mind as active and intelligent as that of any other individual of her class, Dr Gall declared his conviction that the structure of the brain must be different from what it was generally supposed to be; a conclusion which Tulpius had already drawn from observing a hydrocephalic patient, whose mental faculties remained unaffected by the disease under which he was labouring. This, and other analogous cases, convinced Dr Gall of the necessity of instituting minute anatomical researches into the structure and functions of the brain.

GALL, *St*, a canton of Switzerland. It is bounded on the north by the canton of Thurgau, on the north-east by the Lake of Constance, on the east by the Austrian dominions and the principality of Lichtenstein, on the south-east by the Grey Bunden, on the south-west by Uri, and on the west by Schwitz and Zurich. It is 870 square miles in extent, and contains 45,342 houses, with 146,700 inhabitants, about equally Catholics and Protestants. It is divided into eight *amtsbezirke* or bailiwicks. The greater portion of the land is mountainous; but the districts of Rhinethal, Norschach, and Gossau, have some fine plains intermixed with gentle hills. In the other divisions the mountains are rather lofty, varying in height from 4300 to 7500 feet. None of the mountain regions of Switzerland have been less explored, or are less known, than those of this canton. From them issue many of those rivers which increase the volume and the rapidity of the Rhine before it enters into the Lake of Constance.

Although the cultivation on the plains is good, the canton does not produce sufficient corn for the consumption of the inhabitants; but potatoes are extensively planted, and fruits of all kinds are raised in large quantities and of excellent sorts, especially apples, which furnish cider as the common drink. The milk of the cows is more used for butter than for cheese. Some wine is made; but for want of care it will not bear to be long kept.

The manufactures of the canton are prosperous and increasing. The muslins, printed calicoes, and cotton goods, find ready sale at the German fairs. There are many large mills for spinning cotton and linen. The chief trade is in the capital, at Utznach, and Sargans. The government is republican, residing in two assemblies chosen by those who possess property to a stipulated amount, whilst the members to be chosen must have a prescribed amount of capital. The canton contributes to the general fund of the confederacy 39,450 francs yearly, and furnishes for the general defence a contingent of 2630 men; but all the population capable of bearing arms are regimented, and taught the use of them.

GALL, *St*, the capital of the canton of that name in Switzerland. It stands between two hills, on the river Steinach. It is surrounded with walls and ditches, but is well built, with broad streets and good houses. It contains 960 houses, and about 9500 inhabitants, of whom 8000 are Protestants. It is a flourishing city, of great industry in manufactures of cotton, linen, and silk, and some in woollen goods. Long. 9. 21. 37. E. Lat. 47. 21. 50. N.

GALLA, an Abyssinian nation. See ABYSSINIA.

GALLAND, ANTONY, a celebrated orientalist and numismatist, was born, in 1646, at Rollat, near Montdidier, in Picardy. His life shows what may be effected by the love of study, firm resolution, and irreproachable morals. By a rare perseverance in his pursuits, Galland triumphed over the caprices of fortune; by the rectitude and nobleness of his character he was enabled to overcome all the disadvantages of his humble lot. Born of poor parents, he lost his father at the age of four, being the youngest of seven children. But his mother, though reduced to live by the labour of her hands, contrived to place him in the college of Noyon, where the principal and a canon of the cathedral charitably undertook the care and expense of educating young Galland. At the age of fourteen he lost both his benefactors at the same time, and returned to his mother with no other wealth than the knowledge of a little Latin, Greek, and Hebrew, a decided taste for letters, and a firm resolution to apply himself to learning. But as his mother could not of course furnish the means necessary for the completion of his studies, it became necessary to learn a trade and renounce literature. This cruel distraction Galland supported for a year, when, finding it intolerable, he one day set out for Paris, with no other resource than the address of an old relation who was in good circumstances, and that of an ecclesiastic whom he had sometimes seen at the house of the canon of Noyon. The hardihood of this resolution created an interest in his favour; the sub-principal of the college of Plessis made him continue his studies at that seminary, and then confided him to the care of M. Petitpied, doctor of the Sorbonne. Anything more fortunate could not have happened to Galland than this last act of kindness, which may be said to have prepared, and indeed ensured the success of his literary career. He now extended his knowledge of Hebrew and the other oriental languages, attended the courses of instruction in the Royal College, and even undertook to make a catalogue of the oriental manuscripts of the Sorbonne. Doctor Petitpied had just placed him in the house of M. Godouin, professor in Mazarin College, when M. de Nointel set out, in 1670, on his embassy to Constantinople, and took along with him young Galland, whose labours and acquirements had already attracted notice. The intention of this minister was to employ Galland in procuring from the Greek churches formal attestations of the articles of their faith, which then formed the subject of a grand controversy between Arnauld and Claude. Galland soon acquired at Constantinople a knowledge of the vulgar Greek, from his long conferences with the Greek prelates, and obtained from them attestations, along with much information on the subjects discussed in France. De La Croix, secretary of the embassy, makes no mention of these researches in his *Mémoires;* but it may be supposed that he found them useful in the composition of *Etat présent de l'Eglise Grecque et Maronite*, published in 1695, 12mo, and reprinted without any alteration under the title of *Turquie Chrétienne.* Galland accompanied M. de Nointel in his journey to Jerusalem, and availed himself of the opportunity to copy a great number of inscriptions, and even to remove them, as often as he found it practicable to do so. Of these, Montfaucon has published some fragments in his *Palæographie.* From Syria Galland returned directly to France, whence he immediately set out again for the Levant with the intention of collecting more medals. In 1679 he undertook a third voyage, being charged by the India company to collect every thing calculated to enrich the cabinet of Colbert; but this commission having ceased in consequence of changes which took place in the company, Colbert, and, after his death, Louvois, instructed Galland to continue his researches, and caused the title of antiquary to the king to be conferred on him. At the moment when he was about to embark at Smyrna to return to his native country, he was on the point of perishing in an earthquake. The house which he occupied fell, and buried him in the ruins, under which he remained until next day, breathing with difficulty through accidental openings in the rubbish. On his return to Paris, Thevenot, keeper of the king's library, and D'Herbelot, the celebrated oriental scholar, availed themselves of his labours. But death having soon deprived him of both these learned men, he attached himself to Bignon, a zealous protector of men of letters, whom he also lost the following year. It appears to have been the fortune of Galland continually to lose those useful protections which acknowledged merit is sometimes long in obtaining; but such was the esteem inspired by his attainments and his character, that death no sooner deprived him of one support than he found another. Foucault, intendant of Lower Normandy, supplied the place of Bignon, and received Galland into his house, where, in the midst of a fine library, and a numerous collection of medals, he applied himself to the composition of different works, in which he turned to account his knowledge of the Arabic, Persian, and Turkish languages, with which he had rendered himself familiar during his residence in the East. In 1701, he was admitted into the Academy of Inscriptions, although he resided at Caen; in 1706 he returned to take up his habitation in Paris; and, three years afterwards, he obtained the chair of Arabic in the Royal College of France. This learned man terminated his laborious, useful, and irreproachable life, on the 17th of February 1715, at the age of sixty-nine. The following is a list of his printed works: 1. Trois Lettres touchant la critique M. de Guillet, sur le Voyage de Grèce de Spon, printed in the reply of Spon, Lyons, 1679, in 12mo; 2. Paroles remarquables, bons mots, et maximes des Orientaux, traduits de leurs ouvrages Arabes, Persans, et Turcs, avec des remarques, Paris, 1694, in 12mo; 3. Lettres touchant l'Histoire des quatre Gordiens, prouvée par les Médailles, Paris, 1696, in 12mo; 4. Lettre touchant quatre médailles antiques, publiées par le P. Chamillard, Caen, 1697, in 12mo; 5. Lettre touchant la nouvelle explication d'une médaille d'or du cabinet du Roi, Caen, 1698, in 12mo; 6. Lettre sur le même sujet, printed in the Journal des Savants, 15th August 1705: 7. Observations sur quelques médailles de Tétricus le père, et d'autres tirées du cabinet de M. Ballonseaux, Caen, 1701, in 8vo; 8. De l'origine et du progrès du Caffé, translated from an Arabic manuscript in the library of the king, Caen, 1699, in 12mo; 9. Les Mille et Une Nuits, contes Arabes, traduits en Français, Paris, in 12 vols. 12mo; 10. Relation de la Mort du Sultan Osman, et du couronnement du Sultan Mustapha, translated from the Turkish, Paris, 1678, in 12mo; 11. Several articles in the Journal de Trévoux; 12. Letters written from Smyrna and Constantinople; 13. Contributions to the Menagiana, as well as to the Bibliothèque Orientale of D'Herbelot, who died before the printing of the work was completed; 14. Ten dissertations and memoirs for the collection of the academy of which he was a member. Since the death of Galland there have been published of his, 1. Contes et Fables Indiènnes de Pidpaï et de Lokman, Paris, 1724, in 12mo; 2. Dissertation sur une médaille Grecque de l'Empereur Diaduménien, frappée à Ephèse, 1739; 3. Relation de l'esclavage d'un Marchand Français de la ville de Cassis à Tunis, 1809. The manuscripts left by Galland were, 1. Histoire des Princes de la lignée de Tamerlan, depuis le Sultan Abou-Saïd-Bahadur, jusqu'au Sultan Abou-Saïd-Kourkan; 2. Histoire Othomane, traduite du Turc de Naïma Effendi; 3. Vocabularium Turcico-Latinum; 4. A translation of the History of Djenguyz-Khan, extracted from the Persian History of Mirkhoud; 5. Catalogue d'écrivains Arabes, Persans, et Turcs; 6. Journal de mon séjour à Constantinople pendant l'année 1672 et 1673; 7. Dictionnaire Numismatique; 8. Relation de ses Voyages; 9. Traduction de l'Alcoran; 10. Nécrologie de la mort des Savants pour chaque jour de l'année de 1500 à 1701; 11. Relation d'un Voyage fait à Constantinople en 1679 et 1680; 12. Etat présent des îles de Samos, de Nicaire, de Patmos, et du Mont Athos; 13. Description de la Ville de Constantinople en 1671 et 1672; 14. Relation des Evénemens qui se sont passés à Constantinople en 1671 et 1672. (A.)

GALLEON, in naval affairs, a sort of ship or vessel employed by the Spaniards in the commerce of the West Indies.

GALLEOT, a small galley designed only for chase, and carrying one mast, with two pattereroes.

GALLERY, in *Architecture*, a covered place in a house, of much greater length than breadth, and usually in the wings of a building, its use being chiefly to walk in.

Gallery, in *Fortification*, a covered walk across the ditch of a town, made of strong beams covered with planks, and loaded with earth. Sometimes it is covered with raw hides, to defend it from the fire of the besieged.

Gallery of a Mine is a narrow passage or branch of a mine carried on under ground to a chamber in a work designed to be blown up.

GALLEY, a kind of low flat-built vessel, furnished with one deck, and navigated with sails and oars, particularly in the Mediterranean. By the Greek authors under the eastern empire this kind of vessel was called *γαλαια* and *γαλεια*, by the Latin authors of the same time *galea;* and hence, according to some, the modern denomination. Some say it was called *galea*, because a casque or helmet was carried on the prow, as Ovid attests (*de Tristibus*). The French call it *galère*, because it seems the top of the mast is usually cut in the form of a hat, which the Italians call *galero*. Others derive both *galea* and *galère* from a fish called by the Greeks *γαλεωτης* or *ξιφιας*, and by us the *sword-fish*, which this vessel resembles. Others, again, derive *galley*, *gallea*, *galère*, *galleasse*, &c. from the Syriac and Chaldee *gaul*, and *galin*, a man exposed on the water in a vessel of wood.

GALLI, in *Antiquity*, a name given to the priests of Cybele, from the river Gallus in Phrygia; but of the etymology of the name we have no certain account.

GALLICIA, a division of the Austrian empire, usually designated as a kingdom. The whole of it formerly constituted a part of the kingdom or republic of Poland, and, by the successive dismemberments of that unfortunate country, has been transferred to the house of Austria. It is a long tract of land, one part being the most northern territory of the empire, whilst another part enters into the middle region of it. It extends between 47. 10. and 50. 44. of north latitude, and between 18 47. and 26. 25. east longitude, over 33,572 square miles. It is bounded on the north by the republic of Cracow and the kingdom of Poland, on the east by Russia, on the south-east by Turkish Moldavia, on the south and south-west by Hungary, and on the west by the circle of Teschen, in Moravia.

According to the census of 1817, Gallicia contained ninety-eight cities, 191 market-towns, 6175 villages, and 617,210 dwelling-houses. The inhabitants then amounted to 3,761,922, of whom 182,650 were Jews. Since that period the population has rapidly increased, and in 1830 it was calculated at 4,500,000. The prevailing religion is the Catholic, but divided into the Latin and the Greek ritual. There are a bishop and thirty-six churches of the Greek church, nineteen congregations of Lutherans, and thirteen of Calvinists, while the Jews have 294 synagogues, which are governed by a rabbi and six elders. All are alike established and paid by the government.

The land stretches out gradually from the north side of the Carpathian Mountains, and terminates in that vast plain which extends to the Baltic Sea, with scarcely an intervening hill. The Carpathians form part of Gallicia, extending in some of their projections to the banks of the Vistula. The more eastern circles are very mountainous, and those of Bukovina and Czernowitz peculiarly so. The declination of the land is generally towards the north, and the streams, which all fall into the Vistula, are emptied into the Baltic Sea, excepting a small portion of the eastern part, the waters of which run to the Black Sea, after joining the Danube. The Vistula is not a river of Gallicia, but merely forms part of the boundary between it and the kingdom of Poland. It receives the waters of the following rivers: 1*st*, those of the Dunajew, which rises in the Carpathians, receives the waters of the Poprad, also a navigable river, and some smaller streams, and after a course of 115 miles through the circles of Sandec, Bochnia, and Tarnow, falls into the Vistula near Nowopole; 2*d*, those of the Wisloka, which rises in the Carpathians, and after a course of eighty miles through the circles of Jaslow and Tarnow, enters the Vistula; 3*d*, those of the San, which receives the tributary streams of the Wislok and Tanew, and, after a tortuous course of nearly 200 miles, is lost in the Vistula near Lapiszow; 4*th*, those of the Bug, which rises near Soligory, in the circle of Zloczow, and above Sokal enters the kingdom of Poland. The rivers which run to the Black Sea are but small till they quit Gallicia, though their sources are within the province. They are, the Dniester, the Stry, the Podhorze, the Pruth, the Sereth, and the Moldawa. There are no canals, and no lakes of any extent.

From the nature and extent of the country, the soil is very various. In the west and in the north there are many sandy tracts, in the vicinity of the rivers many morasses, and, taken as a whole, only indifferent land; but in the east and south-east divisions the soil is for the most part excellent and easily worked, and with moderate agriculture is found highly productive.

That part of the land which is most naturally fertile is so badly cultivated as to yield but little increase. Wheat and rye are said not to produce more than five times the measure of the seed that is sown, and barley and oats not more than six times. The poverty and the ignorance of the peasantry are impediments to their gaining much more produce than they consume; and for what little surplus corn they gain, it is generally sold to the usurious Jews before it is thrashed out. The working cattle and utensils are of the most miserable kind; and very little manure is applied to renovate the exhausted soil. About one third of the land is covered with forests, and some fine timber is annually supplied to commerce. The chief production is corn, some small portion of which is sent by the Vistula to Dantzick, but the larger part is sold to the inhabitants of the eastern parts of Hungary. Oxen, horses, and cows, are few, and of bad races, though the Austrian government have taken much pains to introduce better breeds.

The chief mineral production is rock-salt, from the great mine near Cracow, which supplies a considerable part of Gallicia, Bohemia, and Austrian Silesia. The mine in question, Wieliczka, yields annually near 25,000 tons of culinary salt. There are also some mines of iron, and others of zinc, but they are not very productive.

There is scarcely any commerce except for the native productions, but the contraband trade is very extensive, being conducted by the Jews from Lemberg and Brody, over the boundaries of the Russian empire, and with Cracow for colonial wines. The manufactures are almost exclusively of a domestic kind.

GALLICISM, a mode of speech peculiar to the French language, and contrary to the rules of grammar in other languages. With us it is used to denote such phrases or modes of speech in English as are formed after the French idiom.

GALLIPOLI, a sea-port, the seat of a bishop, in the province of Otranto, in the kingdom of Naples. It is situated on an island in the Bay of Taranto, but connected by a bridge with the main land. The haven is connected by a mole, but the entrance is dangerous on account of the rocks. It is strongly fortified both on the land and the sea side. It contains, besides the cathedral, ten churches, an ecclesiastical seminary, with some other establishments for education, and, with the suburbs, 8141 inhabitants. The land near it yields oil of great celebrity. In the city, cotton, hosiery, and muslins, are manufactured, and an extensive tunny fishery is carried on. Long. 17. 2. E. Lat. 40. 20. N.

GALLOIS, JOHN, one of the founders of the *Journal des Savans*, was born at Paris on the 11th of June 1632. From his infancy he evinced a strong inclination for learning, which his father, an advocate in the parliament, cultivated with the greatest care. Having embraced the ecclesiastical state, he turned his studies towards theology, and at the same time endeavoured to perfect himself in the knowledge of Greek and of Hebrew, that he might be able to read the sacred books in the originals; he also devoted his leisure hours to literature and the sciences; and as he was endowed with an excellent memory, as well as a sound judgment, his different acquisitions arranged themselves without confusion or disorder in his mind. To learning equally solid and various he joined the talent, then rare among scholars, of writing his mother tongue with precision and elegance; and hence no one could be better qualified than he for conducting a work having for its object to make known the literary and scientific productions of other nations. Such was the object of the *Journal des Savans*; and as the privilege had been withdrawn from Sallo, on the complaints of some writers whom he had censured with too great bitterness, Colbert bestowed it on the Abbé Gallois in 1666. The latter had the sole charge of this journal till 1674, when the amount of labour which it imposed, and his other avocations, forced him to abandon it altogether. Colbert, who had appreciated the merit of Gallois, gave him at first an apartment in his hôtel, and afterwards, during his journeys to Versailles, intrusted it entirely to his care. It has been alleged that this great minister desired to learn Latin, and that he retained the Abbé Gallois for the purpose of instructing him in that language. But, however this may be, it is certain that, while Colbert lived, Gallois enjoyed the highest favour, although he never took advantage of it to promote his own advancement or fortune. On the contrary, he was singularly moderate and disinterested; the only benefice he possessed was the abbey of Corres, the revenue of which was so small that he resigned it because it had become chargeable to him, and never thought of asking another. But if he was careless of all that concerned himself, none was more active or more indefatigable in soliciting assistance for unfortunate men of letters. It is believed that it was he who gave to the minister the plan of the Academy of Inscriptions, although he did not become a member; but he had been admitted into the Academy of Sciences in 1668, and in 1673 he filled the place of Bourzéis in the French Academy, being admitted the same day with Fléchier and Racine. After the death of his illustrious protector, he obtained the place of keeper of the king's library; and, some years afterwards, when he lost this situation, he was, by way of compensation, appointed professor of the Greek language in the Royal College. After the remodelling of the Academy of Sciences, he was placed in the class of geometry; and he then proposed to publish the treatise of Pappus, of which there only existed a defective Latin translation; but this design was not carried into execution. The Abbé Gallois died on the 19th of April 1707, in the fifty-seventh year of his age. Notwithstanding the extreme mediocrity of his fortune, he had collected more than twelve thousand choice volumes, a catalogue of which was printed in 1710. Besides his contributions to the *Journal des Savans*, the Abbé Gallois wrote, 1. Traduction Latine du Traité de Paix des Pyrenées, Paris, 1659, in fol.; 2. Remarques sur le projèt de l'Histoire de France, dressé par Ducange, printed in the new edition of the *Bibliothèque Historique de France*, tome iii.; 3. Réponse à l'écrit de David Gregory, touchant les lignes appelées Robervalliennes, qui servent á transformer les figures, Mém. de l'Acad. des Sciences, 1692; with some others of less note. The éloge of Gallois was pronounced by Fontenelle. (A.)

GALLON, a measure of capacity both for things dry and liquid, containing four quarts.

GALLOP, in the manège, is the swiftest natural pace of a horse, performed by reaches or leaps; the two forefeet being raised almost at the same time, and when these are in the air, and just ready to touch the ground again, the two hind feet are lifted almost at once. The word is borrowed from the barbarous Latin *calupare*, or *calpare*, to run. Some, however, derive it from *caballicare*; and others from the Greek *καλπαζειν, to spur a horse.*

GALLOWAY, a province of Scotland, divided into two districts, comprehending the stewartry of Kirkcudbright and Wigtonshire. See KIRKCUDBRIGHT and WIGTONSHIRE.

GALLOWS, an instrument of punishment, on which persons convicted of capital crimes are executed by hanging. Amongst our ancestors it was called *furca*, or fork; the gallows being a fork driven into the ground, across the legs of which was laid a beam, to which the rope was fastened.

GALLUS, C. CORNELIUS, a native of Forum Julii, now *Frejus*, in Gaul, was distinguished amongst Latin poets for his elegiac poetry, being the intimate friend of Virgil, who speaks in the very highest terms of his works. He was appointed prefect of Egypt by Augustus 30 B. C., and was governor at the time when Antony and Cleopatra put an end to their lives. A short time afterwards he was recalled, and being accused of treason, was tried and condemned to death (26 B. C.); but he escaped the ignominy of a public execution by suicide, at the age of forty, according to Eusebius. Of his four books of elegies, which he addressed to his beloved Lycoris, nothing has been preserved. The six elegies known under his name are the work on Maximianus Gallus Etruscus, who flourished under Anastasius (491, A. D.). Besides these elegies, Gallus translated a Greek poem of Euphorion of Chalcedon; and some ascribe also to him the poem Ciris, generally considered as the work of Virgil. (Fabric. *Bibl. Lat.* i. 14; Souchay, in the *Mém. de l'Acad. des Inscript.* tom. xvi. p. 399.)

GALVANI, LOUIS, a celebrated natural philosopher, was born in 1737, at Bologna in Italy, where many of his relations had arrived at distinguished eminence in jurisprudence and divinity. From boyhood he became enamoured of the austerities of the Catholic religion, and attached himself to a convent, the monks of which were celebrated for their attention to the solemn duty of visiting the dying. He wished much to become a member of this order, but was prevailed on by one of the brotherhood to relinquish the idea, and then turned his attention to the study of medicine in its various branches. He studied under Beccaria, Tacconi, Galli, and especially Galleazzi, whose daughter he afterwards married. In 1762 he acquired great reputation by his inaugural thesis *De Ossibus*, and was soon afterwards chosen as public lecturer in the university of Bologna, and reader in anatomy to the institute of that city. His talent for lecturing was so much admired that vast numbers constantly attended him; and he employed his few leisure hours in making experiments and in the useful study of comparative anatomy. We find in the Memoirs of the Institute of Bologna a number of curious observations by Galvani on the urinary organs, and also on the organs of hearing in birds.

Soon after his reputation for anatomical and physiological knowledge had been fully established in the Italian schools, a mere accident led him to that interesting discovery which will transmit his name to the latest posterity. His wife, for whom he cherished the most ardent affection, and with whom he had been united for a number of years, being in a declining state of health, was using a soup made of frogs by way of restorative. Some of these animals, skinned for the purpose, happened to be lying on a table in Galvani's laboratory, where also stood an electrical machine, when one of the persons who assisted him in conducting his experiments unintentionally brought the point of a scapel near the crural nerves of a frog which lay near the conductor, and immediately the muscles of the limb were violently convulsed. Signora Galvani, a woman of a penetrating understanding, and a lover of science, having witnessed the phenomenon, instantly informed her husband. On his arrival Galvani repeated the experiment, and discovered that the convulsions only happened when the scapel was in contact with the nerve, and when a spark was at the same time drawn from the conductor. After an almost endless variety of experiments, conducted with great ingenuity, but which it would be foreign to the design of this article to enumerate here, he concluded that all animals have within them an electricity of a peculiar nature; that this fluid is contained in other parts, but is most apparent in the nerves and muscles; and that it is secreted by the brain, and diffused by the nerves through various parts of the body. To this new principle, which is now commonly called *Galvanism*, he gave the name of *Animal Electricity*.

He compared each muscular fibre to a small Leyden phial, and attempted to explain the phenomena of muscular motion by analogies taken from that instrument. He also thought of its pathological influence in rheumatic, convulsive, paralytic, and other nervous affections. His first publication on this grand discovery was entitled *Aloysii Galvani de viribus Electricitatis in Motu Musculari Commentarius*, which made its appearance in 4to in the year 1791, and was printed for the Institute of Bologna. This work instantly attracted the attention of philosophers both

Galvani.

in Italy and other countries; and it was soon followed by numerous publications, in some of which the sentiments of Galvani were defended, and in others opposed. The celebrated Volta turned his attention to the subject, and produced a number of arguments to prove that Galvani's opinion respecting animal electricity was erroneous, deriving the phenomena from the electric matter of the atmosphere, and allowing the nerves and muscles no higher function than that of being the most sensible tests hitherto discovered. The doctrine of Volta met with many admirers and advocates; yet there are still to be met with in the learned world many persons who support the opinions of Galvani, and adhere to his original theory, in the defence of which he displayed equal candour and ingenuity, and by which he may be justly considered as deserving that distinguished place amongst experimental philosophers, which the union of his name with the most interesting natural phenomena will probably for ever secure to him.

These important inquiries, joined to the duties of his office as professor, and his extensive practice as surgeon and accoucheur, in both of which capacities he eminently excelled, afforded abundant scope for his indefatigable industry. He composed a variety of memoirs upon topics connected with his profession; but these have not, as far as we know, been published. He delighted to converse with men of science, and to read and investigate the merits of new publications in their society, which he found a valuable source of intellectual improvement.

The character of Galvani in private life is allowed to have been most exemplary; and his sensibility, which was naturally strong, received a violent shock in the death of his wife, Lucia Galleazzi, in 1790. This event brought on an alarming melancholy, which he delighted to encourage, by visiting her tomb in the nunnery of St Catharine, and pouring out his unavailing lamentations over her grave. He was punctual in the discharge of his religious duties, and retained through life the pious impressions which had been early made on his mind. To this may probably be traced the misfortune which afterwards befel him, and which undoubtedly hastened his end. The Cisalpine republic having required of all those holding public employments an oath to the government, Galvani refused to take it. Who can blame him, says M. Alibert, for having followed the voice of his conscience, that internal and sacred voice which alone prescribes the duties of men, and which preceded all human laws? Who can avoid commending him for having sacrificed, with exemplary resignation, all the emoluments attached to the office which he held? Besides, this learned professor entertained strict notions as to those solemn obligations, which are so often abused in the hope of strengthening the laws of empires; he thought, with reason, that they were only suitable to nations incapable of violating them. Deprived of his rank and employment, and almost reduced to indigence, Galvani retired to the residence of his brother James, and soon afterwards fell into a state of extenuation and languor, which, notwithstanding all the skill and attention, equally enlightened and generous, of Doctors Uttini and Cingari, continued to gain ground. Moved by his great celebrity, and ashamed of the severity with which they had treated a man who valued his conscience above all earthly possessions or distinctions, the Cisalpine government now decreed that, notwithstanding his obstinacy, he should be reinstated in his chair. But the indulgence was useless; it came too late. His sensibility had received too many violent shocks to leave a hope of recovery; and death, which he had for some time desired, at length came to his relief on the 4th December 1798. In the Memoirs of the Institute of Sciences of Bologna are to be found the works, few in number, but of the highest importance, which have immortalized the name of Galvani. These are, 1. De renibus atque ureteribus volatilium; 2. De volatilium aure; 3. De viribus Electricitatis in motu musculari Commentarius, already mentioned.

GALVANISM is the name which has been given to that branch of physical science which treats of the chemical agencies of electricity, and of its influence upon the animal frame. The chemical effects of electrical action had been previously studied by Cavendish as a branch of ordinary electricity, and it was not till the year 1790, when Galvani made the interesting discovery that muscular contractions were excited in dead frogs by the contact of metals, that the new science of Galvanism was established. The boundaries of Galvanism were widely extended by the invention of the pile in 1800, by M. Volta of Corna, in consequence of which the name of Voltaic Electricity has been very generally substituted instead of Galvanism.

Had we been disposed to adopt the earlier and more popular name, and to have treated the subject under the foresaid head, the state of the science would have forced us to abandon our design. The splendid discoveries of Mr Faraday, to which we have referred in various parts of our article on electricity, have given a new form to electrical science; and as but a part of them have been published, we could only have presented our readers with an imperfect and disjointed article, the defects of which it would have been necessary to supply in a subsequent part of the alphabet. The subject of Galvanism, including *Animal Electricity*, will therefore be treated under the head of VOLTAIC ELECTRICITY, which will contain a complete view of Mr Faraday's discoveries, as well as of those which may be made by other philosophers before that article is required for the press.

GALWAY, a county in the province of Connaught, in Ireland, is bounded on the north by the counties of Mayo and Roscommon; on the east by those of Roscommon, King's County, and Tipperary; on the south by the county of Clare and by Galway Bay; and on the west by the Atlantic Ocean.

Its name is generally supposed to be derived from Gal, a stranger, or Gael, a merchant, and Iv, a territory, indicating a country inhabited by foreigners, or frequented by merchants. In the time of Ptolemy it was inhabited by the Auteri. In a later period it was divided into the districts of Clanconow, Hy-Maine, Maghullen, Lilanchia, Hy-Fiacrin-Aidne, afterwards Clanrickard, and Hy-Tartagh. In the commencement of the sixteenth century it was portioned out amongst a number of families or septs, of which the principal were the O'Flahertys and O'Maleys in the west; the Burkes and Berminghams in the north; the O'Naghtens, O'Kellys, and O'Dalys in the east; and the O'Heynes, the O'Maddens, and the O'Shaughnerrys in the north. It was made shire-ground by Elizabeth in 1569, and is now divided into seventeen baronies, of which Balymore and Dunmore are in the north; Athenry, Clare, Dunkellin, and Tyaquin, in the centre; Killian, Kilconnel, and Clonmacnoon, in the east; Longford, Loughrea, Leitrim, and Kiltartan, in the south; and Arran, Ballynahinch, Moycullen, and Ross, in the west. These are subdivided into a hundred and six parishes, and nine parts of parishes, the remaining parts of which are in some of the adjoining counties.

According to the ecclesiastical divisions of Ireland, the county contains a hundred and sixteen parishes, of which forty-nine are in the archdiocese of Tuam, thirty-seven in the diocese of Clonfert, twenty in Kilmacduagh, eight in Elphin, and two in Killala. The episcopal seats of the first three of these sees are in this county. The archdiocese of Tuam extends also over a large portion of Mayo and Roscommon, comprehending a space of seventy-seven miles by sixty-three, being the largest see in the country in extent of surface. The bishop's lands, whence he derives the greater part of his income, are estimated at 49,281 acres, and his revenue is returned as amounting to L.5549 per annum. In the town of Tuam there is a neat but small cathedral, which is used as the parish church. The Roman Catholic archbishop has just completed another cathedral, which is one of the most splendid fabrics for religious worship in Ireland. The see of Ardagh, in the county of Longford, is united to Tuam. The diocese of Clonfert, founded at the close of the sixth century, and extending into the county of Roscommon, is in the south-eastern part of the county. Its lands, together with those of Kilmacduagh, which were united with it in 1602, amount to 6555 acres, but no return of the amount of its income is extant. Part of the bishop's emoluments arises from what are called the *quarta pars*, being a portion, generally a fourth, of the tithes of certain parishes. The cathedral, which is also the parish church of Clonfert, is an ancient and capacious structure; the bishop's palace is in its immediate neighbourhood. The cathedral of Kilmacduagh is now the church of one of the parishes which constitute the deanry. According to the new episcopal arrangements, the dioceses of Killala and Achonry are to be united with Tuam on the next vacancy, and those of Clonfert and Kilmacduagh with that of Killaloe.

Galway is naturally divided by Lough Corrib into two great divisions, differing from each other in several striking points. The eastern division, which comprehends all the county except the four western baronies, rests on a limestone base, is convertible into good tillage land, and is, generally speaking, level; the western, comprehending the three last-named baronies (for that of Arran is a cluster of islands at the mouth of Galway Bay), has a substratum of granite, and is barren, rugged, and mountainous. The southern part of the former of these divisions is supposed by some to be a continuation of the Golden Vale of Limerick, so celebrated for its fertility, and produces the finest wheat, except in the region of the Slieveboghta Mountains, which form part of the boundary between this county and Clare. The northern part of the same division is also rich pasture and tillage ground, and beautifully diversified with hill and dale. Some of the intermediate country is comparatively barren; but those parts which would not repay the expense of tillage form excellent pasturage for sheep, which is the great staple commodity of the county.

The western division is divided into the three districts of Connemara, Tar-Connaught, and Joyce's Country, which correspond in boundary with the three modern baronies of Ballynahinch, Moycullen, and Ross. The name of Connemara is, however, often applied to the whole district, and signifies the Bays of the Ocean. Its highest mountains are the group of Benabola, or the Twelve Pins, which occupy a space of about five square miles, midway between Lough Corrib and Aghris Point, the most western projection of the county. Knockenhiggen, the highest of these, is 2400 feet high. The cliff to the south of Glen Ina presents a naked perpendicular cliff 1200 feet in elevation, over which a considerable sheet of water is precipitated. But this district, although mountainous, is not an elevated country; the surface of most of it is not a hundred feet above the level of the sea, rising from the edge of Galway Bay, in a gently sloping plain, to a height of not more than three hundred feet, where there are some hills about seven hundred feet high. Joyce's Country, more northwards, is an elevated tract, with flat-topped hills of from 1300 to 2000 feet high, with deep narrow valleys lying between them.

The rivers are few and small. The Suck, the largest, rises in Roscommon, and forms the eastern boundary, passing by Athleague and Ballynasloe, till it joins the Shannon at Shannon harbour. This latter river then forms part of the boundary to Mount Shannon. The Suck is joined by the Shevin and Ahascragh rivers. The Blackwater, which forms part of the northern boundary between Galway and Mayo, discharges itself into Lough Corrib. Near Shruil it sinks at once into the ground through an open called a shallow, and, after a short underground course, bursts forth again through several springs. The Carnamart passes through the southern baronies, and falls into Galway Bay. The Ballynahinch rises in the Twelve Pins Mountains, and after a short but rapid course empties itself into Birterbuy Bay.

The lakes are numerous. Lough Corrib extends from Galway town northwards thirty miles, affording a large scope for inland navigation. It communicates with the sea by the Galway river, but as its level is fourteen feet above high-tide mark, the fall is such as to prevent a water passage by the river from the bay to the lake. An attempt made to connect them by a canal having failed, is still pointed out under the name of Lynch's Folly. The lake is studded with many islands, some of them thickly inhabited. Near it is Lake Ross, which, with some smaller lakes, receives a large supply of water from streams, but has no visible outlet. In Connemara are a number of lakes extending nearly twenty miles from Lough Corrib to the sea, besides several others in other parts. About twenty-five of these are more than a mile in length each, and there are upwards of an hundred of a smaller diameter. The principal are lakes Ina, Derryclare, Ballynahinch, Poulagopple, and Fea. Lough Reagh, at the town of the same name, is more remarkable for scenic beauty than extent. Besides these perennial lakes, there are several low tracts which are covered with water during a great part of the year: they are called Turloughs. The largest is Turloughmore, extending from Tuam nearly to Clare Galway. Another of large size is near Rahasane. A few sheep are grazed on them during four months in summer, but they are unprofitable in winter. They are mostly of easy drainage; the main obstacle being the conflicting rights of the proprietors of the soil.

Galway enjoys the advantage of a very extended line of sea-coast, indented by numerous and safe harbours. Commencing at Killery Bay in the north, which separates the counties of Galway and Mayo, the first bay on the western coast is Ballynakill, capable of accommodating large ships, and sheltered by Truchelaun or Heath Island. Next in succession is Cleggan Bay, having Ennisbofin in its offing. From Cleggan to Aghris Cape, the most western point of the county, the shore is a low granite, outside of which are Crua, High and Friar Islands, and Omey Island on its south. Streamstown is a narrow inlet, within which are the inhabited islands of Tarbert and Innisturk. Ardbear harbour divides itself into two inlets, the northern of which is terminated by the rising village of Clifden; the latter has a fine salmon fishery. Mannin Bay, though large, is but little frequented by shipping. From Slyne Head the coast turns eastward to Roundstone Bay, having its entrance protected by the islands of Innisnee and Innislacken; here the whole British navy could lie in safety. Next in order is Birterbuy Bay, deep and safe, and near it is the island of Cruanakeely. Between it and Kilkerran Bay, the next in order eastwards, are the islands of Mason, Mynish, and Fynish, all inhabited; Elanmacdara and Cruanakeely, now a deer park. Kilkerran Bay has a most productive kelp shore of nearly a hundred miles, including its islands of Annaghvane, Garomna, Lettermore, Lettermullen, Knappagh, and Furnish, yet its mouth is but eight miles broad. Between Garonna and the main-land is Greatman's Bay, and close to it Costello Bay, the most eastern of those in Connemara. Next is the harbour of Galway, at the mouth of the River of Galway, having the village of Claddah on its western bank, inhabited by a most industrious and singular tribe of fishermen, by whom the town and neighbouring country is chiefly supplied with fish. At Oranmore the coast turns southwards, and presents the harbours of Rynville, Ardfry, Ballynacourty, Stradbally, Killeen or New Arran, Kinvarra, and Duras, where the county joins that of Clare. The whole of this coast, from Greatman's Bay eastward, together with the northern shore of Clare, to Blackhead, comprehends the Bay of Galway, the entrance of which is protected by the three islands of Arran, forming a distinct barony, and remarkable as well for many relics of ancient pagan and monastic institutions, as for the singular mode of life of the inhabitants.

The climate, though moist, variable, and exposed to frequent and violent gales from the west, is mild and salubrious. The country is subject to no diseases except those incident to a population not attentive to domestic neatness, and frequently in a state of great destitution. Frost or snow seldom remains long on the western coast, and cattle of every description continue unhoused during the winter.

The boundary line between the limestone and granitic district is easily discernible to an intelligent eye, by the diminution of the verdant hue which marks the latter. The high road from Galway to Oughterard nearly marks the division. All the country to the north and east of this limit is limestone, all to the south and west granite, excepting some detached masses of primitive limestone between Oughterard and Clifden, and some scattered portions of other minerals, of great variety of appearance. The component rock of Benebola is quartz, in general distinctly stratified, or at least schistose. The position of its beds is various. Towards the western shore they are vertical, easily splitting by intervening mica plates, and affording a good building stone. Limestone occurs in some places along the foot of these mountains, where also is some green serpentine, which is conveyed to Galway and elsewhere for ornamental purposes. Round the basis of this group are also gneiss and mica slate, with bands of hornblende and primitive mica. Along the north side of Lough Corrib to Ballynakill the mica slate and hornblende rise into mountains, and the limestone disappears. From Lough Mask to Killery Bay is a transition country of greenstone and grauwacke slate, covered by the old red sandstone or glomerate. The hill of Glan on the shore of Lough Corrib exhibits, in a small compass, all the formations which occur in the district. The western end is quartz; the north-eastern side mica slate; the middle is penetrated by beds of mica slate, containing hornblende and granular mica covered by thick beds of pyritous greenstone. On the south and east are granite and syenite, which runs under the sandstone, conglomerate towards Oughterard, and this again passes under the flœtz limestone, which, passing Lough Corrib, occupies the greater part of Connaught and Leinster. Along the borders of the flœtz limestone is a series of vast caverns, usually traversed by subterraneous rivers, a phenomenon which, though not of unfrequent occurrence in limestone countries, is peculiarly striking here. The succession of the stratified rocks may be distinctly seen at the water-fall at Oughterard. A fine gritstone, highly valued for making mill-stones, is raised near Dunmore. Crystalline sand, of a superior quality for scythe boards, occurs at Lough Coutra; and mowers come for it from great distances. Lead has been found near Lough Corrib and other parts of Connemara, manganese at Slieve-an-oir in the south. Iron was raised at Woodford, and smelted until the timber was exhausted. The mountains of Slieveboghta, which separate Galway from Clare, are siliceous. A beautiful black marble, without spots or flaws, and susceptible of a high polish, is raised near the town of Galway in large quantities, particularly for chimney-pieces. Mineral spas, mostly chalybeate, are abundant. That at Kingston was pronounced by Kirwan to be one of the best in Europe. At the village of Quose is a well which instantly kills poultry that drink of it. A spa at Oughterard draws many invalids to that town. Others at Athenry, Woodbrook, Rathglass, Killimore, and Abbert, are equally prized in their respective neighbourhoods.

The inhabitants of Galway are not distinguished by any striking peculiarities from those of the rest of the province. It is known that, on the settlement of Ireland after the Restoration, great pains were taken to remove to Connaught such of the native Irish as had been allowed to retain their property, insomuch that many proprietors of this description, who had resided in other provinces, were compelled to exchange their properties for lands in it supposed to be of equal value with what they were forced to surrender. They were also prohibited from settling in any of the corporate towns, or within a mile of the sea-coast, the boundary of which was called the mile-line. Thus cooped up, and debarred all opportunities of intermixing with strangers, it is not surprising that they have retained many peculiarities of appearance and manners. But these peculiarities are not confined to this county. One very remarkable variety of the species is exhibited in the fishermen of Claddagh. This village is supposed to have been the germ of the now populous and once commercial town of Galway. The inhabitants form a community of about 1100 souls, who intermarry among one another, and jealously resist the residence of strangers. The men are all fishermen. This is their sole occupation. They are governed by a mayor, elected by themselves, whose only mark of office is the white sail of his boat, and a flag at its mast-head; but to him they pay implicit deference. He regulates the time of the sailing of the fishing fleet, and its movements when at sea. At home the women are mistresses; the moment the boats' cargoes are unloaded, the whole is transferred to them; they make the sales and spend the produce, their husbands being fully satisfied with the liberal allowance of spirits and tobacco they receive from them; but on their fishing expeditions no ardent spirits are suffered in their boats; their stock then consists solely of potatoes, oaten bread, fire, and water. Their language is Irish, which they speak with a harsh discordant accent. Literary education is almost unknown among them. The dress of the men consists of three flannel vests under a fourth of white dimity, a blue rug jacket, and blue plush breeches never fastened at the knees, blue worsted stockings, a horizontal-brimmed hat, and a red silk neckerchief. Among the women, the matron's dress is a blue mantle, a red body gown and petticoat, and a silk handkerchief on the head. Unmarried women are known by their muslin caps trimmed with the richest lace; ribbons are not worn. Females of all ages are remarkable for attention to neatness, both in their persons and household. It is scarcely necessary to add, that their religion is almost exclusively Roman Catholic, there being but one or two exceptions. Marriages are generally preceded by an elopement, and followed by a boisterous merrymaking. The possession of a boat, or at least a share of one, is deemed the qualification requisite to justify a young man in taking upon himself the charge of a family. The great village festival is celebrated on St John's day in midsummer, when all the young men of the village march through Galway in uniform white jackets, with silken sashes, and flowers in their hats, carrying flags and standards with fanciful devices, and preceded by two or three of the most arch wags among them, disguised as mummers. The day terminates with bonfires, dancing, and village merriment. St Patrick's day is also a season of peculiar festivity, which continues for two or three days.

The population of the county was as follows at the periods stated in the under-cited authorities:

1760	De Burgo	82,188
1792	Beaufort	142,000
1812	Parliamentary return	261,000
1821	Do.	309,599
1831	Do.	394,287

According to these calculations, the population has increased with extraordinary rapidity, having nearly tripled in the course of forty years.

Notwithstanding its great extent and proportionate population, the county sent but eight members to the Irish parliament; two for the county at large, and two each for the boroughs of Galway, Athenry, and Tuam. By the act of Union the number of borough members was reduced to three, two for the county and one for the town of Galway. By the reform act this number was increased to four; the county and town now returning two members each. The constituency previously to the disfranchisement of the forty-shilling freeholders was the most numerous of any county in Ireland. The changes produced on its numbers by the Catholic relief act, and by the reform act, will best appear by the following table:

	L.50.	L.20.	L.10.	40s.	Total.
1829	828	274	950	32,055	34,107
1830	897	299	1812	...	3,008
1831	326	191	2540	...	3,057

From the population returns of 1821, and those of the commissioners of education in 1824–26, the state of education was as follows:

	Boys.	Girls.	Sex not ascertained.	Total.
1821	7,690	3161	...	10,851
1824–26	11,874	6487	463	18,824

Of the number of pupils stated in the latter return, 1471 were of the established church, and 17,090 Roman Catholics. The number educated by grants of public money was 1600, of those educated by the contributions of societies or individuals 3626, and of those who paid for their instruction 13,598. The average proportion of Protestants to Catholics, estimated from the relative numbers of the children of each persuasion receiving scholastic instruction, was as 1 to 11½ nearly.

The eastern part of the county produces the best wheat, the growth of which requires the preparatory culture of potatoes. Oats are frequently sown after potatoes in moory soils less adapted for wheat. Manure is generally abundant, but most so in the western districts, which do not admit the growth of wheat. The flat shores of the bays there are formed of coralline sand, and the quantities of sea-weed thrown up after storms affords a copious supply of vegetable manure. Limestone gravel and marl is to be had in most other parts. When this substance is applied to reclaimed bog, the admixture of animal manure, however small the quantity, is said to render it much more effective. When a sufficient quantity of manure for potatoes cannot be had, the usual practice is to pare and burn the surface, for which purpose a broad and sharp spade, with a considerable bend in the blade to prevent the necessity of stooping, is made use of. Potatoes are still planted in ridges by the small farmers, who make much use of spade culture, particularly in the upland districts, where the ruggedness of the surface is unfavourable to the application of the plough. They also pay great attention to the weeding of their crops. When sea-weed is used for potato ground, it is previously dried, but used fresh in preference to being thrown up in heaps to putrefy. In many places on the sea-shore fine early potatoes are raised in several feet of sea-sand, manured with sea-weed, which is succeeded by barley. Oxen are little used in husbandry, excepting by a few extensive farmers. The plough is clumsy and defective. The fences most in use are formed of the stones collected from the surface, and raised to the height of five or six feet in dry walls, broad at base, and narrowing upwards. Thrashing-mills are uncommon; carts are not generally employed, as the small cars are cheaper in construction, and more easily worked in the mountainous parts. Slide-cars are still in use in some places, as being the only kind fit to draw loads down steep hills. The chief markets for grain are Galway, Loughrea, Tuam, Ballynasloe, Gort, Eyrecourt, and Mount Bellew. Flour-mills are numerous. Those parts of the eastern district less fitted for grain are employed in pasturage. Heathy sheep-walks occupy a very large tract between Monivæ and Galway. An extensive range from Athenry, stretching to Galway Bay at Kinvarra, is also chiefly occupied by sheep. Tracts of coarse moory ground are attached to many farms, which only require draining, a practice little known or encouraged to repay the labour of tillage amply.

A breed of small hardy horses is raised in Connemara; but, in consequence of the introduction of stallions of large size, it is declining. The breed of black cattle is chiefly long-horned. A great improvement has taken place in sheep as to the carcass, but to the deterioration of the fleece. Some of the old stock of red deer are occasionally seen, and hunted down or shot. The great fairs for cattle and wool are held at Ballynasloe, in May and October. Dairies on an extensive scale are unknown; but excellent butter is made in the neighbourhood of Galway. In Connemara cows are very frequent with the cottage farmers.

Manufactures are not carried beyond the demand caused by the domestic consumption of the people. Coarse friezes, flannels, and blankets are made in all parts, and sold largely in Galway and Loughrea. Connemara has been long celebrated for its woollen stockings. They are knit by the hand, and have a softness and elasticity superior to that of the woven article; but they are slight, and therefore give but little wear. The fineness of the wool is one great cause of their excellence. The women adhere to a very primitive practice in the manufacture. When about to commence a pair, the operator goes to the mountain, clips off from the living animal the quantity she deems sufficient, and works it up. Hence it is noways uncommon to see a sheep with one side shorn, or a part of the neck and shoulders bare of wool, according to the judgment or fancy of the stocking knitter. Coarse linen, of a narrow breadth, called bandle linen, is also made for home consumption; but sufficient attention to the spinning and reeling of the yarn, and to the weaving of the cloth, is wanting to entitle it to appear to advantage in foreign markets. Coarse sacks of tow, for packing wool and bacon for exportation from the great provision marts of the south, are in much demand. The manufacture of finer linens and diapers was attempted, but with little success. That of kelp is one of the great sources of profit on the western shores. It was introduced about the year 1700. At first the kelp sold as low as from 14s. to 16s. a ton, but rose progressively until it advanced to L.16 a ton in 1810; but since that time it has fallen, both on account of the increased supply from other quarters, and from negligence or fraud in the preparation of the home-made article. The price is now about L.4 the ton, and the quantity manufactured about 10,000 tons. Of the minor manufactures, marble is wrought for domestic and sepulchral purposes in Galway. Coarse pottery and tobacco pipes are made in the same town, and at Creggs and Dunsandle. Felt hats and coarse straw bonnets are made in several places. Feathers are brought in great quantities from the islands of Arran, where they are procured from the puffins and other sea-fowl that frequent the cliffs on the coasts. They are caught by men trained to the practice, who are let down at night from the projecting crags above, by means of a rope tied round their waist, to the haunts of the birds; and on supplying themselves with all they can capture, they are hauled up again in the morning. Sea fowls' eggs are collected in large quantities in the same manner.

Amongst the relics of antiquity are the round towers of

Ardrahan, Ballygaddy, Kilbannon, Kilmacduagh, Meelick, and Murrough. The last-named of these is of very small dimensions; that of Kilmacduagh, which is still fifty feet high, inclines seventeen feet from the perpendicular. Raths are numerous, and several cromleachs are still to be seen in good preservation. The ruins of monastic buildings are also numerous. That of Knockmoy, about six miles from Tuam, contains the monument of O'Connor, one of the kings of Ireland. It is adorned with fresco paintings, which are still in a state of some preservation. Ancient castles are likewise numerous; some have been kept in repair, and are still inhabited; but by much the greater number are in ruins. The castle of Tuam, built in 1161 by Roderic O'Connor, king of Ireland, is said to have been the first building of this description of stone and mortar in Ireland. The remains of a round castle, a form of building very uncommon in the military architecture of the country, is to be seen between York and Kilmacduagh.

Galway, the county town, is also a county in itself, having an exclusive local jurisdiction, which extends two miles on every side except the south. It stands on the northern shore of the Bay of Galway, on the eastern bank of the river of the same name, and is enclosed on the land side by the baronies of Clare, Dunkellin, and Moycullen. It is supposed by some to be the Nagnata or Naguata of Ptolemy. It certainly was considered a position of much importance from the earliest period, as in the divisions of the island into north and south, at first made by the descendants of Heremen, and afterwards repeated by Conn and Eogan, it was fixed upon as the eastern extremity of the line of demarcation, which proceeded eastwards to Dublin. Little, however, is known of it until after the arrival of the English, at which time it was under the protection of O'Flaherty, who possessed the adjoining district to the west. On the extinction of the native dynasty of the O'Connors, the town fell into the hands of the De Burgos, the head of a branch of which, under the name of M'William Eighter, long governed it by magistrates of his own appointment. After it had been secured by walls, which began to be built in 1270, it became the residence of a number of enterprising settlers, through whom it attained a position of much commercial celebrity. Of these settlers the principal families, fourteen in number, are still known by the name of the Tribes of Galway. Their names are preserved in the following distich :—

Athy, Blake, Bodkin, Browne, Deane, Darcy, Lynch,
Joyes, Kirwan, Martin, Morris, Skerrett, French.

The tribe whose name is not included in the rhyme was called Ffont. These families became so closely connected by intermarriages, that dispensations are frequently requisite for the canonical legality of marriages among them at present. The town rapidly increased from this period in wealth and commercial rank, in this respect far surpassing the rival city of Limerick. Richard II. granted it a charter of incorporation with liberal privileges, which was confirmed by his successor. It had the right of coinage by act of parliament; but there is no evidence to show that it exerted the privilege. Another charter, granted in 1545, extended the jurisdiction of the port to the islands of Arran, permitted the exportation of all kinds of goods except linens and woollens, and confirmed all the former privileges. The commercial prosperity of the town, which had been steadily advancing under the protecting favour of the government, received its first check from an unfavourable decision of the Court of Chancery, respecting the prisage of wine; a toll paid by every sea-port to the head of the Ormond family, in right of his office of chief butler to the king, and from the payment of which Galway claimed an exemption which had been hitherto acquiesced in. Wine was the great staple of commerce. The payment of prisage, which consisted of two pipes of wine from every vessel discharging at the port, was a heavy drawback upon its profits. But soon after, its municipal privileges were extended by a charter from James I., whereby the town, and a district of two miles round in every direction, were formed into a distinct county, with exclusive jurisdiction and a right of choosing its own magistrates. During the civil wars of 1641, the town took part with the Irish, and was surrendered on articles to the parliamentary forces under Sir Charles Coote; after which the ancient inhabitants were mostly driven out, and their property given to adventurers and soldiers, chiefly from England. On the accession of James II. the old inhabitants entertained sanguine hopes of recovering their former rights. But the successes of King William soon put an end to their expectations; and the town, after undergoing another siege, again capitulated to the force brought against it by General Ginkell, on condition of a safe conduct for the garrison to Limerick, pardon and the protection of property and civil rights to the townsmen, and the free exercise of their religion in private. The penal statutes passed by Queen Anne against the Roman Catholics in general rendered the latter clause of the capitulation nugatory, and exposed that portion of the population which stood in need of its protection to much hardship, particularly on the breaking out of the rebellions of 1715 and 1745 in Scotland. During the period of volunteering, Galway embodied a corps of eight companies; and in the subsequent insurrection in 1798, the merchants, at an hour's notice, furnished General Hutchinson with fifteen hundred guineas, to enable him to join Lord Lake at Castlebar, whither the yeoman company of the town accompanied him, and took part in the battle at that place. In the beginning of the present century the walls were thrown down, and buildings erected on their site. Several streets have also been carried out eastwards, to which the name of the New Town is given.

Galway is governed by a mayor, two sheriffs, the free burgesses, and the commons, with a recorder, town-clerk, and other subordinate officers. The mayor is permitted to have a sword of state carried before him. The right of returning members was exercised at an early period. By the act of union the number of representatives was reduced to one; but the other was restored to it by the reform act. The population in 1821 amounted to 27,775, and in 1831 it had increased to 33,120.

In its ecclesiastical arrangements the town formed part of the ancient diocese of Enachdune or Annaghdown, which was incorporated in 1314 with the archdiocese of Tuam. But in 1484 it was erected into an exempt jurisdiction by the name of the wardenship of Galway, to be governed by a warden and eight vicars, chosen by the corporation; the parishes of Furanmore, Moycullen, Skreen, and Ballenclare, were united to the wardenship. At the Reformation it was deprived of much of its property; and since that time there have been two wardens, a Protestant, nominated by the corporation, and a Catholic, chosen by the ancient inhabitants or tribes.

The town is situated on the extremity of a projecting neck of land, rising with a gentle acclivity between the river and the sea. The space within the walls formed an oval of about 3426 square perches, covered with strongly built houses, chiefly in the antique Spanish fashion, being square, with a court in the centre, and a gateway opening into the street. St Nicholas' Church is the most remarkable building in the town. It is cruciform, 152 feet long by 126 broad, having a steeple rising over the nave, and the side aisles separated from the centre by Gothic pillars. Its interior can accommodate upwards of 5000 individuals. There are several antique monuments in it. The exchange, or tholsel, near the church, consists of an open corridor, 90 feet long by 28 broad, with a front of arches supporting an upper story, in which are apartments for holding the town courts, and for other public purposes. The county court-house is an elegant modern building, having ample accommodations for all the purposes of its erection; and near it are the county and town prisons, both modern structures; the former being considered as the best constructed prison in the province. The barracks are small buildings detached from each other. The town has also a county infirmary, in which between 800 and 900 patients are annually relieved, and also a fever hospital. A grammar school, under the board of Erasmus Smith, is in the immediate neighbourhood of the town; and a charter-school was opened in 1750, but closed in the year 1798; the building is now a nunnery. It has been succeeded by a public school for the education of 150 indigent children. The meat and fish markets are convenient, well kept, and plentifully supplied. The small mutton from the island of Arran is peculiarly esteemed for its flavour. The river is crossed by two bridges; the one near its mouth was built in the year 1342, and, after setting at defiance the impetuosity of the current for five centuries, appears sufficient to brave it for as many more; the other, higher up the stream, an elegant modern structure, connects the county court-house and the jail. A literary association, called the Amicable Society, has collected a library of some extent, to which a news-room is attached. There are several charitable institutions for the relief of disease, the maintenance of the aged and impotent, and the care and instruction of orphans.

Galway, though much reduced in the scale of mercantile importance, is still an extensive exporting town, particularly of grain, flour, and kelp. For some years the average export of grain was 4000 tons. Large quantities of flour are manufactured in the town and its vicinity; much of it is transported to Dublin by the canals. The imports are flax-seed, timber, hemp, tallow, iron, and coal. The port duties are little more than sufficient to defray the expenses of the establishment employed in their collection.

Amongst the eminent characters to which this town has given birth were, Patrick Darcy, the author of the argument for the independence of Ireland before the House of Commons in 1641; John Lynch, author of *Cambrensis Eversus*, and other tracts on the antiquities of the country; Roderic O'Flaherty, author of the *Ogygia*, who died in 1718; Sir George Staunton, secretary to Lord Macartney in India, and author of the account of that nobleman's embassy to Pekin; Walter Blake Kirwan, celebrated as a popular preacher in Dublin; and Richard Kirwan, the chemist and mineralogist.

The other towns of much notoriety are Ballinasloe, on the borders of Roscommon, the great cattle and wool staple for Ireland, where fairs are held twice a year, in May and in October, at which immense droves of black cattle and flocks of sheep are disposed of; (the grand canal from Dublin terminates here); Athenry, a town of considerable importance in the earlier periods of Irish history; and Loughrea, beautifully situated on the borders of a small lake of the same name.

GAMA, Vasco de, born at Synis, a sea-port in Portugal, was admiral of the fleet which first doubled the Cape of Good Hope in 1497, and arrived on the coast of India. The historians who have transmitted to us his discoveries, have contented themselves with informing us of the facts connected with his first voyage, and the establishment of the Portuguese in India, but they have left us in ignorance of the details of his private life. This is the more to be regretted, as Gama is one of those men who, by important discoveries, have contributed to the prosperity of their country and the increase of human knowledge. The progress of the art of navigation, and the desire of exploring our globe, excited by the prospect of gain, had about this time taken possession of the minds of men; and the success of the expedition of Christopher Columbus had given a fresh stimulus to this spirit of adventure. This extraordinary man had taught navigators the means of conducting themselves with safety across the ocean; and his example had encouraged them to brave all dangers. The Portuguese who, under the guidance of Prince Henry, had been the first to turn their views in this direction, observed with jealousy that the fruits of their researches were about to enrich the Spaniards, and they sought to indemnify themselves by pursuing, with more activity than ever, their discoveries on the side of Africa, in the hope of passing to the south of that continent, and penetrating into India, or into the kingdom of Abyssinia, of which they had acquired some notion by the relations which they maintained with the Moors. As they believed that the inhabitants of this last kingdom were Christians, they gave to the sovereign thereof the name of *Prester John*, by which people had hitherto designated a powerful prince whom they believed to be Christian, without, however, knowing where his dominions were to be found. It appears, indeed, from what has been said on the subject, that this name has been applied to the great Khan of Tartary, and to the Grand Lama of Thibet, as well as to the king of Abyssinia. The existence of this Christian king was confirmed by Peter of Covilham, who, in 1487, had set out with Alphonso de Paiva, in order to reach India by the Red Sea. The latter, however, proceeded to Abyssinia, where he remained some time, but he died soon after his return to Cairo. Having visited Goa, Cananor, Calicut, and acquired some knowledge of the coast of Sofala, situated in the canal of Mozambique, Covilham, on returning to Cairo, found the narrative of Paiva's voyage, which he transmitted to Portugal, together with an account of what he had himself done. He descended the Red Sea a second time, touched at Ormus, and lastly penetrated into Abyssinia, where he was detained during twenty years. His first voyage had been conceived on a very wise plan; and the information which he procured put him in a condition to enter the Indian Seas, with the certainty of deriving great advantages from such an enterprise, if it should only be found practicable to pass to the south of the continent of Africa. In fact, some knowledge had already been obtained of great cities in India, abounding in wealth derived from commerce; and it was also known that, on the eastern coast of Africa, at a great distance from the places where the Indian Sea might be entered, were commercial nations, amongst whom it would be possible to refit and procure pilots for proceeding further. Bartolomeo Diaz, having sailed from Lisbon in 1486, proceeded in search of the southern extremity of Africa, and had the good fortune to discover it. The storms which he had encountered, however, induced him to denominate the promontory by which the African continent is terminated, the Cape of Tempests; but this name was changed by the king of Portugal into that of the Cape of Good Hope, with the intention of obviating the unfavourable impression likely to be produced by a sinister name. Diaz returned to Lisbon in December 1487. There seemed now to be no obstacle calculated to prevent navigators entering the Indian Sea; but daring enterprises remain long in suspense, until men are found capable of carrying them into execution. It was not until five years after the discovery of the New World by Columbus, and ten years after that of the Cape of Good Hope by Diaz, that Emanuel king of Portugal resolved to send a fleet into India, and chose as its commander a gentleman of his own household, named Vasco de Gama, already known by his prudence, firmness, and ability in navigation.

The expedition destined for this great enterprise consisted of three vessels, having on board as crews a hundred and sixty men. Vasco de Gama sailed from the Tagus on the 8th of July 1497. He first shaped his course towards

Gama.

the Cape de Verd Islands, which he doubled, and making his way to the southward, anchored in the bay of St Helena, situated on the western coast of Africa, at a little distance to the north of the Cape of Good Hope. On the 16th of November he quitted this bay, and in two days after arrived at the extremity of Africa; but in attempting to make his way to the eastward, his little squadron had to contend with the south-eastern monsoon, which blows almost continually during that season of the year, and generally with great impetuosity. His crews, discouraged by the boisterous weather, attempted to force him to return; but he managed to allay their mutinous despondence, and by his firmness succeeded in overcoming all obstacles. He made to the eastward along the southern coast of Africa, stood in to the bay of St Blaise, and, on the 17th of December, arrived at the rock of Cruz, where Diaz had terminated his discoveries. It is at this point where the eastern coast of Africa begins to trend towards the north, and here the Portuguese for the first time entered the Indian Sea. Vasco de Gama, whose intention it was to go in quest of the countries which had been visited by Covilham, kept in sight of land; he proceeded northward, and several times sent his people to visit places where he observed inhabitants. He also went ashore himself as often as the population appeared considerable; but not finding any people who could give him information, he continued his voyage, passed the Cape of Currents, situated nearly under the tropics, and advanced beyond the coast of Sofala, including the city of that name, where Covilham was believed to have touched, but without discovering any establishment which could induce him to stop. At length, in one of the first days of March 1498, he anchored before the city of Mozambique, then inhabited by Moors or Mahommedan Arabs, who lived under the authority of a prince of their religion, and carried on a considerable trade with the Red Sea and the Indies. The hope of trafficking with the new-comers procured the Portuguese a favourable reception; but as soon as it became known that they were Christians, snares were laid for them, with the intention of massacring them. Obliged to withdraw from the perfidy of these fanatics, Gama set out from Mozambique, and sailed northward, along the coast for Quiloa, conducted by a pilot of Mozambique, whom he had carried along with him; but having approached the land to the north of that city, the currents prevented him from returning southward, and accordingly he veered away towards Monbaze, still following the line of the coast. This city, which was better built than Mozambique, and carried on a more extensive commerce, was also inhabited by Mahommedan Moors, who evinced the same hostility towards the Portuguese as those of Mozambique had done. Gama therefore withdrew without obtaining any thing, and advancing eighteen leagues further, reached Melinda, which is only three degrees south of the equator. Here he was more fortunate. Although this city was also peopled with Mussulmans, commerce appeared to have softened their manners; the prince of the country gave the strangers a most favourable reception, and went on board the Portuguese squadron, where he was received with the greatest honours. At this place Gama obtained a pilot, one of the most skilful navigators of the country, called Malemo-Cana, an Indian of Guzerat, to conduct him to Calicut; and having left Melinda, he, in twenty-three days, reached the coast of Malabar, and cast anchor before Calicut on the 20th of May 1498. Here Gama, as his custom was, sent ashore several of the convicts he carried along with him, accompanied by a Moor who happened to be on board his fleet, and who fortunately discovered a countryman of his own who was then in attendance at the court of Calicut. They were favourably received by the prince or zamorin, who granted the Portuguese permission to enter the port, and consented to receive Gama with the same honours which he rendered to the ambassadors of the greatest monarchs. But this good understanding was soon interrupted. The Mahommedan Moors and Arabs, inflamed with a fierce and bigoted hatred of all Christians, represented the strangers to the zamorin as pirates, who came to disturb the tranquillity of his dominions, with the intention of pillaging them. Distrust and suspicion were thus excited in the mind of the prince; and at length a plot was formed to burn the Portuguese ships and massacre their crews. Apprised of this design by Malemo-Cana, the pilot who had conducted him to Calicut, Gama, who had gone ashore, sent intelligence to his brother Paul de Gama, to be on his guard, and at the same time to keep a considerable offing; and having, by a rare mixture of firmness and address, managed to withdraw his people in safety, he immediately set sail, and having repaired his vessels at the Angedive Isles, situated on the coast to the north of Calicut, he proceeded on his return to Europe. In passing Melinda, he took on board an ambassador of the prince of that country, the only friend whom the Portuguese had yet acquired in India; and coasting along the African continent in the opposite direction to that which he had followed in the voyage outwards, he doubled the Cape of Good Hope in the month of March 1499, and arrived at Lisbon in the September following, after an absence of more than two years. The king, Emanuel, received Gama with the greatest magnificence, celebrated his return with festivities, gave him the title of Dom, and created him admiral of the Indies.

A second Portuguese fleet was immediately fitted out, and sent to India under the command of Alvarez Cabral, who succeeded in establishing a factory at Calicut; but in his absence the Portuguese were massacred at the instigation of the Moors. Cabral, however, managed to obtain the friendship of the king of Cochin, with whom he contracted an alliance; but the reports made by him on his return convinced Emanuel that he would never succeed in establishing the Portuguese power in India except by open force. A more considerable armament was accordingly fitted out, consisting of twenty vessels, which were divided into three squadrons, the most numerous of which, consisting of ten ships, sailed under the conduct of Gama, whilst the two others, of five each, under the orders of Vincent de Sodre and Stephen de Gama, left Portugal separately, with instructions to effect a junction in India. In this expedition Gama spread the terror of the Portuguese name along the whole eastern coast of Africa; formed establishments at Mozambique and Sofala; punished the zamorin and people of Calicut for their meditated treachery during the former voyage; renewed the treaty which Cabral had concluded with the king of Cochin; and, in conjunction with Albuquerque, founded the port and factory of Cochin, the first of the Portuguese settlements in India, and the cradle of their power in the east. They began by violence, and nothing but the heroic and enterprising spirit with which they were animated could have enabled them to perform the prodigies of valour by which they signalised their proceedings, and triumphed over every effort made for their expulsion. Gama left the squadron of Vincent de Sodre on the coast of Malabar, and returned to Lisbon, where he arrived on the 20th December 1503, with thirteen ships. His title of Admiral of the Indies was now confirmed, and the king added to it that of Conde de Videgueyra.

Vasco de Gama, covered with glory, now remained in absolute repose during the long period of twenty years. At length the court of Portugal having, in 1524, come to the resolution of appointing a viceroy of India, Vasco de Gama was the first person invested with that dignity. But he died soon after his arrival at Cochin, where his body was deposited until 1558, at which period it was transported to Portugal, where John III. caused the greatest honours to be paid to it. Gama was a man of the middle height, extremely corpulent, and with a red and inflamed visage, which, under the excitement of passion, assumed an expression of downright ferocity. In too many instances, particularly during his second voyage, he allowed himself to be betrayed into an excess of cruelty as impolitic as it was unrelenting; but it is nevertheless just to add, that this may in part at least be attributed to the harsh and severe manners of the times in which he lived. The history of his discovery of India has been transmitted to us by Barros, in his Decades, printed at Lisbon in 1628, and also by Hernan Lopez de Castanheda, in an extended account of the conquests of the Portuguese in the East Indies. In the Collection of Ramusio, in the works of Faria y Sousa, and in the history of Lafitau, the reader will also find detailed narratives of this memorable event in the Portuguese annals. All the world knows that Camoens made it the subject of his Lusiad. (A.)

GAMBIA, a large river of Negroland, in Africa, running from east to west to the Atlantic Ocean.

GAMBIER'S ISLANDS, a group of small islands in the South Pacific Ocean, discovered by Captain Wilson of the Duff in May 1797. They extend about five or six miles in length. An elevated mountain in the middle is in Long. 225. E. Lat. 23. 12. S.

GAME, in general, signifies any diversion or sport which is performed with regularity, and conducted according to certain rules.

Games are usually distinguished into those of exercise and address, and those of hazard. To the first belong chess, tennis, billiards, and others; to the latter those performed with cards or dice, as backgammon, ombre, piquet, whist, and others.

GAMES, in *Antiquity*, were public diversions, exhibited on solemn occasions. Such were the Olympic, Pythian, Isthmian, and Nemean games, among the Greeks; and the Apollinarian, Circensian, Capitoline, &c. games, among the Romans.

GAME LAWS. The term *game*, in a large sense, seems to comprehend all animals obtained by fowling and hunting, animals *feræ naturæ*, as contradistinguished to tame animals, such as horses, cows, sheep, and the like, which do not fly the dominion of man, but generally keep within the same pastures and closes; but in its stricter acceptation it applies only to those wild animals which the *game laws* and other arbitrary constitutions have distinguished by that appellation.

The view taken on this subject by Judge Blackstone is this: By the law of nature, says he, every man, from the prince to the peasant, has an equal right of pursuing and taking to his own use all such creatures as are *feræ naturæ*, and therefore the property of nobody, but liable to be seized by the first occupant; and so it was held by the imperial law even so late as the time of Justinian. But this right, like others of the same kind, may be restrained by positive laws, and we find has been so restrained by the municipal laws of many nations. Yet however defensible these provisions may in general be, on the footing of reason, or justice, or civil policy, we must notwithstanding acknowledge, that in their present shape they owe their immediate origin to slavery, having been introduced into Europe along with the feodal system. On the Norman conquest, the right of pursuing and taking such animals as were accounted *game* was held to belong to the king, or to such only as were authorized by him. And this, the learned commentator says, as well upon the principles of the feodal law, that the king is the ultimate proprietor of all the lands in the kingdom, as upon another maxim of the common law, that these animals are *bona vocantia*, and, having no other owner, belong to the king by his prerogative. Wherefore, he concludes, all persons, of what property or distinction soever, who kill game without the king's grant, are guilty of encroaching on the royal prerogative; and those persons who do so without having what is called a qualification, are guilty not only of the original offence, but also of the aggravations created by the statutes for preserving the game; which aggravations are so severely punished, and those punishments so implacably inflicted, that the offence against the king is seldom thought of, provided the miserable delinquent can make his peace with the lord of the manor.

The doctrine thus promulgated, novel and startling as it was, maintained itself long on the mere name and reputation of the author. It is now, however, admitted to be incorrect. The law of Canute, noticed by Blackstone, "quilibet homo dignus venatione sua, in sylva et in agris sibi propriis et in dominio suo," was confirmed by many succeeding kings; and there is no instance, civil or criminal, in which a person has been sued or prosecuted on behalf of the king for taking game, unless he took it out of some privileged place. On the contrary, there is a current of dicta and decisions showing that owners of land have uniformly been considered as having a local property in game, and a right to take it whilst upon their own land.

However, the legislative provisions are in restraint of the common law right; and these provisions were till lately many and various, and not a little obscure and intricate. But in October 1831 an important act was passed to amend the laws of England relative to game, namely, 1 and 2 Gul. IV. c. 32, which repealed about thirty previous statutes on the subject, and, excepting as to game certificates, may be looked upon as containing nearly the whole law in relation to game.

This statute of William begins by enacting that the word *game* shall, for all the purposes of the act, be deemed to include hares, pheasants, partridges, grouse, heath or moor game, black game, and bustards. It then sets out the *days* and *times* during which game shall not be killed, declaring that if any person shall kill or take any game, or use any dog, gun, net, or other engine or instrument for the purpose of killing or taking any game on a *Sunday* or *Christmas day*, he shall, on conviction, forfeit and pay, for every such offence, such sum of money, not exceeding L.5, as to the justices shall seem meet, together with the costs of conviction; and prohibiting, under a penalty, the killing or taking any *partridge* between 1st February and 1st September; *pheasant* between 1st February and 1st October; *black game* (except in the county of Somerset or Devon, or in the new Forest of Southampton) between 10th December and 20th August, or in the above excepted places between 10th December and 1st September; *grouse* or red game between 10th December and 12th August, or any *bustard* between 1st March and 1st September; and it further declares, that if any person, with intent to destroy or injure any game, shall at any time put any poison or poisonous ingredient on any ground, whether open or enclosed, where game usually resort, or in any highway, every such person shall, on conviction, forfeit and pay such sum of money, not exceeding L.10, as to the justices shall seem meet, together with the costs of conviction; and further, that if any person *licensed* to deal in game shall buy or sell, or knowingly have in his house, shop, stall, possession, or control, any bird of game after the expiration of ten days (one inclusive and the other exclusive) from the respective days in each year on which it shall become unlawful to kill or take such birds of game respectively as aforesaid, or if any person not being licensed to deal in game, shall buy or sell any bird of game after the expiration of ten days from the respective days in each year on which it shall become unlawful to kill or take such birds of game respectively as aforesaid, or shall knowingly have in his house, possession, or control any bird of game (ex-

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cept birds of game kept in a mew or breeding place) after the expiration of forty days (one inclusive and the other exclusive) from the respective days in each year on which it shall become unlawful to kill or take such birds of game respectively as aforesaid, every such person shall, on conviction, forfeit and pay, for every head of game so bought or sold, or found in his house, shop, possession, or control, such sum of money, not exceeding L.1, as to the justices shall seem meet, together with the costs of conviction. The act then provides that the same, except as therein mentioned, shall not affect or alter the laws respecting *game certificates;* and declares that all regulations and provisions contained in any act relative to game certificates, as far as they relate to gamekeepers of manors, and to the amount of duty for game certificates to be charged upon or in respect of gamekeepers of manors in the cases specified in such act, shall apply to all gamekeepers of lands appointed under this act; and it further declares, that every person who shall have obtained an annual game certificate shall be authorized to kill and take game, but subject to the law of trespass, and provided always that no game certificate on which a less duty than L.3. 13s. 6d. is chargeable under the acts relating to game certificates shall authorize any gamekeeper to kill or take any game, or to use any dog, gun, net, or other engine or instrument, for the purpose of killing or taking game, except within the limits included in his appointment as gamekeeper; but that in any case where such gamekeeper shall kill or take any game, or use any dog, gun, net, or other engine or instrument, for the purpose of killing or taking game, beyond such limits, he may be proceeded against as if he had no game certificate whatsoever. Then follow certain clauses which determine the rights of landlords in relation to the game. The act declares, that in all cases where any person shall occupy any land under any lease or agreement made previously to the passing of the act, the lessor or landlord shall have the right of entering upon such land, or of authorizing any other person or persons who shall have obtained an annual game certificate to enter upon such land, for the purpose of killing or taking the game thereon; and no person occupying any land, under any lease or agreement, either for life or for years, made previously to the passing of this act, shall have the right to kill or take the game on such land, except where the right of killing the game has been expressly allowed to such person by the lease or agreement, or except where, upon the original granting or removal of the same, a fine shall have been taken, or except where, in the case of a term for years, the lease or agreement shall have been made for a term exceeding twenty-one years; provided always that nothing contained in the act shall authorize any person seised or possessed of land to kill or take the game, or to permit any other to do so, where, by any deed, grant, lease, or any written or parole demise or contract, a right of entry on such land for the purpose of killing or taking the game has been or shall be reserved or retrieved by, or given or allowed to, the granter or other person whatsoever; nor shall the act affect any reservation or agreement already made in relation to game, nor in any manner prejudice the rights of manor, forest, chase, or warren, nor any of his majesty's forest rights, nor the rights of any grantee of the crown; nor shall the act be deemed to give to any owner of cattlegates, or rights of common, upon or over any wastes or commons, any interest or privilege which he had not before, nor authorize him to pursue or kill the game found on such wastes or commons, nor defeat or diminish the rights and privileges of any lord, or of any steward of the crown, of any manor, lordship, or royalty, in or over such wastes or commons; but that the lord or steward of the crown, of any manor, &c. shall have the right to pursue and kill the game upon the wastes or commons therein, and to authorize any other person who shall have obtained an annual game certificate to enter upon such wastes or commons for the purpose of pursuing and killing game thereon. And it is further enacted, that where the lessor or landlord shall have reserved to himself the right of killing the game upon any land, it shall be lawful for him to authorize any other person who shall have obtained an annual game certificate, to enter upon such land for the purpose of pursuing and killing game thereon; and also, that where the right of killing game is by the act given to any lessor or landlord, in exclusion of the right of the occupier of the land, or where such exclusive right has been or shall be specially reserved by or granted to, or does or shall belong to, the lessor, landlord, or any person whatsoever, other than the occupier of such land, then and in every such case the occupier, if he shall pursue, kill, or take any game upon the land, or give permission to any other person so to do, without the authority of the lessor, landlord, or other person having the right of killing the game, shall on conviction forfeit and pay for such pursuit, such a sum of money, not exceeding L.2, and for every head of game so killed or taken, such a sum of money, not exceeding L.1, as the justices shall be pleased to award, together with the costs of conviction. Then follow certain provisions allowing lords of manors and stewards of the crown-manors to appoint one or more gamekeepers to preserve or kill the game, and with power to seize dogs, guns, nets, and other engines and instruments used within the limits by uncertificated persons, and also allowing lords of manors and stewards of crown-manors to grant deputations to persons as gamekeepers; and, after particular regulations respecting appointments of gamekeepers in Wales, the act declares that no appointment or deputation of a gamekeeper shall be valid, unless registered with the clerk of the peace.

These provisions are followed by a series of important clauses in regard to the *possession, purchase, and sale* of game. The act declares, that every person who shall have obtained an annual game certificate, shall have power to sell game to any person *licensed* to deal in game, provided always that no game certificate on which a less duty than L.3. 13s. 6d. is chargeable, shall authorize any gamekeeper to sell game, except on the account and with the written authority of the master whose gamekeeper he is; and the act appoints special sessions of the peace, to be holden in the month of July yearly, for the purpose of granting licenses to persons therein pointed out to deal in game; and every person so licensed shall annually, and during the continuance of his license, and before he shall be empowered to deal in game under his license, take out a certificate, with a duty of L.2, to be paid to the collector of assessed taxes for the district, under a penalty of L.20. And further, the act declares, that if any person licensed to deal in game shall, during the period of license, be convicted of any offence whatever against the act, his license shall thereupon become null and void. Other clauses which follow create penalties for *killing or taking game*, or using any dog, gun, or other engine, for the purpose of searching for or killing or taking game without a game certificate; for *destroying or taking the eggs* of any bird of game, or of any swan, wild duck, teal, or widgeon, without having right to kill the game, or permission from the person having such right; for *selling or offering to sale* any game, without a game certificate or license, or to unlicensed persons, excepting always innkeepers or tavern-keepers, who, without license to deal in game, may sell game for consumption in their own houses, such game having been procured from some person licensed to deal in game; for *buying game* without a license from unlicensed persons; lastly, on licensed dealers for buying game from uncertificated or unlicensed persons, or for not having up a sign-board, and on unlicensed persons assuming or pretending to be licensed; and the whole is closed by a proviso as to the purchase and sale of game by the *servants* of licensed dealers. Then follows the 30th section, with this preamble: “ And whereas, after the commencement of this act, game will become an article which may be legally bought and sold, and it is therefore just and reasonable to provide some more summary means than now by law exist for protecting the same from trespassers;” whereupon various regulations are made respecting *trespass* in search or pursuit of game. These, however, we shall hereafter specify, because they are substantially the same with those contained in an act since passed for Scotland, to which kingdom the unrepealed act 9 Geo. IV. c. 69, also extends.

In this country there was originally, as in England, no restraint on the taking of game within one's own land. It is particularly noticed, that in the time of King Alexander it was not defended nor forbidden to any man to hunt nor to chase the hare and fox, and other wild beasts, without forests and warrens, wheresoever they were found (M. T. C. c. 52); and as late as the time of King James III. an act was passed (1474, c. 60), declaring that it should not be lawful to hunt or destroy game “ in *utheris* closes or parkes,” without the owner's leave. In the following century the idea of game as the subject of gentlemen's pastime appears; and the act 1551, c. 9, was passed, to restrain certain modes of detroying birds then commonly practised, “ quhairthrow the noblemen of the realme can get na pastime of halking and hunting, like as hes beene had in times bypast.” In the beginning of the seventeenth century the principle of the first English qualification act (13 Rich. II. c. 13), the title of which is, “ None shall hunt but they who have a sufficient living,” was adopted by the Scottish legislature in the act 1600, c. 23; and upon that principle, no doubt, soon followed the statute 1621, c. 31, which enacts “ that no man hunt or hawk at any time hereafter, who hath not a plough of land in heritage, under the pain of L.100 Scots, half to the king and half to the prosecutor.” This is the substantive *Game Qualification Act* of Scotland; and under it the courts have held, that a qualified person may communicate the right of shooting to any individual over the lands of the former; and that a qualified landlord may hunt on his ground in the hands of tenants, paying damage; but that neither a servitude of pasturage nor a lease of land carry a right to kill game, nor yet a lease of game, as against singular successors; nor can a qualified person hunt on the property of another without the owner's leave.

To the qualification required by the act 1621 has been added, by subsequent statutes, that of a *game certificate*, as in England. To make the privilege valuable, various penalties have also been enacted against *poachers;* and lately the act of 9 Geo. IV. c. 69, was passed, applicable to both England and Scotland, to prevent persons *going armed by night* for the destruction of game and rabbits. To all these is now to be added the act above alluded to, namely, 2 and 3 Gul. IV. c. 68, which, though limited to Scotland, is, as already mentioned, nearly a transcript of the 30th and following sections of the late English game act. It enacts and declares, that if any person shall commit any trespass, by entering or being in the daytime upon any land without leave of the proprietor, in search or pursuit of game, or of deer, roe, woodcocks, snipes, quails, landrails, wild ducks, or conies, such person shall forfeit and pay a penalty not exceeding L.2, which is enlarged in the case of the trespass being by a person having his face blackened, coloured, or disfigured, for the purpose of disguise, or by persons to the number of five or more together; and it further declares, that such trespassers may be required to quit the land, and give their names and abodes, and, on their refusal so to do, may be arrested. But it is provided, that the act shall not extend against persons hunting or coursing with hounds or greyhounds, and being in fresh pursuit of any deer, hare, or fox already started upon any other land on which such persons were entitled to hunt or course. The act also declares, that game may be taken from trespassers not delivering the same up when lawfully demanded; and it provides a summary means for ensuring the conviction and punishment of offenders; declaring also, that all penalties created by the statute shall go to the poor of the parish. (U. U. U.)

GAMELIA, in Grecian antiquity, a nuptial feast, or rather sacrifice, held in the ancient Greek families on the day before a marriage. It was so called from a custom they had of shaving themselves on this occasion, and presenting their hair to some deity to whom they had particular obligations.

GAMELION, in the ancient chronology, was the eighth month of the Athenian year, containing twenty-nine days, and answering to the latter part of our January and beginning of February. It was so called, as being, in the opinion of the Athenians, the most proper season of the year for marriage.

GAMING, the art of playing or practising any game, particularly those of hazard, as cards, dice, tables, and so forth.

Gaming was particularly remarked by Tacitus as distinguishing the ancient Germans. “ They addict themselves,” says he, in his treatise *De Moribus Germ.* c. 24, “ to dice, as a serious employment, with such an extravagant desire to win or lose, that when everything else fails they will stake even their liberty and their very persons. The loser goes into a voluntary servitude: though younger and stronger than his antagonist, he suffers himself to be bound and sold; and this perseverance in so bad a cause they call the point of honour.” This passion we seem to have inherited; and by the ancient common law of the land it was not forbidden. Its pernicious consequences, however, are manifest; and both the legislature and the courts have interfered to restrain it.

In England there are three principal statutes on the subject, and a multitude of minor ones, the particular descriptions and prohibitions of the law being ever behind the inventions of sharpers and interested men. The first statute, 33 Hen. VIII. c. 9, was directed against the inferior classes, and prohibits to all but gentlemen the games of tennis, tables, cards, dice, bowls, and other unlawful diversions therein specified, unless in the time of Christmas, under pecuniary pains and imprisonment. But this was legislation at once unequal, cruel, and impolitic, and indeed, according to modern experience at least, it is gaming in high life which particularly requires to be restrained. Accordingly, by 16 Car. II. c. 7, it was enacted that if any person shall play at any of the games mentioned in the second section, namely, cards, dice-tables, tennis, bowls, skittles, shovel-board, or cock-fighting, horse-races, dog-matches, foot-races, or other pastimes or games whatsoever, or shall bet on the side or hands of such as play thereat, and shall lose any sum or sums of money or other thing exceeding L.100, at any time or meeting upon ticket, credit, or otherwise, and shall not pay down the same at the time of the loss, the value shall not be recovered; but all contracts for the same, judgments, statutes, recognisances, mortgages, &c. and all other acts, deeds, and securities for the same, shall be void, and the winner shall forfeit treble the value, in addition to the sum of L.100, half thereof to the king and half to the informer. At length came the gaming act (9 Anne, c. 14), which declares that all bonds and other securities given for money won at play, or money lent at the time to play withal, shall be utterly void; that all mortgages and incumbrances of lands made upon the same consideration shall be and revert to the use of the heir of the mortgager; that if any person at any time or sitting loses L.10 at play, he may sue the winner, and recover it back by action of debt at law; and in case the loser does not, any other person may sue the winner for treble the sum so lost; and the plaintiff may by bill of equity examine the defendant himself on oath. Moreover, if any person, by cheating at play, shall win any money or valuable thing, or shall at any time or sitting win more than L.10, he may be indicted thereon, and shall forfeit five times the value to any person who will sue for it, and shall be deemed infamous, and suffer such corporal punishment as in the case of wilful perjury. And this statute of 9 Anne is further enforced, and some deficiencies supplied, by 18 Geo. II. c. 34.

By the first of the above-named acts also (33 Hen. VIII. c. 9), to which may now be added 58 Geo. III. c. 70, and 3 Geo. IV. c. 114, the keeping a *gaming-house* was declared a nuisance, which indeed it is held to be, and an indictable offence at common law; and the courts largely construing the word, have held a cockpit a gaming-house within the meaning of the statute (3 Keb. 510, 2 Burr. 1233). By 9 and 10 Will. III. c. 17, all *lotteries* were declared public nuisances; and all state-lotteries which had in the interval been allowed were to be discontinued after 4 Geo. IV. c. 60. As to private lotteries, they were prohibited by various statutes of the reign of George II. under heavy pecuniary penalties. In the same reign, to prevent or restrain *horse-racing*, another kind of gaming, it was enacted by 13 Geo. II. c. 19, that no plate or match under L.50 value shall be run, under a penalty of L.200 to be paid by the owner of each horse running, and L.100 by such as advertise the plate, except at Newmarket and Black Hambleton, where a race may be run for a less sum than L.50: but though such horse-races are lawful, yet they are construed *games* within 9 Anne c. 14, and consequently wagers above L.10 are illegal. By 7 Geo. II. wagers relating to the present or future price of stocks are declared illegal and void; and it has been held that a wager between two electors upon the success of their respective parliamentary candidates is illegal, because it tends to corrupt the freedom of election (1 T. R. 56). The law of *wagers* is well and succinctly traced by Mr Christian in his note to 4 Blackstone, 173. Wagers, in general, says he, were by the common law lawful contracts; and all wagers may still be recovered in a court of justice which are not made upon unlawful games, or which are not such as are likely to disturb the public peace, or to encourage immorality, or such as will probably affect the interests, characters, and feelings of persons not parties to the wager, or such as are contrary to sound policy or the general interests of the community. And the recent editor of Blackstone subjoins to this note a case lately decided, to show the comprehensive ground on which one of these doctrines, that of public policy, rests. The case was this. In 1802 the defendant, in consideration of 100 guineas, agreed to pay the plaintiff one guinea a day during the life of Bonaparte. The defendant paid the money for some years, and then stopped. The action was brought to recover the arrears. The jury having found for the defendant, on a motion for a new trial it was contended in support of the verdict that the wager was illegal, inasmuch as it had a tendency to create an interest in the plaintiff in the life of a foreign enemy, and which in the case of an invasion might induce him to act contrary to his allegiance. The court being of opinion that the justice of the case had been satisfied, refused to disturb the verdict; and Lord Ellenborough, chief-justice, expressed a strong opinion against the legality of the wager, as well on the ground before mentioned, as also on the ground that the party suffering under such a contract might be induced to compass and encourage the horrid practice of assassination, in order to get rid of a life so burdensome to him (16 East. 150). So likewise, where a person had given L.100 on condition of receiving L.300 if peace were not concluded with France within a certain time, and he afterwards brought his action to recover the L.300, it was held that the wager was void, as being inconsistent with general policy; but he was allowed to recover the L.100 which he had paid, under a count for so much money received by the defendant to his use. Indeed we may remark frequent expressions of regret by the most eminent judges of England, that the law of wagers in that country is not the same with that of Scotland; and some, amongst whom was Justice Butler (3 T. R. 697), have thought it was not too late yet to retrace their steps, and to adopt the practice of the Scotch courts. So in Easter term 1825, Chief-Justice Abbot refused to allow a cause to proceed in which a person sought to recover L.100 which had been deposited as a stake on a dog-fight, observing that all such wagers were illegal. In like manner, the chief-justice discharged the jury from giving any verdict in an action to recover a deposit on a wrestling match (Kennedy, K. B. October 29, 1828).

The view taken in Scotland is, that courts of justice were instituted to redress wrong in the serious transactions of life; and that wagers and gaming debts do not partake of the character of serious business, but mere pastime and amusement. The judges therefore look upon such contracts as *sponsiones ludicræ*, and will not allow action for the recovery of sums lost or won by wagering or betting in any form; and this is now settled law, and sanctioned by the judgment of the House of Lords in the case of Bruce *v.* Ross, 14th February 1788. Where, however, a civil injury arises, though it be out of gaming, the party will be heard. So, in the case of Paterson, 1830 (8 Sh. and D. 573), a party brought an action setting forth that he had fairly won money at cards from the defender, who paid it, but afterwards demanded restitution, alleging the pursuer was a cheat at play; and that the pursuer thereupon repaid the money on condition that the defender should preserve silence on the subject, which he failed to do; and the defender offered to prove the pursuer a cheat. The court found the action relevant, and remitted it to the jury court, where it was tried as a question of defamation.

Scotland is also distinguished from England by the paucity of its legislative provisions on gaming. By 1621, c. 14, it was enacted that none play at cards or dice in any common house, town, hostelrie, or cook's house, and that it should not be lawful to play in any other private man's house but where the master of the family playeth himself; and if it should happen any man to win a sum exceeding 100 merks within the space of twenty-four hours, or to gain at wagers upon horse-races any sum above 100 merks, the surplus should go to the poor of the parish. This act is not altogether in desuetude, as might be thought from an old case, but it is available only to the poor, and not to the winner (Straiton, 19th July 1688; Maxwell, 14th July 1774). To the above act of 1621 are to be added the acts 9 Anne and 18 Geo. II. above noticed, which are received in Scotland, but have not always the same construction given them as in England. Thus, as remarked by Mr Brodie (Stair, b. i. tit. 10, sect. 8, note), it has been held in Nelson *v.* Bruce, Mor. 9507, and Stewart *v.* Hyslop, Mor. 9510, contrary to the settled construction in England, that the nullity was not effectual against an onerous indorsee not aware of the bill being granted for a game debt. Mr Brodie gives it as his opinion that the two Scottish decisions are on principle, abstractedly from the words of the statute, most consonant to substantial justice; but the English construction appears quite indisputable. (U. U. U.)

Chance, or *Hazard*, in GAMING. Hazard, or chance, is a matter of mathematical consideration, because it admits of more and less. Gamesters either set out upon an equality of chance, or are supposed to do so. This equality may be altered in the course of the game, by the greater good fortune or address of one of the gamesters, by which he comes to have a better chance, so that his share in the stakes is proportionably better than at first. This more and less runs through all the ratios between equality and infinite difference, or from an infinitely small difference till it come to be an infinitely great one, by which the game is determined. The whole game, therefore, with regard to the issue of it, is a chance of the proportion which the two shares bear to each other.

The probability of an event is greater or less, according to the number of chances by which it may happen, compared with the number of all the chances by which it may either happen or fail. See PROBABILITIES.

GAMMONING, among seamen, denotes several turns of a rope taken round the boltsprit, and reeved through holes in knees of the head, for the greater security of the boltsprit.

GAMUT, *Gam-ut*, in *Music*, a scale on which the musical notes, *ut*, *re*, *mi*, *fa*, *sol*, *la*, are sounded in their several orders and dispositions. See MUSIC.

GANDICOTTA, or WANDICOTTA, a district of Hindustan, in the Balaghaut ceded districts, situated between the fourteenth and fifteenth degrees of north latitude, and now chiefly comprehended in the Cuddapah collectorship. The river Pennar crosses it. The principal towns are Gandicotta, Tadimery, and Anantapooram. Gandicotta is the capital of the district, situated on the top of a lofty mountain. There is no passage to the fortress but by a narrow road cut out of the rock along the edge of the precipice. The surrounding plain is well watered and cultivated; and here was formerly a diamond mine. Long. 78. 20. E. Lat. 14. 44. N.

GANGES. This great river has its rise in the northern face of the Himalaya Mountains, and, after a course of about two thousand miles, falls into the Bay of Bengal through numerous channels. The remote sources of the Ganges were long imperfectly known, and afforded a fertile subject of conjecture and controversy to the geographers of Europe. Prior to the commencement of the nineteenth century, this river had been traced by Hindoo pilgrims to Gangoutri, the point at which it issues from the Himalaya Mountains; but all accounts agreed that its origin was still more remote. On the side of Thibet it had been surveyed by lamas or priests, sent for that purpose by the Emperor Camhi, whose route terminated at Kentaisse, a range of snowy mountains on the west and south of Thibet. The most general notion was, that it flowed within the Himalaya chain of snowy mountains for many hundred miles, from the imaginary lake of Mapama, to Gangoutri. In 1808, Lieutenant Webb was sent by the Bengal government to explore the sources of the Ganges. About seventeen miles beyond Gangoutri his further progress was stopt by the difficulties of the country, but the Moonshee who accompanied the party went forward; and as he proceeded upwards, after leaving Gangoutri, he occasionally perceived the river among the snow, which a little higher up so completely filled its bed that no trace of it could be discovered. Five hundred yards further on it again showed itself; but in front was a steep mountain, rising up like a huge wall, from an angle of which the Ganges appeared to issue, whilst all beyond was an impenetrable mass of snow. This is the furthest point to which the Ganges has been traced, and may be considered as its source; though others think the Dauli to be the main stream, owing to the length of its course from Gangoutri. Two miles higher up the river is the place called the Cow's Mouth. It is a large stone in the middle of the river, the water passing it on each side, and leaving only a small piece above the surface, to which the fancy of superstition has given the form of a cow's head, an animal held sacred by the Hindoos. From Gangoutri the Ganges flows, in the upper part of its course among the mountains, from south-east to north-west; and it is only from Sookie, where it fairly pierces through the Himalaya range, that it assumes a course south-west to Hurdwar. Here, in the latitude of 30° N. it gushes through an opening in the mountains, and flows with a smooth navigable stream to its conflux with the Jumna at Allahabad, the first large river that joins it in Hindustan proper. Its bed is of very unequal breadth. From its first arrival in the plains at Hurdwar to the conflux of the Jumna, it is generally from a mile to a mile and a quarter wide, and, compared with the latter part of its course, tolerably straight. From hence downward it becomes more winding; till, having successively received the waters of the Goggrah, the Soane, and Gunduck, besides numerous smaller streams, its bed has attained its full width, which varies from half a mile to three miles. The stream is always increasing or decreasing, according to the season; and in April, when it is lowest, the principal channel varies from four hundred yards to about a mile and a quarter. At the height of the inundation the breadth of the river is of course greater; and Bishop Heber mentions, that at Boglipoor, about six hundred miles from the sea, including the turnings of the river, the breadth was nine measured miles across. Though the Ganges be fordable in some places above the conflux of the Jumna, the navigation is never interrupted. Below, the depth of the channel is increased, the additional streams bringing a greater accession of depth than breadth. At five hundred miles from the sea, the channel is thirty feet deep when the river is lowest, and it continues at least this depth to the sea, when the sudden expansion of the stream deprives it of the force necessary to sweep away the bars of sand and mud thrown across it by strong southerly winds; so that the principal branch of the Ganges cannot be entered by large vessels. At about two hundred and twenty miles from the sea, or three hundred reckoning the windings of the river, commences the head of the Delta of the Ganges. The two easternmost branches, named Cossimbazar and Jellinghy rivers, unite and form what is afterwards denominated the Hooghly, which is the port of Calcutta, and the only branch of the Ganges that is commonly navigated by ships. Below the channel named the Songti Mohana, where the Ganges sends off these two branches which go to Calcutta, the main stream loses not only its name, but the greater part of its sanctity in the eyes of the natives. The Cossimbazar river is almost dry from October to May, nor is the Jellinghy river navigable during two or three of the driest months; so that the only subordinate branch of the Ganges which is at all times navigable is the Chandnah river, which separates at Moddapoor, and terminates in the Hooringotta river. That part of the Delta called the Sunderbunds consists of a labyrinth of rivers and creeks, which is two hundred miles broad at the junction of the Ganges with the sea. This tract is covered with woods which are infested with tigers, and its numerous canals form a complete inland navigation across the lower part of the Delta. The Ganges, like all tropical rivers, overflows periodically during the season of the rains in Bengal, on which it depends for its supplies, and not, as may be supposed, on the melting of the mountain snows. Its rise is thirty-two feet, fifteen and a half of which it rises by the latter end of June, and it is not until this time that the rainy season commences in the plains. By the end of April, when the rains from the mountains have reached Bengal, the rivers begin to rise at the rate of an inch per day for the first fortnight, which augments to two and three inches before any quantity of rain has fallen; and when the rain becomes general, the river increases, at a medium, to five inches per day. By the latter end of July all the lower parts of Bengal are inundated. The inundation is at a stand in the middle of August; and it gradually and slowly decreases in August and September, and until April, when it again begins to rise. The quantity of water discharged is calculated in the dry season to amount to 80,000 cubic feet per second, and during the inundation to 405,000 cubic feet. The descent of the river is about nine inches per mile, and estimating the windings of the stream, four inches per mile. In the dry season the current is three miles an hour; it increases during the wet season to five or six miles, and in particular situations to seven or eight miles. On the banks of the Ganges, where the soil is loose, and the current rapid, "such tracts of land," says Major Rennell, "are swept away in one season as would astonish those who have not been eye-witnesses to the magnitude and force of the mighty streams occasioned by the periodical rains of the tropical regions." Great changes are in this manner produced in the course of the river, what is lost on one side being gained on the other by the mere operation of the stream. In its course through the plains the Ganges receives eleven rivers, some of which are larger than the Rhine, besides many others of less importance. The Goggrah, the Soane, and the Coosy, are the largest of the tributary streams in Bengal and Bahar. The Brahmapootra has its rise near the source of the Ganges, and from hence the two rivers diverge widely asunder; but afterwards they intermix their waters before they fall into the sea, the Ganges having then performed a course, including its windings, of about 1500 miles.

GANGOUTRI, a celebrated place of Hindoo pilgrimage, situated among the Himalaya Mountains, in the province of Serinagur, on the Ganges, which is here not above fifteen or twenty yards broad, with a moderate current, and not in general above three feet deep. The course of the river is here north by east; and on the bank near Gangoutri there is a small temple about eight or ten feet high, in which are two images representing the Ganges and Bhagirathi rivers. The bed of the river adjoining the temple is divided off by the Brahmins into three basins, where the pilgrims bathe. One of these portions is dedicated to Brahma, the other to Vishnu, and the third to Seva. The pilgrimage to Gangoutri is considered as a great achievement of Hindoo piety, and efficacious in washing away all the previous sins of the devotee, and ensuring him eternal happiness in the world to come. The water taken from this sacred spot is exported by pilgrims to India, and sold at a high price; it is drawn under the inspection of a Brahmin, to whom a trifling sum is paid for the privilege of taking it; and the vessels are then sealed. In 1808 Lieutenant Webb and his party approached within sixteen or eighteen miles distance of this consecrated spot. The pilgrims report that the current of the Ganges, only a few miles from this place, issues from under a bed of perpetual snow, where the roads are so bad, that few persons have been able to penetrate to the spot. Long. 78. 9. E. Lat. 31. 4. N.

GANGPOUR, a small district of Hindustan, in the province of Gundwana, situated about the twenty-second degree of north latitude, and bounded on the north by the British district of Chuta Nagpoor, in Bahar. It was annexed to the province of Allahabad during the reign of Aurungzebe, though it was only reduced under nominal subjection to that monarch. It is a barren, mountainous, and unproductive country, still inhabited by uncivilized tribes of Hindoos. The chief river is the Soank, and the principal towns are Gangpoor and Padah.

GAN-KING-FOO, a large city of China, situated on the great river Yang-tse-kiang, and capital of the province of Kiang-nan. It is a place of considerable trade. Great part of the space within the walls consists of gardens and cultivated ground. The eastern quarter is composed chiefly of dwelling-houses, and the western of shops, which are well furnished, particularly with porcelain, horn lanterns, caps, drapers' and mercers' goods, &c. Long. 117. 20. E. Lat. 31. 30. N.

GANJAM, a town and sea-port of Hindustan, in the Northern Circars, and capital of a district of the same name. It is situated on the north-eastern bank of a river, which is only navigable during the rainy season, when a great part of the surrounding country is inundated. It possesses a fort, which is a regular pentagon on plain ground, well fortified, and capable, when properly garrisoned, of making a respectable defence. Ganjam is one of the five districts into which the Northern Circars have been subdivided, and is the residence of a judge and collector. This port is much frequented by country vessels; and formerly the East India Company were provided with a large investment from it. But since the great improvements which have taken place in the cotton manufactures in England, the demand for India cotton goods has greatly decreased, and the establishment now scarcely pays its expenses. Long. 85. 19. E. Lat. 19. 23. N. The district of Ganjam is in Cicacole, and one of the Northern Circars.

GANTLET, or GAUNTLET, a large kind of glove made of iron, and having the fingers covered with small plates. It was formerly worn by the cavaliers, when armed at all points. The word is derived from the French *gantelet;* and that from *gand* or *gant*, a glove. The casque and gauntlets were always borne in the ancient marches of ceremony. Gauntlets were not introduced until about the thirteenth century. The gauntlet was frequently thrown, like the glove, by way of challenge.

GANYMEDE, in *Mythology*, a beautiful youth of Phrygia, son of Tros, and brother of Ilus; but, according to Lucian, he was the son of Dardanus. Jupiter having been charmed with him, carried him away, and made him his cup-bearer in the room of Hebe. Some say that the chief of the gods caused him to be carried away by an eagle, whilst others affirm that he was himself the ravisher under the form of that bird. He deified this youth; and, to comfort his father, presented him with some of those very swift horses upon which the gods indulged in equitation.

GAOL (*Gaola*, Fr. *Géole*, that is, *Caveola*, a cage for birds) is used metaphorically for a prison. See PRISONS.

GAOL *Delivery.* The administration of justice being originally vested in the crown, our kings in former times rode in person through the realm once in seven years, to judge of and determine crimes and offences; but afterwards justices in eyre were appointed, and since that time justices of assize and gaol delivery. A commission of gaol delivery is a patent in the nature of a letter from the king to certain persons, appointing them his justices, or two or three of them, and authorizing them to deliver his gaol, at such a place, of the prisoners in it; for which purpose it commands them to meet at such a place, at such time as they themselves shall appoint; and informs them, that for the same purpose the king has commanded his sheriff of the same county to bring all the prisoners of the gaol, and their attachments, before them at the day appointed.

GAONS, a certain order of Jewish doctors who appeared in the East after the closing of the Talmud. The word *gaons* signifies excellent or sublime; as in the divinity schools we formerly had irrefragable, sublime, resolute, angelic, and subtile doctors. The Gaons succeeded the Seburæans, about the beginning of the sixth century. Chanan Meischtia was the head of the excellents, and restored the academy of Pandebita, which had been shut up for thirty years.

GAP, an arrondissement of the department of the Upper Alps, in France, extending over 445 square miles. It is divided into fourteen cantons and 122 communes, and inhabited by 63,825 persons. The capital, a city of the same name, is situated on the river Luie, on a kind of basin formed by hills, over which tower the snow-covered mountains of the Alps. It is an old and ill-built place, containing 8150 inhabitants, who are occupied in making linen and woollen cloths. There is in the city a museum, containing collections of the plants, minerals, birds, and antiquities of the Alps. Long. 5. 59. 42. E. Lat. 44. 33. 37. N.

GARAMOND, Claude, an ingenious letter-founder, was born at Paris, where he began, in the year 1510, to found printing types free from all the remains of the Gothic, or, as it is generally called, the black letter, and brought them to such perfection that he had the glory of surpassing all who went before him, and of being scarcely excelled by any of his successors in that useful art. His types were prodigiously multiplied, both by the great number of matrices he struck, and the types formed in resemblance of his in all parts of Europe. Thus in Italy, Germany, England, and Holland, the booksellers, by way of recommending their books, distinguished the type by his name; and, in particular, the small Roman was by way of excellence known amongst the printers of these nations by the name of *Garamond's small Roman.* By the special command of Francis I. he founded three sizes of Greek types for the use of Robert Stephens, who by means of them printed all his beautiful editions of the New Testament, and other Greek authors. He died at Paris in 1561.

GARASSE, Francis, a remarkable writer, and also the author of that irreconcilable enmity which still subsists between the Jesuits and Jansenists, was born at Angoulême in 1585, and entered the Jesuits' College in 1600. As he had a quick imagination, a strong voice, and a peculiar turn for wit, he became a popular preacher in the chief cities of France; but not content with this honour, he distinguished himself still more by his writings, which were bold, licentious, and produced much controversy. The most considerable in its consequences was entitled *La Somme Théologique des Veritez capitales de la Religion Chrêtienne,* which was first attacked by the abbot of St Cyran, who observing in it a prodigious number of falsifications of the Scriptures and of the fathers, besides many heretical and impious opinions, conceived that the honour of the church required him to undertake a refutation of it. Accordingly he published an answer, whilst Garasse's book was also under examination of the doctors of the Sorbonne, by whom it was afterwards condemned. Garasse replied to St Cyran; but the two parties of Jesuits and Jansenists, of whom these were respectively the champions, gradually conceived such an implacable animosity against each other, that it is not even now likely to subside. The Jesuits were forced to remove their brother to a distance from Paris, where, weary of his inactive obscurity, he begged leave of his superior to attend the sick, when the plague raged at Poitiers in 1631, and in this charitable office he caught the prevailing distemper, and died.

GARAWAL, a town of Hindustan, in the province of Allahabad, and district of Chunar. It is the last town of any consequence on the frontier between the British provinces and those of the rajah of Berar. Long. 83. E. Lat. 24. 50. N.

GARBE, in *Heraldry,* a sheaf of any kind of grain, borne in several coats of arms, and said to represent summer, as a bunch of grapes does autumn.

Garcias-Laso.

GARCIAS-LASO, or Garcilaso, or Garcilasso de la Vega, a celebrated Spanish poet, was born at Toledo, in 1503. He was the younger son of Garcilaso, counsellor of state to Ferdinand and Isabella, their ambassador at the court of Rome, and grand commander of Leon, and of Sanchette de Guzman, lady of Batres, a considerable property of the illustrious house of Guzman, where may yet be seen a fountain which has existed for several centuries, and still bears the name of Garcilaso. Ferdinand V. conferred on the father of Garcilaso the name of Vega, in memory of a single combat which the former maintained against one of the most valiant of the Moors on the Vega, or plain of Grenada; and which was celebrated in the Spanish romances and histories of that age. Garcilaso was intended by nature for a rural and solitary life, at least if a judgment may be formed from his poetical productions, which all breathe nothing but love and peace, and manifest extreme gentleness of character. But his birth having called him to the profession of arms, his life was passed in camps, and his career was brilliant and tumultuous. He entered early into the army of Charles V., followed that monarch in the war of the Milanese (1521), and, though still young, distinguished himself by his valour, particularly at the battle of Pavia. In 1523 he served in the Spanish corps, which, having joined the imperial army, distinguished itself by its bravery against the Turks. In acknowledgment of his courage, Charles V. conferred on him, at Vienna, the cross of the order of St James. Garcilaso, by his merit, established himself in the good graces of the emperor; but a gallant adventure for ever deprived him of the favour which his talents and bravery had won. One of his cousins having become enamoured of a lady of the court, who, it seems, had gained the affections of Charles, Garcilaso favoured by all means in his power the passion of his relation, whose intentions were honourable. When the fact became known to the emperor, he sent the cousin into exile, and banished Garcilaso to an island in the Danube. During his detention, which was not of long duration, the latter composed one of his *Canciones,* in which he deplores his misfortune, and at the same time celebrates the charms of the country watered by the divine stream of the Danube (*Danubio rio divino*). In 1535, he served in the expedition which Charles V. undertook against Tunis, whence he brought back nothing but wounds and glory. He then passed some time in Naples and in Sicily, where he indulged in his favourite occupation of poetry. Pouring out maledictions on war, as the bane of nations and the destroyer of human happiness, he pleased himself with creating an imaginary romantic Arcadia, free from all the passions, tumults, and anxieties which distract men in this every-day common-place world; but notwithstanding these benign and peaceful pictures painted by his fancy, he still remained the soldier, and, in addition to his acknowledged courage, evinced considerable military talents. Hence, in 1536, he marched with the imperial army into France, having under his orders thirty companies of Spanish troops. But this was the last campaign of Garcilaso, who, in the disastrous retreat from Marseilles, found a death worthy of his valour. A number of French peasants having occupied a tower, whence they greatly annoyed the imperial army on its retreat, the emperor ordered Garcilaso to carry it by assault. He obeyed, but executing his order with less prudence than valour, he mounted the first to the assault, and was overthrown by a mass of stone, which struck him on the head, and inflicted a mortal wound. He was conveyed in this state to Nice, where, after lingering twenty hours in great agony, he expired in November 1536, being then in the thirty-third year of his age. Arms and letters sincerely deplored his loss; and the emperor himself was so touched, that when the tower had been carried, he caused twenty-eight peasants who remained out of the fifty who formed its garrison to be hanged on the spot where the poet-soldier had fallen. At the age of twenty-eight Garcilaso had married an Aragonese lady, Doña Helena de Zuñiga, by whom he had a son, who, like his father, fell in the flower of his age (1569), in a combat with the Dutch.

Although the military career of Garcilaso is not without glory, yet he owes his reputation to his literary merit, more especially to the reformation he effected in Spanish poetry, and which forms an epoch in the age in which he lived. For several centuries before the birth of Garcilaso, the Spaniards possessed a species of poetry.[1] The first known compositions were romances, produced probably in the mountains of Asturias; and the first people amongst whom a less rude and incorrect kind of poetry appeared, were the Valencians and the Catalans, who wrote in their own particular language. The last of these troubadours was Jago Roig, who died at the commencement of the fifteenth century.[2] In the kingdoms of Leon and Aragon, where the Castillian dialect prevailed, the only poetical compositions at first known were these romances, composed of *redondillas* or *assonantes*,[3] each verse being subjected to a measure consisting of four trochees. Much about the same time appeared the verses of the *Arte Mayor*, composed of twelve syllables, like the following, in which Alfonso the Wise relates that he had learned from a celebrated alchemist how to make the philosopher's stone, by means of which he had been enabled to augment his revenues:

> La piedra que llaman philosophicàl.
> Sabia fazer, e mi la ensennò. .
> Fizimos la juntos, despues solo yò. .
> Con que muchas veces cresciò mi caudàl.

In the same century, that is, about the middle of the thirteenth, a Benedictine named Barceo introduced the verses called Martelliani by the Italians, and Alexandrine by the French:

> Quiero far una prosa en roman paladino
> En el qual suele el pueblo hablar a su vecino.

But this metre has for a long time fallen into almost total disuse, except in Spain. In fact, it was only under the reign of John II. a great protector of letters, who swayed the sceptre from 1401 to 1454, that Spanish poetry assumed a character truly national. This prince collected around him the ablest Valentian troubadours, and the most renowned Castillian poets; and it was then that the learned Marquis of Villenas, John of Mena, the Marquis Mendoza of Santillane, John of the Encina, and others, appeared, and that versification was subjected to some rules, conformably to the precepts laid down in *Arts of Poetry* composed by the two authors last named. But this versification was still very rude, when Dante, Petrarch, and Sannazaro had already made themselves admired in Italy and in all Europe, by the excellence and beauty of their compositions. At length came Boscan and Garcilaso, who, united from their earliest infancy in the closest friendship, and alike sensible of the merit of the three great Italian poets, the perusal of whose works had formed at once their taste and their understanding, resolved to effect a general reform in the bad taste which still prevailed in their own country. Boscan was the first to enter the field. He introduced the sonnet, the *canzoni*, the *stanze*, and the endecasyllabic measure of the Italians; and his efforts were crowned with success. Garcilaso merely followed Boscan, but, on the other hand, he had the talent to surpass him, and approached more nearly to the sweetness and softness of Petrarch, whilst his rival imitated the precision and energy of Dante. All the contemporary poets united in opposing a reform the success of which would infer their condemnation; but although they evoked the shades of their illustrious predecessors, the genius of the two wise innovators triumphed over their cabals. Garcilaso and Boscan obtained the title of Fathers of the Good School; Garcilaso was named the Spanish Petrarch, the Prince of Spanish Poetry; and the desired reform was effected. It was followed by good imitators,[4] till the apparition of Andalous Gongora, who appeared to have undertaken the task of banishing for ever good taste from his country; but, in spite of all his efforts, and those of his partisans, under the reign of Charles V. and the three Philips, his successors, Spain was fertile in good poets; and, in recent times, Iriarte, Cienfuegos, Moratin, Arellano, Quintana, and, above all, Melendez-Valdez, have enabled their countrymen to taste the delights of true poetry. Boscan, who survived Garcilaso six years, collected the works of the latter; but death surprised him before he was enabled to give them to the world. The first known edition is that of Venice, 1553, in 8vo. The celebrated grammarian Sanchez, called in Latin Sanctius, had corrected what he found defective in the oldest edition; but the most esteemed edition is that of Madrid, 1765, in 16to, containing a preface and notes, which prove the anonymous editor to have been an able and enlightened man of letters. It is not by the multitude of his works that Garcilaso has secured immortality, since they are all contained in a small volume; but this volume includes all that is necessary to serve as a model to the best poets of the Spanish nation.

The style peculiar to Garcilaso is the tender and the pathetic, which predominates, in a high degree, in all his compositions. Amongst the sonnets, which are thirty in number, may be particularly distinguished that one which commences,

> O dulces prendas por mi mal halladas;

and also another, not less beautiful, beginning,

> Si quexas y lamentos pueden tanto,

which Sismondi has translated with equal elegance and precision.[5] But the composition which forms the glory of Garcilaso is the first of his three eclogues, which has served as a model to a crowd of imitators, who have not of course succeeded in approaching it. This poem, consisting of about four hundred verses, was written at Naples, where the author seems to have at once imbibed the spirit of Virgil and of Sannazaro. Two shepherds, Salicio and Nemoroso, meet, and, by their plaintive songs, express the grief occasioned to the one by the infidelity,

> Por tì silencio de la selva umbrosa,

and to the other, by the death, of his shepherdess,

> Como al partir del sol la sombra cresce.

In the first, there is a softness, a delicacy, a submission;

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[1] *Coleccion de Poesias Castellanas anteriores al Siglo* xv. by Don Antonio Sanchez, Madrid, 1782, in 4 vols. 8vo. In this collection are contained the poem of the *Cid*, written towards the middle of the eleventh century; that of *Alexander the Great*, which belongs to the twelfth; the pieces of the archpriest of Fita, who lived at the commencement of the thirteenth; and the poems of Barceo, who died in 1268.

[2] *Los Dones de Roig*, Valentia, 1735, in 4to.

[3] The *redondillas* consist of four verses, in which there is an exact and full rhyme, as *razon*, *corazon*, called *consonante*. The *assonante* is the echo of the final vowel, and not of the final consonant of the verse to which it corresponds, as *sano*, *raso*, *claro*, &c. When the romance is composed of redondillas, these change rhymes successively; but when it is composed of assonants, a single vowel predominates throughout the whole romance.

[4] These imitators, in adopting the Italian metres introduced by Boscan and Garcilaso, have nevertheless preserved their *redondillas*, their *assonantes*, and their *octaves*, which had been known in Spain since the fourteenth century.

[5] *Littérature du Midi de l'Europe*, tome iii. p. 270.

in the second a depth of grief; in both a purity of pastoral sentiment, which strike us the more forcibly when we recollect that the writer was a warrior destined to perish a few months afterwards in leading an assault. Each verse charms at once by the truth of an exalted but touching sentiment, by the happy choice of expression, and by a harmony which never fails to satisfy even the most delicate ear. Nevertheless, the song of Nemoroso is still more fascinating than that of his associate, perhaps, because it moves us more gently. The passage where he speaks of the buckle of his mistress's hair,

> Una parte guarde de tu cabellos,

which he carries on his heart, and with which he is resolved never to part, has no model, neither among the ancients nor among the moderns.[1] Garcilaso has also written elegies, of which one was composed at the foot of Mount Ætna; they are to be found in the same volume. Independently of the rare merit of all his compositions, which have placed the author in the first rank amongst the lyric and bucolic poets of his nation, the single eclogue to which we have just referred would of itself be sufficient to ensure him immortality.

This poet must not be confounded with another person of the same name, but surnamed the Inca, a Spanish historian, born at Cuzco in 1530, who wrote, 1. Part First of Royal Commentaries, treating of the origin of the Incas, their laws, and their government, Lisbon, 1609, in folio; 2. Part Second of the Incas, or General History of Peru, Lisbon, 1617, in fol.; 3. History of Florida by the Inca, Lisbon, 1605, in 4to. (A.)

GARD, a department of the south-east of France, formed in part of the ancient province of Nismes, and of Uzes and Alais, formerly portions of Languedoc. It is bounded on the north by the departments of Lozère and Ardêche, on the east by Vaucluse, on the south-east by the Mouths of the Rhone, on the south by the Mediterranean Sea, on the south-west by Herault, and on the west by Aveiron. It extends over 2314 square miles, containing, according to the royal almanack, 599,723 hectares. It is divided into four arrondissements, thirty-eight cantons, 365 communes, and contains 357,383 individuals, of whom about one third profess the Protestant religion. There is great variety in the face of the country. The southern part, which extends to the sea, and was probably once covered by it, is a level plain, with many morasses, lakes, and dykes. The northern parts are higher, and some of them mountainous. The range of the Cevennes Hills passes through these portions, and from them issue the rivers Allier towards the north, the Lot and the Tarn towards the west, the Hérault and the Bedourle towards the south, and the Ardêche and the Gardon towards the east, abundantly watering the valleys on both sides. The soil is generally either calcareous or schistose, resting on a bed of granite, and better adapted for the growth of olives, grapes, and other fruits, than for corn. The climate, especially to the south, is mild; snow rarely falls, and quickly disappears; but, on the other hand, the summers are excessively hot, and the air arid.

Although some good wheat is grown near Nismes, yet it is insufficient for the few who eat it, and the greater part of the inhabitants are fed with rye, oats, and buck-wheat, and during a great part of the year with chestnuts. This latter, amongst the peasantry, furnishes a meal three times a day, either boiled or fried in olive oil; and when a bad year for them happens, the sufferings of the poor are excessive. The chief products of the department are wine, brandy, and oil; but large quantities of silk are made in some districts. The yearly production at present is calculated to be 150,000 pounds of raw silk; before the Revolution it was 350,000 pounds. The horses and cows have no distinguishing properties, but the sheep are an excellent race, producing good wool, milk that is made into cheese, and very savoury meat. The manufacturing industry is not considerable, consisting of the fabrication of cloth, silks, hats, glass, earthenware, and perfumery.

The trade of the department is confined to the export of wine, brandy, raisins, chestnuts, capers, liquorice, coal, salt, and wool.

GARDA, a beautiful lake in the Austrian dominions in Italy, called by the ancients Benacus. It is situated at the foot of the Tyrolean Alps, and formed by numerous rivulets, chiefly issuing out of the province of Styria. It forms a river at Peschiera, then called by the name of the Mincio. It is about thirty-five miles in length, varying in its breadth, but nowhere more than fourteen miles across. In the centre it is said to be three hundred feet deep. A small town of the same name is situated on the eastern side of the lake, which, in the ancient civil wars, was a port of some importance. On the banks of this lake Bonaparte defeated the Austrians commanded by Wurmser in 1796.

GARDANT, or GUARDANT, in *Heraldry*, denotes any beast full faced, and looking right forward.

GARDELEGEN, a city of the Prussian province of Saxony, the capital of a circle of the same name. It is situated on the river Milde, is surrounded with walls, and contains 540 houses, with 4650 inhabitants, who carry on linen, woollen, and cotton manufactures, as well as breweries and distilleries. Long. 14. 15. E. Lat. 52. 32. N.

GARDEN, FRANCIS, better known as one of the Lords of Session in Scotland, under the title of Lord Gardenstone, was born at Edinburgh on the 24th of June, in the year 1721. His father was Alexander Garden of Troup, an opulent landholder in Aberdeenshire; and his mother Jane, daughter of Sir Francis Grant of Cullen. After passing through the usual course of liberal education at the school and the university, he betook himself to the study of law; and in the year 1744 was admitted a member of the Faculty of Advocates.

In his practice as advocate he soon began to be distinguished by a native rectitude of understanding; by that vivacity of apprehension and imagination which is commonly denominated genius; by manly candour in argument, often more persuasive than subtilty and sophistical artifice; and by powers which, with diligence, might easily have conducted him to the highest eminence in the profession. But the same strength, openness, and ardour of mind, which distinguished him so advantageously at the bar, tended to give him a fondness for the gay enjoyments of convivial intercourse, which was unfavourable to his progress in juridical erudition. Shining in the social and convivial circle, he became less ambitious than he might otherwise have been, of the character of an eloquent advocate, or of a profound and learned lawyer. The vivacity of his genius was averse from austere and plodding study, whilst it was captivated by the fascinations of polite learning and of the fine arts. He, however, became, in 1764, his majesty's solicitor-general for Scotland; and he was afterwards elevated to the bench, as a judge both in the Courts of Session and Justiciary.

In the year 1762 he purchased the estate of Johnston, in the county of Kincardine; and a few years afterwards he began to attempt a plan of the most liberal improvement of the value of this estate, by an extension of the village of Laurencekirk, adjoining. In the year 1779, he procured it to be erected into a burgh of barony, with a magistracy, an annual fair, and a weekly market. He provided in it a good inn for the reception of travellers, and furnished this inn with a library for their amusement. In the year 1785, upon the death of his elder brother, Lord Gardenstone succeeded to the possession of the family estates, which were considerable. His succession to an ample income, at a period when the vigour of his constitution was rapidly yielding to the infirmities of old age, enabled him to seek relief from his official duties, by a temporary residence on the Continent. In the month of September 1786, he set out from London for Dover, and passed over into France. After visiting Paris, he proceeded to Provence, and spent the winter months in the genial climate of Hiéres. In the spring of 1787 he returned northwards, visiting Geneva, Switzerland, the Netherlands, and the Dutch provinces, and passing through Germany into Italy. After an absence of about three years, he returned to his native country. His last years were spent in the discharge of the duties of his office as a judge; in social intercourse with his friends; in cherishing those fine arts, of which he was an eminent judge; and in promoting the comfort, and encouraging the industry of his dependents. St Bernard's Well, in the neighbourhood of Edinburgh, had long been distinguished for the medicinal virtues of its waters. But various circumstances had concurred to throw it into neglect. The qualities of this mineral water falling under Lord Gardenstone's notice, he was induced to purchase the property of the well; to direct it to be cleared from surrounding obstacles, which contaminated the virtues of the water, or made it inaccessible; to erect a beautiful and commodious edifice over it; and to appoint proper persons to distribute the water for a very trivial compensation to the public. As an amusement during the last two or three years of his life, when his increasing infirmities precluded him from more active exercise, and from mingling so frequently in the society of his friends as was agreeable to his social and convivial temper, he bethought himself of revising some of the *jeux d'esprit*, and light fugitive pieces, in which he had indulged the gaiety of his fancy in his earlier days; and a small volume of poems was published, in which the best pieces are, upon good authority, ascribed to Lord Gardenstone. He revised also the memoranda which he had made upon his travels, and permitted them to be sent to press. Two volumes were published, one after another, whilst his lordship was yet alive; the third appeared after his death. They met with a very favourable reception in the world, and were honoured with the high approbation of the most respectable writers of periodical criticism. His lordship's health had been long declining, and he died a bachelor, on the 22d of July 1793, lamented by his friends, and by all to whom his merits and virtues were known.

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[1] Since the eclogues of John of the Encina, pastoral poetry had not made any progress in Spain. Garcilaso imitated the eclogues of Virgil and of Sannazaro, and in this imitation established the character of romantic poetry with the correctness of the ancients, so that his eclogues, one of which is a masterpiece, greatly surpass all the Italian pieces of the same description, if we except the *Arcadia* of Sannazaro. (*Littérature Espagnole*, tome i. p. 251.)

Garden, a piece of ground properly laid out for ornamental effect, or for the careful cultivation of fruits, flowers, and vegetable productions.

GARDENING,

The art of forming and cultivating garden grounds, whether of the Ornamental or Culinary kinds. The former, or Ornamental, commonly called Landscape Gardening, will be the subject of this article; the latter, or Culinary Gardening, will be treated of under the head of Horticulture.

I.—HISTORY OF GARDENING.

Gardening, as Mr Walpole observes,[1] was probably one of the first arts which succeeded to that of building houses, and naturally attended property and individual possession. Culinary, and afterwards medicinal herbs, were the objects of every head of a family; and it became convenient to have them within reach, without seeking them at random in woods, in meadows, or on mountains, as often as they were wanted. When the earth ceased to furnish spontaneously all those primitive luxuries, and cultivation became requisite, separate enclosures for rearing herbs were required. Fruits were in the same predicament; and those most in use, or which demand attention, must have entered into and extended the domestic enclosure. Noah, we are informed, planted a vineyard, and drank of the wine. Thus men acquired kitchen gardens, orchards, and vineyards. A cottage, and a slip of ground for a cabbage and a gooseberry bush, such as we see by the side of a common, were in all probability the earliest seats and gardens; a well and bucket succeeded to the Pison and Euphrates of Paradise. As settlements increased, the orchard and the vineyard followed; and the earliest princes of tribes possessed what are now only accounted the necessaries of a modern farmer. Matters, we may well believe, remained long in this situation; and we have reason to think that for many centuries the term *garden* implied no more than a kitchen-garden or orchard.

The garden of Alcinous, in the Odyssey, is the most renowned in the heroic times. Is there an admirer of Homer who can read his description of it without rapture, or who does not form to his imagination a scene of delights more picturesque than the landscapes of Tinian or Juan Fernandez? Yet what was that boasted Paradise with which

> the gods ordain'd
> To grace Alcinous and his happy land?

Why, divested of harmonious Greek and bewitching poetry, it was but a small orchard and vineyard, with some beds of herbs, and two fountains that watered them, enclosed within a quickset hedge. The whole compass of the celebrated garden enclosed only four acres of ground.

The garden of Alcinous was planted by the poet, and enriched by him with the gift of eternal summer, and was no doubt an effort of imagination surpassing any thing he had ever seen. As he has bestowed on the same happy prince a palace with brazen walls and columns of silver, he certainly intended that the garden should be proportionally magnificent. We are sure, therefore, that, as late as Homer's age, an enclosure of four acres, comprehending orchard, vineyard, and kitchen garden, was a stretch of luxury which the world at that time had never beheld.

Previously to this, however, we have in the sacred writings hints of a garden still more luxuriously furnished. We allude to the Song of Solomon, part of the scene of which is undoubtedly laid in a garden.[2] Flowers and fruits are particularly spoken of as the ornaments and the produce of it; and besides these, aromatic vegetables formed a considerable part of the gratification it afforded. The camphor and the cinnamon tree, with all trees of frankincense, and all the principal spices, flourished there.[1] Solomon tells us in another place,[2] that he made him great works, namely, gardens and orchards, and planted in them trees of every kind. Indeed we must suppose his gardens to have been both amply and curiously furnished, seeing that the kinds and properties of the vegetable tribes seem to have been a favourite study with the royal philosopher, and to have been deemed a subject worthy of his pen; for we are told that he wrote of plants, from the cedar of Lebanon down to the hyssop of the wall.[3] Fountains and streams of water appear also to have had a share in the composition.

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[1] *History of Modern Gardening*, subjoined to the fourth volume of his *Anecdotes of Painting*.

[2] Chap. ii. 1.

The hanging gardens of Babylon formed a still greater prodigy. But as they are supposed to have been formed on terraces and the walls of the palace, whither soil had been conveyed on purpose, Mr Walpole concludes that they were what sumptuous gardens have been in all ages until the present, unnatural, enriched by art, possibly with fountains, statues, balustrades, and summer-houses, and any thing but verdant and rural. Others, however, have allowed them greater praise; and they seem, in many respects, to have been laid out with good taste. Their elevation not only produced a variety and extent of view, but was also useful in moderating the heat. Such a situation would likewise suit a greater variety of trees and plants than a plain surface, and would contain a larger as well as a more diversified extent. The suiting of the situation to the nature of the tree seems, from the account given by Josephus, to have been one view[4] in erecting the building in such a manner; and the success seems to have been answerable, as the trees are said to have flourished extremely well,[5] and to have grown as tall as in their native situations. On the whole, then, however different these may appear from modern gardens, they seem to have been formed with judgment and taste, and well adapted to the situation and circumstances in which they were placed.

It seems probable, from several circumstances, that the eastern gardens were adjoining to the house or palace to which they belonged. Thus, King Ahasuerus goes immediately from the banquet of wine to walk in the garden of the palace.[6] The garden of Cyrus at Sardis, mentioned by Xenophon,[7] was probably contiguous to the palace; as was that of Attalus, mentioned by Justin.[8] But the hanging gardens at Babylon were not so much adjacent to the palace, as part of the palace itself, since several of the royal apartments were beneath them.[9]

It is not clear what the taste for gardening was amongst the Greeks. The Academus, we know, was a wooded shady place; and the trees appear to have been of the olive species. It was situated beyond the limits of the walls, and adjacent to the tombs of the heroes; and though we are nowhere informed of the particular manner in which this grove was disposed or laid out, it may be gathered from Pausanias, in his Attica, that it was an elegant ornamented place. At the entrance was an altar dedicated to Love, which was said to have been the first erected to that deity. Within the Academus were the altars of Prometheus, of the Muses, of Mercury, of Minerva, and Hercules; and at a small distance was the tomb of Plato. So that in all probability it was highly adapted by art, as well as nature, to philosophic reflection and contemplation. We are told by Plutarch, that before the time of Cimon, the Academus was a rude uncultivated spot, which was planted by that general, who had water conveyed to it; but whether this water was brought merely for use to refresh the trees, or for ornament, does not appear. It was divided into gymnasia, or places of exercise, and philosophic walks shaded with trees; and these are said to have flourished very well, until destroyed by Sylla when he besieged Athens. Near the academy were the gardens of the philosophers, of Plato and of Epicurus; which, however, were probably but small. The scene of Plato's Dialogue concerning Beauty is elegantly described as being on the banks of the Ilissus, and under the shade of the plantain; but no artificial arrangement of objects is mentioned, nor any thing which can lead us to imagine the prospect to have been any other than merely natural.

Amongst the Romans, a taste for gardening, any otherwise than as a matter of utility, seems not to have prevailed till a very late period; at least the writers on husbandry, Cato, Varro, Columella, and Palladius, make not the least mention of a garden as an object of pleasure, but solely with respect to its productions of herbs and fruits. The gardens of Lucullus are the first we find mentioned of remarkable magnificence, though probably, from the extravagance to which these had arrived, they were not the first of the kind. Plutarch speaks of them as incredibly expensive, and equal to the magnificence of kings. They consisted of artificial elevations of ground to a surprising height, buildings projecting into the sea, and vast pieces of water made upon land. In short, his extravagance and expense were so great that he thence acquired the appellation of the Roman Xerxes. It is not improbable, from this account, and from the consideration that Lucullus had spent much time in Asia, in a situation in which he had an opportunity of observing the most splendid constructions of this kind, that these gardens were laid out in the Asiatic style. The vast masses of building said to have been erected might have borne some resemblance, in the arrangement and style, to the Babylonian gardens; and the epithet of the Roman Xerxes might be applicable to the taste as well as to the magnitude and expensive nature of his works.

The Tusculan villa of Cicero, though often mentioned, is not anywhere described in his works, so as to give an adequate idea of the style in which his gardens or grounds were disposed. And there is but little in Virgil relative to this subject. Pines,[10] it seems, were a favourite ornament in gardens; and flowers,[11] especially roses, were much esteemed, perfumes indeed having been always highly valued in warm climates. Virgil places Anchises in Elysium in a grove of bays, and is careful to remark that they were of the sweet-scented kind. The Pæstan roses were chiefly valued for their excellent odour; and on account of this quality they were placed by Tibullus as ornaments in the Elysian fields. There appears also to have prevailed amongst the Romans a piece of luxury relative to gardens, which is equally prevalent amongst us, namely, the forcing of flowers at seasons of the year not suited to their natural blowing.

When Roman authors, whose climate instilled a wish for cool retreats, speak of their enjoyments of this kind, they sigh for grottoes, caves, and the refreshing hollows of mountains, near irriguous and shady fountains; or boast of their porticoes, walks of planes, canals, baths, and breezes from the sea. Their gardens are almost never mentioned except as affording shade and shelter from the rage of the dog-star. Pliny has left us descriptions of two of his villas. As he used his Laurentine villa as his winter retreat, it is not surprising that the garden should form no considerable part of the account. All he says of it is, that the *gestatio*, or place of exercise, which surrounded the garden, was bounded by a hedge of box, and, where that had perished, with rosemary; that there was a walk of vines; and that most of the trees were fig and mulberry, the soil not being proper for any other sorts. On the subject of his Tuscan villa he is more diffuse; and the garden forms a considerable part of the description. And what constituted the principal beauty of that pleasure-ground? Exactly what was the admiration of this country above a century ago; namely, box-trees cut into monsters, animals, letters, and the names of the master and the artificer. In an age when architecture displayed all its grandeur, all its purity, and all its taste; when there arose Vespasian's amphitheatre, the Temple of Peace, Trajan's forum, Domitian's baths, and Hadrian's villa, the ruins and vestiges of which still excite our astonishment and curiosity; a Roman consul, a polished emperor's friend, and a man of elegant literature and taste, delighted in what the mob now scarcely admire in a college garden. All the ingredients of Pliny's corresponded exactly with those laid out in this country on Dutch principles. He talks of slopes, terraces, a wilderness, shrubs methodically trimmed, a marble basin, pipes spouting water, a cascade falling into the basin, bay-trees planted alternately with planes, and a straight walk whence issued others parted off by hedges of box and apple trees, with obelisks placed between every two. There wants nothing but the embroidery of a parterre, to make a garden in the time of Trajan serve for a description of one in that of King William. In one passage indeed Pliny seems to have conceived that natural irregularity might be a beauty; *in opere urbanissimo*, says he, *subita velut illati ruris imitatio.* Something like a rural view was contrived amidst so much polished composition. But the idea soon vanished, lineal walks immediately enveloped the slight scene, and names and inscriptions in box again succeeded to compensate for the daring introduction of nature.

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[1] Cant. iv. 12.
[2] Eccl. ii. 4, 5.
[3] 1 Kings, iv. 33.
[4] *Contra Apion*, lib. i. § 19.
[5] Q. Curtius, lib. v.
[6] Esther, vii. 7.
[7] *Œcon.*
[8] Lib. xxxvi. c. 4.
[9] Diod. lib. ii.
[10] *Eclog.* vii. 65, &c.
[11] *Georg.* iv. 113.

In the paintings found at Herculaneum there are a few traces of gardens, as may be seen in the second volume of the prints. They are all small enclosures, formed by trellis-work and espaliers, and regularly ornamented with vases, fountains, and caryatides, elegantly symmetrical, and proper for the narrow spaces allotted to the garden of a house in a capital city.

From what has been said, it appears how naturally and insensibly the idea of a kitchen-garden slid into that which has for so many ages been peculiarly termed a *garden*, and by our ancestors in this country distinguished by the name of a *pleasure-garden*. A square piece of ground was originally parted off for the use of the family; and to exclude cattle, and ascertain the property, it was separated from the fields by a hedge. As pride and the desire of privacy increased, the enclosure was dignified by walls; and in climates where fruits were not lavished by the ripening glow of nature and soil, fruit-trees were assisted and sheltered from surrounding winds by the like expedient; for the inundation of luxuries, which have swelled into general necessities, have almost all taken their source from the simple fountain of reason.

When the custom of making square gardens enclosed with walls was thus established, to the exclusion of nature and prospect, pomp and solitude combined to call for something which might serve to enrich and enliven the insipid and unanimated partition. Fountains, first invented for use, received embellishments from costly marbles; and at last, to contradict utility, tossed their waste of waters into the air in spouting columns. Art, in the hands of rude man, had at first been made a succedaneum to nature; in the hands of ostentatious wealth, it became the means of opposing nature; and the more it traversed the march of the latter, the more nobility thought its power was demonstrated. Canals measured by the line were introduced instead of meandering streams, and terraces were hoisted aloft in opposition to the facile slopes which imperceptibly unite the valley to the hill. Balustrades defended those precipitate and dangerous elevations, and flights of steps reunited them to the subjacent flat from which the terrace had been raised. Vases and sculpture were added to these unnecessary balconies, and statues furnished the lifeless spot with mimic representations of the excluded sons of men. Thus difficulty and expense were the constituent parts of those sumptuous and selfish solitudes; and every improvement which was made seemed but a step farther from nature. The tricks of water-works to wet the unwary, not to refresh the panting spectator; and parterres embroidered in patterns like a petticoat; were but the childish endeavours of fashion and novelty to reconcile greatness to what it had surfeited on. To crown these impotent displays of false taste, the sheers were applied to the lovely wildness of form with which nature has distinguished each various species of tree and shrub. The venerable oak, the romantic beech, the useful elm, even the aspiring circuit of the lime, the regular round of the chestnut, and the almost moulded orange-tree, were corrected by fantastic and tasteless admirers of symmetry. The compass and square were of more use in plantations than the nurseryman. The measured walk, the quincunx, and the étoile, imposed their unsatisfying sameness on every royal and noble garden. Trees were headed, and their sides pared away; and many French groves seemed green chests set upon poles. Seats of marble, arbours, and summer-houses, terminated every vista; and symmetry, even where the space was too large to permit its being remarked at one view, was so essential, that, as Pope observed,

> each alley has a brother,
> And half the garden just reflects the other.

Knots of flowers were more defensibly subjected to the same regularity. Leisure "in trim gardens took his pleasure." In the garden of Marshal de Biron at Paris, consisting of fourteen acres, every walk was buttoned on each side by lines of flower-pots.

It does not precisely appear what our ancestors meant by a bower; it was probably an arbour; sometimes it meant the whole frittered enclosure, and in one instance it certainly included a labyrinth. Rosamond's bower was indisputably of that kind; though, whether composed of walls or hedges, cannot be determined. A square and a round labyrinth were formerly so capital ingredients of a garden, that in the architecture of Du Cerceau, who lived in the time of Charles IX. and Henry III., there is scarcely a ground plot without one of each. In Kip's *Views of the Seats of our Nobility and Gentry*, we see the same tiresome and returning uniformity. Every house is approached by two or three gardens, consisting perhaps of a gravel walk and two grass plats or borders of flowers. Each rises above the other by two or three steps, and as many walls and terraces, with so many iron gates, that we recollect those ancient romances in which every entrance was guarded by nymphs or dragons. Yet though these and such like preposterous inconveniences prevailed from age to age, good sense in this country had perceived the want of something at once more grand and more natural. These reflections, and the bounds set to the waste made by royal spoilers, gave origin to parks. The latter were contracted forests and extended gardens. Hentzner says, that according to Rous of Warwick, the first park was that at Woodstock. If so, it might be the foundation of a legend that Henry II. secured his mistress in a labyrinth; it was no doubt more difficult to find her in a park than in a palace, where the intricacy of the woods and various lodges buried in covert might conceal her actual habitation.

It is more extraordinary, that having so long ago stumbled on the principle of modern gardening, we should have persisted in retaining its reverse, symmetrical and unnatural gardens. That parks were rare in other countries, Hentzner, who travelled over a great part of Europe, leads us to suppose, by observing that they were common in England. In France they retained the name, but nothing was more different both in compass and disposition. Their parks were usually square or oblong enclosures, regularly planted with walks of chestnuts or limes, and generally every large town has one for its public recreation. "One man, one great man, we had," says Mr Walpole, "on whom nor education nor custom could impose their prejudices; who, 'on evil days though fallen, and with darkness and solitude compassed round,' judged that the mistaken and fantastical ornaments he had seen in gardens were unworthy of the Almighty hand that planted the delights of Paradise. He seems with the prophetic eye of taste to have conceived, nay to have foreseen, modern gardening; as Lord Bacon announced the discoveries since made by experimental philosophy. The description of Eden is a warmer and more just picture of the present style than Claud Lorraine could have painted from Hagley or Stourhead." Mr Walpole then quotes passages illustrative of this observation; and adds, "Recollect, that the author of this sublime vision had never seen a glimpse of any thing like what he has imagined; that his favourite ancients had dropped not a hint of such divine scenery; and that the conceits in Italian gardens were the brightest originals that his memory could furnish. But his intellectual eye saw a nobler plan, so little did he suffer by the loss of sight. It sufficed him to have seen the materials with which he could work. The vigour of a boundless imagination told him how a plan might be disposed that would embellish nature, and restore art to its proper office, the just improvement or imitation of it."

Let us now turn to an admired writer, posterior to Milton, and see how cold, how insipid, how tasteless, is his account of what he pronounced a perfect garden. We speak not of his style, which it was not necessary for him to animate with the colouring and glow of poetry. It is his want of ideas, of imagination, and of taste, that deserves censure, when he dictated on a subject which is capable of all the graces which a knowledge of beautiful nature can bestow. Sir William Temple was an excellent man; Milton, a genius of the first order. We cannot wonder that Sir William should declare in favour of parterres, fountains, and statues, as necessary to break the sameness of large grass plats, which he thinks have an ill effect upon the eye, when he acknowledges that he discovers fancy in the gardens of Alcinous. Milton studied the ancients with equal enthusiasm, but no bigotry; and he had the judgment to distinguish between the want of invention and the beauties of poetry. Compare his paradise with Homer's garden, both ascribed to a celestial design. For Sir William, it is just to observe that his ideas centred in a fruit garden. He had the honour of giving to his country many delicate fruits, and he thought of little else than disposing them to the best advantage.

"The best figure of a garden," says he, "is either a square or an oblong, and either upon a flat or a descent; they have all their beauties, but the best I esteem an oblong upon a descent. The beauty, the air, the view, make amends for the expense, which is very great in finishing and supporting the terrace walks, in levelling the parterres, and in the stone stairs that are necessary from one to the other. The perfectest figure of a garden I ever saw, either at home or abroad, was that of Moor Park in Hertfordshire, when I knew it about thirty years ago. It was made by the Countess of Bedford, esteemed amongst the greatest wits of her time, and celebrated by Dr Donne; and with very great care, excellent contrivance, and much cost; but greater sums may be thrown away without effect or honour, if there want sense in proportion to money, or if nature be not followed, which I take to be the great rule in this, and perhaps in every thing else, as far as the conduct not only of our lives but our governments. (We shall presently see how natural this admired garden was.) Because I take the garden I have named to have been in all kinds the most beautiful and perfect, at least in the figure and disposition, that I have ever seen, I will describe it for a model to those that meet with such a situation, and are above the regards of common expense. It lies on the side of a hill, upon which the house stands, but not very steep. The length of the house, where the best rooms and of most use or pleasure are, lies upon the breadth of the garden; the great parlour opens into the middle of a terrace gravel walk that lies even with it, and which may be, as I remember, about three hundred paces long, and broad in proportion; the border set with standard laurels and at large distances, which have the beauty of orange-trees out of flower and fruit. From this walk are three descents by many stone steps, in the middle and at each end, into a very large parterre. This is divided into quarters by gravel walks, and adorned with two fountains and eight statues in the several quarters. At the end of the terrace walk are two summer-houses, and the sides of the parterre are ranged with two large cloisters open to the garden, upon arches of stone, and ending with two other summer-houses even with the cloisters, which are paved with stone, and designed for walks of shade, there being none other in the whole parterre. Over these two cloisters are two terraces covered with lead and fenced with balusters; and the passage into these airy walks is out of the two summer-houses at the end of the first terrace walk. The cloister facing the south is covered with vines, and would have been proper for an orange-house, and the other for myrtles or other more common greens, and had, I doubt not, been cast for that purpose, if this piece of gardening had been then in as much vogue as it is now. From the middle of this parterre is a descent by many steps flying on each side of a grotto, that lies between them, covered with lead and flat, into the lower garden, which is all fruit-trees ranged about the several quarters of a wilderness, which is very shady; the walks here are all green, the grotto embellished with figures of shell rock-work, fountains, and water-works. If the hill had not ended with the lower garden, and the wall were not bounded by a common way that goes through the park, they might have added a third quarter of all greens; but this want is supplied by a garden on the other side the house, which is all of that sort, very wild, shady, and adorned with rough rock-work and fountains. This was Moor Park when I was acquainted with it, and the sweetest place, I think, that I have seen in my life, either before or since, at home or abroad."

It is unnecessary to add any remarks respecting this description. Any man might design and build as sweet a garden, who had been born in and never stirred out of Holborn. It was not, however, peculiar to Sir William Temple to think in this manner. How many Frenchmen are there who have seen our gardens, and still prefer unnatural flights of steps and shady cloisters covered with lead? Le Nautre, the architect of the groves and grottoes at Versailles, came hither on a mission to improve our taste, and planted St James' and Greenwich Parks; no great monuments, by the way, of his invention.

But, to do justice to Sir William Temple, we must not omit what he adds, "What I have said of the best forms of gardens is meant only of such as are in some sort regular; for there may be other forms wholly irregular, that may, for ought I know, have more beauty than any of the others; but they must owe it to some extraordinary dispositions of nature in the seat, or some great race of fancy or judgment in the contrivance, which may reduce many dis-agreeing parts into some figure, which shall yet, upon the whole, be very agreeable. Something of this I have seen in some places, but heard more of it from others who have lived much among the Chineses, a people whose way of thinking seems to lie as wide of ours in Europe as their country does. Their greatest reach of imagination is employed in contriving figures, where the beauty shall be great and strike the eye, but without any order or disposition of parts, that shall be commonly or easily observed. And though we have hardly any notion of this sort of beauty, yet they have a particular word to express it; and when they find it hit their eye at first sight, they say the Sharawadgi is fine or is admirable, or any such expression of esteem; but I should hardly advise any of these attempts in the figure of gardens among us; they are adventures of too hard achievement for any common hands; and though there may be more honour if they succeed well, yet there is more dishonour if they fail, and it is twenty to one they will; whereas in regular figures it is hard to make any great and remarkable faults."

Fortunately Kent and a few others were not quite so timid, or we might still be going up and down stairs in the open air. It is true, we have heard much, as Sir William Temple did, of irregularity and imitations of nature in the gardens or grounds of the Chinese. The former is certainly true; they are as whimsically irregular as European gardens were formally uniform and unvaried; but with regard to nature, it seems as much avoided as in the squares and oblongs and straight lines of our ancestors. An artificial perpendicular rock starting out of a flat plain, and connected with nothing, often pierced through in various places with oval hollows, has no more pretension to be deemed natural than a lineal terrace or a parterre. Mr Joseph Spence was so persuaded of the Chinese emperor's pleasure-ground being laid out on principles resembling ours, that he translated and published, under the name of Sir Harry Beaumont, a particular account of that enclosure, from the collection of the letters of the Jesuits. But except a determined irregularity, we can find nothing in it which gives any idea of attention being paid to nature. In short, this pretty gaudy style is the work of caprice and whim, and, when we reflect on the buildings, presents no image but that of unsubstantial tawdriness.

Having thus cleared our way by ascertaining what have been the ideas on gardening in all ages as far as we have materials to judge by, it remains to show to what degree Mr Kent invented the new style, and what hints he had received to suggest and conduct his undertaking. We have seen what Moor Park was when pronounced a standard. But as no succeeding generation in an opulent and luxurious country contents itself with the perfection established by its ancestors, more perfect perfection was still sought after; and improvements had gone on, till London and Wise stocked all our gardens with giants, animals, monsters, coats of arms, and mottoes, in yew, box, and holly. Absurdity could go no farther, and the tide turned. Bridgman, the next fashionable designer of gardens, was far more chaste; and, whether from good sense, or that the nation had been struck and reformed by an admirable paper in the Guardian (No. 173), he banished verdant sculpture, and did not even revert to the square precision of the foregoing age. He enlarged his plans, disdained to make every division tally to its opposite; and though he still adhered much to straight walks with high clipped hedges, they were only his great lines; the rest he diversified by wilderness, and with loose groves of oak, though still within surrounding hedges. As his reformation gained footing, he ventured, in the royal garden at Richmond, to introduce cultivated fields, and even morsels of a forest appearance, by the sides of those endless and tiresome walks which stretched out of one into another without intermission. But this was not until other innovators had also broken loose from rigid symmetry.

The capital stroke, however, the leading step to all that has followed, was the destruction of walls for boundaries, and the invention of fosses. A sunk fence may be called the *leading step.* No sooner was this simple enchantment made, than levelling, mowing, and rolling, followed. The contiguous ground of the park without the sunk fence was to be harmonized with the lawn within; and the garden in its turn was to be set free from its prime regularity, that it might assort with the wilder country without. The sunk fence ascertained the specific garden; but that it might not draw too obvious a line of distinction between the neat and the rude, the contiguous out-lying parts came to be included in a kind of general design; and when nature was taken into the plan, every step that was made pointed out new beauties and inspired new ideas. At that moment appeared Kent, painter enough to taste the charms of landscape, bold and opinionative enough to dare and to dictate, and born with a genius to strike out a great system from the twilight of imperfect essays. He leaped the fence, and saw that all nature was a garden. He felt the delicious contrast of hill and valley changing imperceptibly into each other, tasted the beauty of the gentle swell or concave scoop, and remarked how loose groves crowned an easy eminence with happy ornament, and, whilst they called in the distant view between their graceful stems, removed and extended the perspective by delusive comparison. Thus the pencil of his imagination bestowed all the arts of landscape on the scenes he handled. The great principles upon which he worked were perspective, and light and shade. Groups of trees broke too uniform or too extensive a lawn; evergreens and woods were opposed to the glare of the champaign; and where the view was less fortunate, or so much exposed as to be beheld at once, he blotted out some parts by thick shades, to divide it into variety, or to make the richest scene more enchanting by reserving it to a farther advance of the spectator's step. Thus selecting favourite objects, and veiling deformities by screens of plantation, and by sometimes allowing the rudest waste to add its foil to the richest theatre, he realized the compositions of the greatest masters in painting. Where objects were wanting to animate his horizon, his taste as an architect could bestow immediate termination. His buildings, his seats, his temples, were more the works of his pencil than of his compasses.

But of all the beauties which Kent added to the face of this beautiful country, none surpassed his management of water. Adieu now to canals, circular basins, and cascades tumbling down marble steps, that last absurd magnificence of Italian and French villas. The forced elevation of cataracts was no more. The gentle stream was taught to wind seemingly at its pleasure; and where discontinued by different levels, its course appeared to be concealed by thickets properly interspersed, and glittered again at a distance, where it might be supposed naturally to arrive. Its borders were smoothed, but preserved their waving irregularity. A few trees scattered here and there on its edges sprinkled the tame bank which accompanied its meanders; and when it disappeared among the hills, shades descending from the heights leaned towards its progress, and framed the distant point of light under which it was lost, as it turned aside to either hand of the blue horizon. Thus dealing in none but the colours of nature, and catching its most favourable features, men saw a new creation opening before their eyes. The living landscape was chastened or polished, not transformed. Freedom was given to the forms of trees; they extended their branches unrestricted; and where any eminent oak, or master beech, had escaped maiming and survived the forest, bush and bramble were removed, and all its honours were restored to distinguish and shade the plain. Where the united plumage of an ancient wood extended wide its undulating canopy, and stood venerable in its darkness, Kent thinned the foremost ranks, and left only as many detached and scattered trees as softened the approach of gloom, and blended a chequered light with the thus lengthened shadows of the remaining columns.

Succeeding artists have added new master-strokes to these touches, perhaps improved or brought to perfection some which have been named. The introduction of foreign trees and plants, which we owe principally to Archibald duke of Argyll, contributed essentially to the richness of colouring so peculiar to our modern landscape. The mixture of various greens, and the contrast of forms between our forest-trees and the northern and West Indian firs and pines, are improvements more recent than Kent, or but little known to him. The weeping willow, and every florid shrub, each tree of delicate or bold leaf, are new tints in the composition of our gardens. But just as are the encomiums which have been bestowed on Kent's discoveries, he was neither without assistance nor without faults. Mr Pope undoubtedly contributed to form his taste.[1] The design of the Prince of Wales' garden at Carlton House was evidently borrowed from the poet's at Twickenham. There was a little of affected modesty in the latter, when he said, that of all his works he was most proud of his garden. And yet it was a singular effort of art and taste to impress so much variety and scenery on a spot of five acres. The passing through the gloom from the grotto to the opening day, the retiring and again assembling shades, the dusky groves, the larger lawn, and the solemnity of the termination at the cypresses leading up to his mother's tomb, were managed with exquisite judgment; and though Lord Peterborough assisted him "to form his quincunx and to rank his vines," these were not the most pleasing ingredients of his little perspective.

Having routed professed art, Kent, like some reformers, knew not how to stop at the just limits. He had followed nature, and imitated her so happily, that he began to think all her works were equally proper for imitation. In Kensington Garden he planted dead trees, to give a greater air of truth to the scene; but he was soon laughed out of this excess. His ruling principle was, that nature abhors a straight line; and his imitators seemed to think that she could love nothing but what was crooked. Yet so many men of taste of all ranks devoted themselves to the new improvements, that it is surprising how much beauty was struck out, with so few absurdities. Still in some lights the reformation seems to have been pushed too far. Though an avenue crossing a park or separating a lawn, and intercepting views from the seat to which it leads, are capital faults; yet a great avenue cut through woods, perhaps before entering a park, has a noble air, and announces the habitation of some man of distinction. In other places, the total banishment of all particular neatness immediately about a house, which is frequently left gazing by itself in the middle of a park, is a defect. Sheltered and even close walks, in so very uncertain a climate as ours, are comforts ill exchanged for the few picturesque days which we enjoy; and whenever a family can purloin a warm and even something of an old-fashioned garden from the landscape designed for them by the undertaker in fashion, without interfering with the picture, they will find satisfaction in those days which do not invite strangers to come and see their improvements.

II.—PRINCIPLES OF GARDENING.

Gardening, in the perfection to which it has at length been brought in Britain, is entitled to a considerable rank amongst the liberal arts. It is, according to Wheatley, as superior to landscape painting as a reality to a representation; it is an exertion of fancy, a subject for taste, and being released from the restraints of regularity, and enlarged beyond the purposes of domestic convenience, the most beautiful, the most simple, the most noble scenes of nature, are all within its province. For it is no longer confined to the spots from which it takes its name; but, as already observed, it regulates also the disposition and embellishment of a park, a farm, or even a forest. The business of a gardener is to select and apply whatever is great, elegant, or characteristic in any of them; to discover and to show all the advantages of the place upon which he is employed; to supply its defects, to correct its faults, and to improve its beauties.

SECT. I.—MATERIALS OF GARDENING.

These may be divided into two general classes; *Natural* and *Factitious*.

I. The Natural Materials are, according to Wheatley's enumeration, Ground, Wood, Water, and Rocks.

1. *Ground.* By this is meant that portion of naked surface which is included within the place to be improved; whether that surface be swamp, lawn, roughet, or broken ground; and whether it be a height, a valley, a plain, or a composition of swells, dips, and levels. "Nothing," says Mr Gilpin, "gives so just an idea of the beautiful swellings of ground as those of water, where it has sufficient room to undulate and expand. In ground which is composed of very refractory materials, you are presented often with harsh lines, angular insertions, and disagreeable abruptnesses. In water, whether in gentle or in agitated motion, all is easy, all is softened into itself; and the hills and valleys play into each other in a variety of the most beautiful forms. In agitated water, abruptnesses indeed there are, but yet they are such abruptnesses as in some part or other unite properly with the surface around them, and are on the whole peculiarly harmonious. Now, if the ocean in any of these swellings and agitations could be arrested and fixed, it would produce that pleasing variety which we admire in ground. Hence it is common to fetch our images from water, and apply them to land; we talk of an undulating line, a playing lawn, and a billowy surface; and give a much stronger and more adequate idea by such imagery, than plain language could possibly present." The exertions of art, however, are here inadequate, and the artist ought not to attempt to create a mountain, a valley, or a plain; he should but rarely meddle even with the smaller inequalities of grounds. Rough and broken ground may generally be reduced to lawn, or hid with wood; and a swamp may be drained or covered with water, whilst lawn may be variegated at pleasure by wood, and sometimes by water.

2. *Wood*, as a general term, comprehends all trees and shrubs in whatever disposition; but it is specifically applied in a more limited sense, and in that sense we shall now use it. Every plantation must be either a *wood*, a *grove*, or a *clump*. A wood is composed both of trees and underwood, covering a considerable space. A grove consists of

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[1] "Pope," says Lord Byron, "was the inventor of that boast of the English, *modern gardening*. He divides this honour with Milton. Hear Warton: 'It hence appears that the enchanting art of gardening, in which this kingdom claims a preference over every nation in Europe, chiefly owes its origin and its improvement to two great poets, Milton and Pope.'" (Byron's *Works*, vol. vi. p. 408.)

trees without underwood. A clump differs from either only in extent. It may be either close or open: when close, it is sometimes called a *thicket;* when open, a *group of trees;* but both are equally clumps, whatever may be the shape or situation.

One of the noblest objects in nature[1] is the *surface of a large thick wood,* commanded from an eminence, or seen from below hanging on the side of a hill. The latter is generally the more interesting object. Its aspiring situation gives it an air of greatness; its termination is commonly the horizon; and, indeed, if it be deprived of that splendid boundary, if the brow appear above it (unless some very peculiar effect characterizes that brow), it loses much of its magnificence. It is inferior to a wood which covers a less hill from the top to the bottom; for a whole space filled is seldom little. But a wood commanded from an eminence is generally no more than a part of the scene below; and its boundary is often inadequate to its greatness. To continue it, therefore, till it winds out of sight, or loses itself in the horizon, is generally desirable; but then the varieties of its surface grow confused as it retires; whilst those of a hanging wood are all distinct; the furthest parts are held up to the eye, and none are at a distance though the whole be extensive.

The varieties of a surface are essential to beauty. A continued smooth shaven level of foliage is neither agreeable nor natural; the different growths of trees commonly break it in reality, and their shadows still more in appearance. These shades are so many tints, which, undulating about the surface, are its greatest embellishment; and such tints may be produced with more effect, and more certainty, by a judicious mixture of greens; at the same time an additional variety may be introduced, by grouping and contrasting trees very different in shape from each other; and whether variety in the greens or in the forms be the design, the execution is often easy, and seldom to a certain degree impossible. In raising a young wood, it may be perfect. In old woods, there are many spots which may be either thinned or thickened; and there the characteristic distinctions should determine what to plant, or what to leave, at least they will often point out those which, as blemishes, ought to be taken away; and the removal of two or three trees will sometimes accomplish the design. The number of beautiful forms and agreeable masses which may decorate the surface is so great, that where the place will not admit of one, another is always ready; and as no delicacy of finishing is required, no minute exactness is worth regarding; great effects will not be disconcerted by small obstructions and little disappointments.

The contrasts, however, of masses and of groups must not be too strong where *greatness* is the character of the wood, for unity is essential to greatness; and if direct opposites be placed close together, the wood is no longer one object; it is only a confused collection of several plantations. But if the progress be gradual from the one to the other, shapes and tints widely different may assemble on the same surface; and each should occupy a very considerable space. A single tree, or a small cluster of trees, in the midst of an extensive wood, is in size but a speck, and in colour but a spot; the groups and the masses must be large to produce any sensible variety.

When, in a romantic situation, very broken ground is overspread with wood, it may be proper on the surface of the wood to mark the inequalities of the ground. Rudeness, not greatness, is the prevailing idea; and a choice directly the reverse of that which is productive of unity will produce it. Strong contrasts, even oppositions, may be eligible. The aim is rather to disjoin than to connect. A deep hollow may sink into dark green; an abrupt bank may be shown by a rising stage of aspiring trees, and a sharp ridge by a narrow line of conical shapes. Firs are of great use upon such occasions; their tint, their form, and their singularity, recommend them.

A hanging *wood of thin forest trees,* seen from below, is seldom pleasing; these few trees are by the perspective brought nearer together; it loses the beauty of a thin wood, and is defective as a thick one. The most obvious improvement, therefore, is to thicken it. But when seen from an eminence, a thin wood is often a lively and elegant circumstance in a view; it is full of objects; and every separate tree shows its beauty. To increase that vivacity which is the peculiar excellence of a thin wood, the trees should be characteristically distinguished both by their tints and their shapes; and such as for their airiness have been proscribed in a thick wood, are frequently the most eligible here. Differences also in their growths are a further source of variety; each should be considered as a distinct object, unless where a small number are grouped together; and then all that compose the little cluster must agree: But the groups themselves, for the same reason as the separate trees, should be strongly contrasted; the continued underwood is their only connection, and that is not affected by their variety.

Though the surface of a wood, when commanded, deserves all these attentions, yet the *outline* more frequently calls for our regard; it is also more in our power; it may sometimes be great, and may always be beautiful. The first requisite is irregularity. That a mixture of trees and underwood should form a long straight line, can never be natural; and a succession of easy sweeps and gentle rounds, each a portion of a greater or less circle, composing all together a line literally serpentine, is if possible worse. It is but a number of regularities put together in a disorderly manner, and equally distant from the beautiful both of art and of nature. The true beauty of an outline consists more in breaks than in sweeps; rather in angles than in rounds; in variety, not in succession.

Every variety in the outline of a wood must be a *prominence* or a *recess.* Breadth in either is not so important as length to the one and depth to the other. If the former ends in an angle, the latter diminishes to a point; they may have more force than a shallow dent, or a dwarf excrescence, how wide soever. They are greater deviations from the continued line which they are intended to break; and their effect is to enlarge the wood itself, which seems to stretch from the most advanced point, back beyond the most distant to which it retires. The extent of a large wood on a flat, not commanded, can by no circumstance be so manifestly shown as by a deep recess; especially if that recess wind so as to conceal the extremity, and leave the imagination to pursue it. On the other hand, the poverty of a shallow wood might sometimes be relieved by here and there a prominence, or clumps which by their apparent junction should seem to be prominences arising out of it. A deeper wood with a continued outline, except when commanded, would not appear so considerable.

An inlet into a wood seems to have been cut, if the opposite points of the entrance tally; and such a show of art depreciates its merit; but a difference only in the situation of these points, by bringing one more forward than the other, prevents the appearance, though their forms be similar. Other points, which distinguish the great parts, should in general be strongly marked. A short turn has more spirit in it than a tedious circuit; and a line broken by angles has a precision and firmness which in an undulated line are wanting; the angles indeed should commonly be a little softened; the rotundity of the plant which forms them is sometimes sufficient for the purpose; but if they are mellowed down too much, they lose all meaning. Three or four large parts thus boldly distinguished will break a very long outline. When two woods are opposed on the sides of a narrow glade, neither has so much occasion for variety in itself as if it were single; if they are very different from each other, the contrast supplies the deficiency to each, and the interval between them is full of variety. The form of that interval is indeed of as much consequence as their own. Though the outlines of both the woods be separately beautiful, yet if together they do not cast the open space into an agreeable figure, the whole scene is not pleasing; and a figure is never agreeable when the sides too closely correspond. Whether they are exactly the same, or exactly the reverse of each other, they appear equally artificial.

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[1] See Wheatley's *Observations on Modern Gardening.*

Every variety of outline hitherto mentioned may be traced by the underwood alone; but frequently the same effects may be produced with more ease, and with much more beauty, by a few trees standing out from the thicket, and belonging, or seeming to belong, to the wood, so as to make a part of its figure. Even where they are not wanted for that purpose, detached trees are such agreeable objects, so distinct, so light, when compared to the covert about them, that, skirting along it in some parts, and breaking it in others, they give an unaffected grace, which cannot otherwise be given to the outline. They have a still further effect when they stretch across the whole breadth of an inlet or before part of a recess into the wood; they are themselves shown to advantage by the space behind them; and that space, when seen between their stems, they in return throw into an agreeable perspective.

The prevailing character of a wood is generally grandeur. The principal attention which it requires, therefore, is to prevent the excesses of that character, to diversify the uniformity of its extent, to lighten the unwieldiness of its bulk, and to blend graces with greatness. The character of a *grove* is beauty. Fine trees are lovely objects. A grove is an assemblage of these, in which every individual retains much of its own peculiar elegance, and whatever it loses is transferred to the superior beauty of the whole. To a grove, therefore, which admits of endless variety in the disposition of the trees, differences in their shapes and their greens are seldom very important, and sometimes they are detrimental. Strong contrasts scatter trees which are thinly planted, and which have not the connection of underwood; they no longer form one plantation; they are a number of single trees. A thick grove is not indeed exposed to this mischief, and certain situations may recommend different shapes and different greens for their effects upon the surface; but in the outline they are seldom much regarded. The eye, attracted into the depth of the grove, passes by little circumstances at the entrance; even varieties in the form of the line do not always engage the attention; they are not so apparent as in a continued thicket, and are scarcely seen if they are not considerable.

But the surface and the outline are not the only circumstances which should be attended to. Though a grove be beautiful as an object, it is besides delightful as a spot to walk or to sit in; and the choice and the disposition of the trees for effects within, are therefore a principal consideration. Mere irregularity alone will not please; strict order is there more agreeable than absolute confusion, and some meaning better than none. A regular plantation has a degree of beauty, but it gives no satisfaction, because we know that the same number of trees might be more beautifully arranged. A disposition, however, in which the lines only are broken, without varying the distances, is equally improper. The trees should gather into groups, or stand in various irregular lines, and describe various figures; the intervals between them should be contrasted both in shape and in dimensions; a large space should in some places be quite open, whilst in others the trees should be so close together as hardly to leave a passage between them; and in others as far apart as the connection will admit. In the forms and the varieties of these groups, these lines, and these openings, principally consists the interior beauty of a grove.

The force of them is most strongly illustrated at Claremont, where the walk to the cottage, though destitute of many natural advantages, and eminent for none, though it commands no prospect, though the water below it is a trifling pond, though it has nothing, in short, but inequality of ground to recommend it, is yet the finest part of the garden; for a grove is there planted in a gently curved direction, all along the side of a hill, and on the edge of a wood, which rises above it. Large recesses break it into several clumps, which hang down the declivity; some of them approaching, but none reaching quite to the bottom. These recesses are so deep as to form great openings in the midst of the grove; they penetrate almost to the covert; but the clumps being all equally suspended from the wood, and a line of open plantation, though sometimes narrow, running constantly along the top, a continuation of grove is preserved, and the connection between the parts is never broken. Even a group which near one of the extremities stands out quite detached, is still in style so similar to the rest as not to lose all relation. Each of these clumps is composed of several others still more intimately united; each is full of groups, sometimes of no more than two trees, sometimes of four or five, and now and then in larger clusters; an irregular waving line, issuing from some little crowd, loses itself in the next; or a few scattered trees drop in a more distant succession from the one to the other. The intervals, winding here like a glade, and widening there into broader openings, differ in extent, in figure, and in direction; but all the groups, the lines, and the intervals, are collected together into large general clumps, each of which is at the same time both compact and free, identical and various. The whole is a place wherein to tarry with secure delight, or saunter with perpetual amusement.

The grove at Esher Place was planted by the same masterly hand; but the necessity of accommodating the young plantation to some large trees which grew there before has confined its variety. The groups are few and small; there was not room for larger or for more; there were no opportunities to form continued narrow glades between opposite lines; the vacant spaces are therefore chiefly irregular openings, spreading every way, and great differences of distance between the trees are the principal variety; but the grove winds along the bank of a large river, on the side and at the foot of a very sudden ascent, the upper part of which is covered with wood. In one place it presses close to the covert, retires from it in another, and stretches in a third across a bold recess, which runs up high into the thicket. The trees sometimes overspread the flat below, sometimes leave an open space to the river, at other times crown the brow of a large knoll, climb up a steep, or hang on a gentle declivity. These varieties in the situation more than compensate for the want of variety in the disposition of the trees; and the many happy circumstances which concur,

> In Esher's peaceful grove,
> Where Kent and nature vie for Pelham's love,

render this little spot more agreeable than any at Claremont. But though it was right to preserve the trees already standing, and not to sacrifice great present beauties to still greater in futurity, yet this attention has been a restraint; and the grove at Claremont, considered merely as a plantation, is, in delicacy of taste and fertility of invention, superior to that at Esher.

It is, however, possible to secure both a present and a future effect, by fixing first on a disposition which will be beautiful when the trees are large, and then intermingling another which is agreeable while they are small. These occasional trees are hereafter to be taken away; and must be removed in time, before they become prejudicial to the others.

The consequence of variety in the disposition is variety in the light and shade of the grove, which may be improved by the choice of the trees. Some are impenetrable to the fiercest sunbeam; others let in here and there a ray between the large masses of their foliage; and others, thin both of boughs and of leaves, only chequer the scene around. Every degree of light and shade, from a glare to obscurity, may be managed, partly by the number, and partly by the texture of the trees. Differences only in the manner of their growths have also corresponding effects; there is a closeness under those the branches of which descend low and spread wide; a space and liberty where the arch above is high; and frequent transitions from the one to the other are very pleasing. Still these are not all the varieties of which the interior of a grove is capable; trees, indeed, whose branches nearly reach the ground, being each a sort of thicket, are inconsistent with an open plantation; but though some of the characteristic distinctions are thereby excluded, other varieties more minute succeed in their place; for the freedom of passage throughout brings every tree in its turn near to the eye, and subjects even differences in foliage to observation. These, slight as they may seem, are agreeable when they occur; it is true, they are not regretted when wanting; but a defect of ornament is not necessarily a blemish.

It has been already observed, that *clumps* differ only in extent from woods, if they are close; or from groves, if they are open. They are small woods and small groves, governed by the same principles as the larger, allowances being made for their dimensions. But besides the properties they may have in common with woods or with groves, they have others peculiar to themselves which require examination. They are either *independent* or *relative.* When independent, their beauty, as single objects, is solely to be attended to; when relative, the beauty of the individuals must be sacrificed to the effect of the whole, which is the greater consideration.

The *occasions* on which independent clumps may be applied are many. They are often desirable as beautiful objects in themselves; they are sometimes necessary to break an extent of lawn, or a continued line whether of ground or of plantation; but on all occasions a jealousy of art constantly attends them, which irregularity in their figure will not always alone remove. Though elevations show them to advantage, yet a hillock evidently thrown up on purpose to be crowned with a clump, is artificial to a degree of disgust. Some of the trees should therefore be planted on the sides, to take off that appearance. The same expedient may be applied to clumps placed on the brow of a hill, to interrupt its sameness. They will have less ostentation of design, if they are in part carried down either declivity. The objection already made to planting many along such a brow, is on the same principle. A single clump is less suspected of art; if it be an open one, there can be no finer situation for it, than just at the point of an abrupt hill, or on a promontory into a lake or a river. It is in either a beautiful termination, distinct by its position, and enlivened by an expanse of sky or of water about and beyond it. Such advantages may balance little defects in its form; but they are lost if other clumps are planted near it. Art then intrudes, and the whole is displeasing.

But though a multiplicity of clumps, when each is an independent object, seldom seems natural; yet a number of them may, without any appearance of art, be admitted into the same scene, if they bear a *relation* to each other. If by their succession they diversify a continued outline of wood, if between them they form beautiful glades, if altogether they cast an extensive lawn into an agreeable shape, the *effect* prevents any scrutiny into the means of producing it. But when the reliance on that effect is so great, every other consideration must give way to the beauty of the whole. The figure of the glade, of the lawn, or of the wood, is principally to be attended to. The finest clumps, if they do not fall easily into the great lines, are blemishes; their connections and their contrasts are more important than their forms.

3. *Water.* All inland water is either *running* or *stagnant.* When stagnant, it forms a *lake* or a *pool,* which differ only in extent; whilst a *pool* and a *pond* are the same. Running waters are either a *river*, a *rivulet*, or a *rill;* and these differ only in breadth. A *rivulet* and a *brook* are synonymous terms; a *stream* and a *current* are general names for all.

Space or expansion is essential to a *lake.* It cannot be too large as a subject of description or of contemplation; but the eye receives little satisfaction when it has not a form on which to rest. The ocean itself hardly atones by all its grandeur for its infinity; and a prospect of it is, therefore, always most agreeable, when in some part, at no great distance, a reach of shore, a promontory, or an island, reduces the immensity into shape. An artificial lake, again, may be comparatively extravagant in its dimensions. It may be so out of proportion to its appendages, as to seem a waste of water; for all size is in some respects relative. If this exceeds its due dimensions, and if a flatness of shore beyond it adds still to the dreariness of the scene, wood to raise the banks, and objects to distinguish them, are the remedies to be employed. If the length of a piece of water be too great for its breadth, so as to destroy all idea of circuity, the extremities should be considered as too far off, and made important to give them proximity; whilst at the same time the breadth may be favoured, by keeping down the banks on the sides. On the same principle, if the lake be too small, a low shore will, in appearance, increase the extent.

But it is not necessary that the whole scene be bounded. If form be impressed on a considerable part, the eye can, without disgust, permit a large reach to stretch beyond its ken; it can even be pleased to observe a tremulous motion in the horizon, which shows that the water has not yet there attained its termination. Still short of this, the extent may be kept in uncertainty; a hill or a wood may conceal one of the extremities, and the country beyond it, in such a manner as to leave room for the supposed continuation of so large a body of water. Opportunities to choose this shape are frequent, and it is the most perfect of any. The scene is closed, but the extent of the lake is undetermined; a complete form is exhibited to the eye, whilst a boundless range is left open to the imagination.

But mere form will only give content, not delight; that depends upon the outline, which is capable of exquisite beauty; and the *bays*, the *creeks*, and the *promontories*, which are ordinary parts of that outline, together with the accidents of *islands*, of *inlets*, and of *outlets* to rivers, are in their shapes and their combinations an inexhaustible fund of variety.

Bays, creeks, and promontories, however, though extremely beautiful, should not be very numerous. For a shore broken into little points and hollows has no certainty of outline; it is only ragged, not diversified; and the distinctness and simplicity of the great parts are hurt by the multiplicity of subdivisions. But islands, though the channels between them be narrow, do not so often derogate from greatness. They intimate a space beyond them the boundaries of which do not appear, and remove to a distance the shore which is seen in perspective between them. Such partial interruptions of the sight suggest ideas of extent to the imagination.

Though the windings of a *river* are proverbially descriptive of its course, yet, without being perpetually wreathed, it may be natural. Nor is the character expressed only by the turnings. On the contrary, if these are too frequent and sudden, the current is reduced into a number of separate pools, and the idea of progress is obscured by the difficulty of tracing it. Length is the strongest symptom of continuation. Long reaches are therefore characteristic of a river, and they conduce much to its beauty; each is indeed a considerable piece of water, and variety of beautiful forms may be given to their outlines.

A river requires a number of *accompaniments*. The changes in its course furnish a variety of situations; whilst the fertility, convenience, and amenity, which attend it, account for all appearances of inhabitants and improvement. Profusion of ornament on a fictitious river is a just imitation of cultivated nature. Every species of building, every style of plantation, may abound on the banks; and, whatever be their characters, their proximity to the water is commonly the happiest circumstance in their situation. A lustre is from thence diffused on all around; each derives an importance from its relation to this capital feature; those which are near enough to be reflected immediately belong to it, those at a greater distance still share in the animation of the scene; and objects totally detached from each other, being all attracted towards the same interesting connection, are united into one composition.

In the front of Blenheim was a deep broad valley, which abruptly separated the castle from the lawn and the plantations before it; even a direct approach could not be made without building a monstrous bridge over the vast hollow; but this forced communication was only a subject of raillery; and the scene continued broken into two parts, absolutely distinct from each other. This valley has been flooded, but not filled; the bottom only is covered with water, and the sides are still very high; but they are no longer the steeps of a chasm; they are the bold shores of a noble river. The same bridge is standing without alteration; but no extravagance remains; the water gives it propriety. Above it the river first appears, winding from behind a small thick wood in the valley; and soon taking a determined course, it is then broad enough to admit an island filled with the finest trees; others corresponding to them in growth and disposition stand in groups on the banks, intermixed with younger plantations. Immediately below the bridge the river spreads into a large expanse; the sides are open lawn. On that farthest from the house formerly stood the palace of Henry II. celebrated in many an ancient ditty by the name of Fair Rosamond's Bower. A clear little spring which rises there is by the country people still called Fair Rosamond's Well. The spot is now marked by a single willow, and near it is a fine collateral stream, of a beautiful form, retaining its breadth as far as it is seen, and retiring at last from the view behind a hill. The main river, having received this accession, makes a gentle bend; then continues for a considerable length in one wide direct reach; and, just as it disappears, throws itself down a high cascade, which is the present termination. Upon one of the banks of this reach is the garden. The steeps are there diversified with thickets and with glades; but the covert prevails, and the top is crowned with lofty trees. On the other side there is a noble hanging wood in the park. It was depreciated when it sunk into a hollow, and was poorly lost in the bottom; but it is now a rich appendage to the river, falling down an easy slope quite to the water's edge, where, with overshadowing, it is reflected on the surface. Another face of the same wood borders the collateral stream with an outline more indented and various; whilst a very large irregular clump adorns the opposite declivity. This clump is at a considerable distance from the principal river; but the stream it belongs to brings it down to connect with the rest; and the other objects, which were before dispersed, are now, by the interest of each in a relation which is common to all, collected into one illustrious scene. The castle itself is a prodigious pile of building, which, with all the faults of the architecture, will never seem other than a truly princely habitation; and the confined spot where it was placed, on the edge of an abyss, is converted into a proud situation, commanding a beautiful prospect of water, and open to an extensive lawn, adequate to the mansion, and an emblem of its domain. In the midst of this lawn stands a column, a stately trophy, recording the exploits of the Duke of Marlborough and the gratitude of Britain. Between this pillar and the castle is the bridge, which now, applied to a subject worthy of it, is established in all the importance due to its greatness. The middle arch is wider than the Rialto, but not too wide for the occasion; and yet that is the narrowest part of the river; but the length of the reaches is everywhere proportioned to their breadth. Each of them is alone a noble piece of water; and the last, the finest of all, loses itself gradually in a wood, which on that side is also the boundary of the lawn, and rises into the horizon. All is great in the front of Blenheim; but in that vast space no void appears, so important are the parts, so magnificent is the object. The plain is extensive, the valley broad, and the wood deep. Though the intervals between the building are large, they are filled with the grandeur which buildings of such dimensions and so much pomp diffuse all around them; and the river, in its long and varied course, approaching to every object, and touching upon every part, spreads its influence over the whole.

In the composition of this scene, the river, both as a part itself, and as uniting the other parts, has a principal share. But water is not lost though it be in so confined or so concealed a spot as to enter into no view; it may render that spot delightful. It is capable of the most exquisite beauty in its form; and though not in space, may yet in disposition have pretensions to greatness; for it may be divided into several branches, which will form a cluster of islands all connected together, make the whole place irriguous, and, instead of extent, supply a quantity of water. Such a sequestered scene usually owes its retirement to the trees and the thickets with which it abounds; but, in the disposition of these, one distinction should be constantly attended to. A river flowing through a wood which overspreads one continued surface of ground, and a river between two woods, are in very different circumstances. In the latter case the woods are separate; they may be contrasted in their forms and their characters, and the outline of each should be forcibly marked. In the former, no outline ought to be decernible; for the river passes between trees, not between boundaries; and though in the progress of its course the style of the plantations may often be changed, yet on the opposite banks a similarity should constantly prevail, that the identity of the wood may never be doubtful.

A river between two woods may enter into a view; and then it must be governed by the principles which regulate the conduct and the accompaniments of a river in an open exposure. But when it runs through a wood, it is never to be seen in a prospect; the place is naturally full of obstructions; and a continued opening, large enough to receive a long reach, would seem an artificial cut. The river must therefore necessarily wind more than in crossing a lawn where the passage is entirely free. But its influence will never extend so far on the sides. The buildings must be near the banks, and, if numerous, will seem crowded, being all in one tract, and in situations nearly alike. The scene, however, does not want variety; on the contrary, none is capable of more. The objects are not indeed so different from each other as in an open view; but they are very different, and in much greater abundance; for this is the interior of a wood, where every tree is an object, every combination of trees a variety, and no large intervals are requisite to distinguish the several dispositions; the grove, the thicket, or the groups, may prevail, and their forms and their relations may be constantly changed, without restraint of fancy, or limitation of number.

Water is so universally and so deservedly admired in a prospect, that the most obvious thought in the management of it is to lay it as open as possible, and purposely to conceal it would generally seem a severe self-denial; yet so many beauties may attend its passage through a wood, that larger portions of it might be allowed to such retired scenes than are commonly spared from the view, and the different parts in different styles would be fine contrasts to each other. If the water at Wotton[1] were all exposed, a walk of near two miles along the banks would be of a tedious length, from the want of those changes of the scene which now supply, through the whole extent, a succession of perpetual variety. The extent is so large as to admit of a division into four principal parts, all of them great in style and in dimensions, and differing from each other both in character and in situation. The first two are the least. The one is a reach of river, about the third of a mile in length, and of a competent breadth, flowing through a lovely meadow, open in some places to views of beautiful hills in the country, and adorned in others with clumps of trees so large that their branches stretch quite across, and form a high arch over the water. The next seems to have been a formal basin encompassed with plantations, and the appendages on either side still retain some traces of regularity, but the shape of the water is free from them; the size is about fourteen acres; and out of it issue two broad collateral streams winding towards a large river, which they are seen to approach and supposed to join. A real junction is however impossible, from the difference of the levels; but the terminations are so artfully concealed, that the deception is never suspected, and when known is not easily explained. The river is the third great division of the water; a lake into which it falls is the fourth. These two do actually join, but their characters are directly opposite; the scenes which they belong to are totally distinct, and the transition from the one to the other is very gradual; for an island near the conflux, dividing the breadth, and concealing the end of the lake, moderates for some way the space; and permitting it to expand by degrees, raises an idea of greatness from uncertainty accompanied with increase. The reality does not disappoint the expectation; and the island, which is the point of view, is itself equal to the scene. It is large and high above the lake; the ground is irregularly broken; thickets hang on the sides; and towards the top is placed an Ionic portico, which commands a noble extent of water, not less than a mile in circumference, bounded on one side with wood, and open on the other to two sloping lawns, the least of an hundred acres, diversified with clumps and bordered by plantations. Yet this lake, when full in view, and with all the importance which space, form, and situation can give, is not more interesting than the sequestered river, which has been mentioned as the third great division of the water. It is just within the verge of a wood, three quarters of a mile long, and everywhere broad, whilst its course is such as to admit of infinite variety without any confusion. The banks are cleared of underwood, but a few thickets still remain, and on one side an impenetrable covert soon begins; the interval is a beautiful grove of oaks, scattered over a green sward of extraordinary verdure. Between these trees and these thickets the river seems to glide gently along, constantly winding, without one short turn or one extended reach in the whole length of the way. This even temper in the stream suits the scenes through which it passes; they are in general of a very sober cast, not melancholy, but grave; never exposed to a glare, never darkened with gloom, nor, by strong contrasts of light and shade, exhibiting the excess of either. Undisturbed by an extent of prospect without, or a multiplicity of objects within, they retain at all times a mildness of character; which is still more forcibly felt when the shadows grow faint as they lengthen, when a little rustling of birds in the spray, the leaping of the fish, and the fragrance of the woodbine, denote the approach of evening; whilst the setting sun shoots its last gleams on a Tuscan portico, which is close to the great basin, but which from a seat near this river is seen at a distance, through all the obscurity of the wood, glowing on the banks, and reflected on the surface of the water. In another still more distinguished spot is built an elegant bridge, with a colonnade upon it, which not only adorns the place where it stands, but is also a picturesque object to an octagon building near the lake, where it is shown in a singular situation, overarched, encompassed, and backed with wood, without any appearance of the water beneath. This building, in return, is also an object from the bridge; and a Chinese room, in a little island just by, is another. Neither of them is considerable, and the others which are visible are at a distance; but more or greater adventitious ornaments are not required in a spot so rich as this in beauties peculiar to its character. A profusion of water pours in from all sides round upon the view; the opening of the lake appears, and a glimpse is caught of the large basin. One of the collateral streams is full in sight, and the bridge itself is in the midst of the finest part of the river; all seem to communicate the one with the other. Though thickets often intercept, and groups perplex the view, yet they never break the connection between the several pieces of water; each may still be traced along large branches or little catches, which in some places are overshadowed and dim, in others glisten through a glade, or glimmer between the holes of trees in a distant perspective; and in one, where they are quite lost to the view, some arches of the stone bridge, but partially seen among the wood, preserve their connection.

If a large river may sometimes, a smaller current undoubtedly may often, be conducted through a wood. It seldom adorns, it frequently disfigures, a prospect, where its course is marked, not by any appearance of water, but by a confined line of clotted grass, which disagrees with the general verdure. A *rivulet* may indeed have consideration enough for a home scene though it be open, but a *rill* is always most agreeable when most retired from public view. Its characteristic excellencies are vivacity and variety, which require attention, leisure, and silence, that the eye may pore upon the little beauties, and the ear listen to the low murmurs of the stream, without interruption. To such indulgence a confined spot only is favourable; a close copse is therefore often more acceptable than a high wood, and a sequestered valley at all times preferable to any open exposure. A single rill at a very little distance is a mere water-course; it loses all its charms; it has no importance in itself, and bears no proportion to the scene. A number of little streams have indeed an effect in any situation, but not as objects; they are interesting only on account of the character they express, and the irriguous appearance which they give to the whole.

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[1] Vale of Aylesbury, Buckinghamshire.

The full tide of a large river has more force than activity, and seems too unwieldy to allow of very quick tranitions. But in a rill, the agility of its motions accounts or every caprice; frequent windings disguise its insigniicance; short turnings show its vivacity; sudden changes n the breadth are a species of its variety; and however antastically the channel may be wreathed, contracted, nd widened, it still appears to be natural. We find an musement in tracing the little stream through all the inricacies of its course, and in seeing it force a passage hrough a narrow strait, expatiate on every opportunity, truggle with obstructions, and puzzle out its way. A ivulet, which is the mean between a river and a rill, parakes of the character of both. It is not licensed to the xtravagance of the one, nor under the same restraints as he other; it may have more frequent bends than the iver, and longer reaches than a rill; the breadth of a tream determines whether the principal beauty results rom extent or from variety.

The murmurs of a rill are amongst the most pleasing ircumstances which attend it. If the bed of the stream e rough, mere declivity will occasion a constant rippling oise. When the current drops down a descent, though ut of a few inches, or forcibly bubbles up from a little ollow, it has a deep gurgling tone, not uniformly continud, but incessantly repeated, and therefore more engagng than any. The flattest of all is that sound rather of he splashing than the fall of water, which an even gentle lope, or a tame obstruction, will produce. This is less leasing than the others, but none should be entirely exluded; all in their turns are agreeable, and the choice of hem is much in our power By observing their causes we nay often find the means to strengthen, to weaken, or to hange them; and the addition or removal of a single stone r a few pebbles will sometimes be sufficient for the purpose.

A rill cannot pretend to any sound beyond that of a ittle waterfall. The roar of a cascade belongs only to a arger stream; but it may be produced by a rivulet to a onsiderable degree, and attempts to do more have geneally been unsuccessful. A vain ambition to imitate naure in her great extravagancies betrays the weakness of rt. Though a noble river, throwing itself headlong down precipice, be an object truly magnificent, it must, howver, be confessed, that in a single sheet of water there is formality which its vastness alone can cure. But the eight, not the breadth, is the wonder. When it falls not nore than a few feet, the regularity prevails; and its exent only serves to expose the vanity of affecting the style f a cataract in an artificial cascade. It is less exceptionable divided into several parts; for then each separate part nay be wide enough for its depth, and in the whole, vaiety, not greatness, will be the predominant character. ut a structure of rough, large, detached stones, cannot asily be contrived of strength sufficient to support a great eight of water; it is sometimes from necessity almost mooth and uniform, and then it loses much of its effect. everal little falls in succession are preferable to one great ascade which in figure or in motion approaches to regurity.

When greatness is thus reduced to number, and length ecomes of more importance than breadth, a rivulet vies ith a river; and it more frequently runs in a continued eclivity, which is very favourable to such a succession f falls. Half the expense and labour which are somemes bestowed on a river, to give it at the best a forced recipitancy in one spot only, would animate a rivulet hroughout the whole of its course. And, after all, the ost interesting circumstance in falling waters is their nimation. A great cascade fills us with surprise. But l surprise must cease; and the motion, the agitation, e rage, the froth, and the variety of the water, are finally the objects which engage the attention. For these a rivulet is sufficient; and they may there be produced without that appearance of effort which raises a suspicion of art.

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To obviate such a suspicion, it may sometimes be expedient to begin the descent out of sight; for the beginning is the difficulty. If that be concealed, the subsequent falls seem but a consequence of the agitation which characterizes the water at its first appearance; and the imagination is at the same time let loose to give ideal extent to the cascades. When a stream issues from a wood, such management will have a great effect. The bend of its course in an open exposure may afford frequent opportunities for it; and sometimes a low broad bridge may furnish the occasion. A little fall hid under the arch will create a disorder, in consequence of which a greater cascade below will appear very natural.

4. *Rocks.* Rocks are themselves too vast and too stubborn to submit to our control; by the addition or removal of appendages which we can command, parts may be shown or concealed, and the characters with their impressions may be weakened or enforced. To adopt the accompaniments, accordingly, is the utmost ambition of art when rocks are the subject.

Their most distinguishing characters are, *dignity*, *terror*, and *fancy*. The expressions of all are constantly wild; and sometimes a rocky scene is wild only, without pretensions to any particular character.

Rills, rivulets, and cascades, abound amongst rocks; they are natural to the scene; and such scenes commonly require every accompaniment which can be procured for them. Mere rocks, unless they are particularly adapted to certain impressions, though they may surprise, cannot be long engaging, if the rigour of their character be not softened by circumstances which may belong either to these or to more cultivated spots; and when the dreariness is extreme, little streams and waterfalls are of themselves insufficient for the purpose; an intermixture of vegetation is also necessary, and on some occasions even marks of inhabitants are proper.

Large clefts, sloping or precipitous, with a dale at bottom, furnish scenes of the wildest nature. In such spots, verdure alone will give some relief to the dreariness of the scene; and shrubs or bushes, without trees, are a sufficiency of wood. The thickets may also be extended by the creeping plants, such as pyracantha, vines, and ivy, to wind up the sides or cluster on the tops of the rocks. And to this vegetation may be added some symptoms of inhabitants, but they must be slight and few; the use of them is only to cheer, not to destroy, the solitude of the place; and such therefore should be chosen as are sometimes found in situations retired from public resort. A cottage may be lonely, but it must not here seem ruinous and neglected; it should be tight and warm, with every mark of comfort about it, to which its position in some sheltered recess may greatly contribute. A cavity also in the rocks, rendered easy of access, improved to a degree of convenience, and maintained in a certain state of preservation, will suggest similar ideas of protection from the bitterest inclemencies of the sky, and even of occasional refreshment and repose. But we may venture still further; a mill is of necessity often built at some distance from the town which it supplies; and here it would at the same time apply the water to a use, and increase its agitation. The dale may besides be made the haunt of those animals, such as goats, which are sometimes wild and sometimes domestic, and which, accidentally appearing, will divert the mind from the sensations natural to the scene, but not agreeable, if continued long without interruption. These and such other expedients will approximate the severest retreat to the habitations of men, and

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convert the appearance of a perpetual banishment into that of a temporary retirement from society.

But too strong a force on the nature of the place always fails. A winding path, which appears to be worn, not cut, has more effect than a high road, all artificial and level, which is too weak to overbear, and yet contradicts the general idea. The objects therefore to be introduced must be those which hold a mean between solitude and population, and the inclination of that choice towards either extreme should be directed by the degree of wildness which prevails; for though that runs sometimes to an excess which requires correction, at other times it wants encouragement, and at all times it ought to be preserved. It is the predominant character of rocks, which mixes with every other, and to which all the appendages must be accommodated; and they may be applied so as greatly to increase it. A licentious irregularity of wood and of ground, and a fantastic conduct of the streams, neither of which would be tolerated in the midst of cultivation, become and improve romantic rocky spots; even buildings, partly by their style, but still more by their position, in strange, difficult, or dangerous situations, distinguish and aggravate the native extravagancies of the scene.

Greatness is a chief ingredient in the character of dignity, with less of wildness than in any other. The effect here depends more upon amplitude of surface than variety of forms. The parts, therefore, must be large. If the rocks are only high, they are stupendous, not majestic; breadth is equally essential to their greatness; and every slender, every grotesque shape, is excluded. Art may interpose to show these large parts to the eye, and magnify them to the imagination, by taking away thickets which stretch quite across the rocks, so as to disguise their dimensions; or by filling with wood the small intervals between them, and thus, by concealing the want, preserving the appearance of continuation. When rocks retire from the eye down a gradual declivity, we can, by raising the upper ground, deepen the fall, lengthen the perspective, and give both height and extent to those at a distance. This effect may be still increased by covering that upper ground with a thicket, which shall cease or be lowered as it descends. A thicket, on other occasions, makes the rocks which rise out of it seem larger than they are. If they stand upon a bank overspread with shrubs, their beginning is at the least uncertain; and the presumption is, that they start from the bottom. Another use of this brushy underwood, is to conceal the fragments and rubbish which have fallen from the sides and the brow, and which are often unsightly. Rocks are seldom remarkable for the elegance of their forms; they are too vast and too rude to pretend to delicacy. But their shapes are often agreeable; and we can affect those shapes to a certain degree, at least we can cover many blemishes in them, by conducting the growth of shrubby and creeping plants about them.

For all these purposes mere underwood suffices; but for greater effects larger trees are requisite. They are worthy of the scene, and not only improvements, but accessions to its grandeur. We are used to class them amongst the noblest objects of nature; and when we see that they cannot aspire to the midway of the heights around them, the rocks are raised by the comparison. A single tree is therefore often preferable to a clump; the size, though really less, is more remarkable; and clumps are besides generally exceptionable in a very wild spot, from the suspicions of art which attends them; but a wood is free from that suspicion, and its own character of greatness recommends it to every scene of magnificence.

On the same principle, all possible consideration should be given to the streams. No given number of little rills are equal to one broad river; and in the principal current some varieties may be sacrificed to importance. But a degree of strength should always be preserved. The water, though it needs not be furious, should not be dull; for dignity, when most serene, is not languid, and space will hardly atone for want of animation.

This character does not exclude marks of inhabitants, though it never requires them to tame its wildness; and, without inviting, it occasionally admits an intermixture of vegetation. It even allows of buildings intended only to decorate the scene; but they must be adequate to it, both in size and in character. And if cultivation is introduced, that too should be conformable to the rest; not a single narrow patch cribbed out of the waste, but the confines of a country shelving into the vale, and suggesting the idea of extent. Nothing trivial ought to find admittance. But, on the other hand, no extravagance is required to support it; strange shapes in extraordinary positions, enormous weights unaccountably sustained, trees rooted in the sides, and torrents raging at the foot of the rocks, are at the best needless excesses. There is a temperance in dignity, which is rather hurt by a wanton violation of the common order of nature.

The terrors of a scene in nature are like those of a dramatic representation; they give an alarm, but the sensations are agreeable as long as they are kept to such as are allied only to terror, unmixed with any that are horrible and disgusting. Art may therefore be used to heighten them, to display the objects which are distinguished by greatness, to improve the circumstances which denote force, to mark those which intimate danger, and to blend withal here and there a cast of melancholy.

Greatness is as essential to the character of terror as to that of dignity. Vast efforts in little objects are ridiculous; nor can force be supposed upon trifles incapable of resistance. On the other hand, it must be allowed that exertion and violence supply some want of space. A rock wonderfully supported, or threatening to fall, acquires a greatness from its situation, which it has not in dimensions; so circumstanced, the size appears to be monstrous. A torrent has a consequence which a placid river of equal breadth cannot pretend to; and a tree, which would be inconsiderable in the natural soil, becomes important when it bursts forth from a rock.

Such circumstances should be always industriously sought for. It may be worth while to cut down several trees, in order to exhibit one apparently rooted in the stone. By the removal perhaps of only a little brushwood, the alarming disposition of a rock, strangely undermined, rivetted, or suspended, may be shown; and if there be any soil above its brow, some trees planted there, and impending over it, will make the object still more extraordinary. As to the streams, great alterations may generally be made in them; and therefore it is of use to ascertain the species proper to each scene, because it is in our power to enlarge or contract their dimensions, to accelerate or retard their rapidity, to form, increase, or take away obstructions, and always to improve, often to change, their characters.

Inhabitants furnish frequent opportunities of strengthening the appearances of force, by giving intimations of danger. A house placed on the edge of a precipice, any building on the pinnacle of a crag, makes that situation seem formidable, which might otherwise have been unnoticed. A steep, in itself not very remarkable, becomes alarming when a path is carried aslant up the side; a rail on the brow of a perpendicular fall shows that the height is frequented and dangerous; and a common foot bridge thrown over a cleft between rocks has a still stronger effect. In all these instances, the imagination immediately transports the spectator to the spot, and suggests the idea of looking down such a depth; in the last, that depth is a chasm, and the situation is directly over it.

The different species of rocks often meet in the same place, and compose a noble scene, which is not distinguished by any particular character; it is only when one eminently prevails that it deserves such a preference as to exclude every other. Sometimes a spot remarkable for nothing but its wildness is highly romantic; and when this wildness rises to fancy, when the most singular, the most opposite, forms and combinations are thrown together, then a mixture also of several characters adds to the number of nstances which there concur to display the inexhaustible variety of nature.

So much variety, so much fancy, are seldom found withn the same extent as in Dovedale. It is about two miles in ength, forming a deep, narrow, hollow valley; both the sides are of rock; and the Dove in its passage between them is perpetually changing its course, its motion, and appearance. It is never less than ten, nor so much as twenty yards wide, and generally about four feet deep, but transparent to the bottom, except when it is covered with a oam of the purest white, under waterfalls which are perectly lucid. These are very numerous, but very different. n some places they stretch straight across or aslant the tream; in others they are only partial, and the water eiher dashes against the stones and leaps over them, or pourng along a steep, rebounds upon those below; sometimes t rushes through the several openings between them, someimes it drops gently down, and at other times it is driven back by the obstruction, and turns into an eddy. In one particular spot, the valley, almost closing, leaves hardly a passage for the river, which, pent up and struggling for a vent, rages, and roars, and foams, till it has extricated tself from the confinement. In other parts, the stream, hough never languid, is often gentle; it flows round a ittle desert island, glides between bits of bulrushes, disperses itself amongst tufts of grass or of moss, bubbles about a water dock, or plays with the slender threads of aquatic plants which float upon the surface. The rocks all along he dale vary as often in their structure as the stream in ts motion. In one place, an extended surface gradually diminishes from a broad base almost to an edge; in anoher, a heavy top hanging forwards, overshadows all beneath; sometimes many different shapes are confusedly umbled together, and sometimes they are broken into lender sharp pinnacles, which are upright, often two or hree together, and often in more numerous clusters. On he one side of the dale they are universally bare, on the ther they are intermixed with wood; and the vast height f both the sides, with the narrowness of the interval beween them, produces a further variety. For whenever the un shines from behind the one, the form of it is distinctly nd completely cast upon the other; the rugged surface on which it falls diversifies the tints; and a strong reflected light often glares on the edge of the deepest shadow. The ocks never continue long in the same figure or situation, nd are very much separated from each other; sometimes hey form the sides of the valley, in precipices, in steeps, r in stages; sometimes they seem to rise in the bottom, nd lean back against the hill; and sometimes they stand ut quite detached, heaving up in cumbrous piles, or startng into conical shapes, like vast spars, a hundred feet in eight; some are firm and solid throughout; some are racked; and some, split and undermined, are wonderfully pheld by fragments apparently unequal to the weight they ustain. One is placed before, one over another, and one lls, at some distance behind, an interval between two. The hanges in their disposition are infinite; every step prouces some new combination; they are continually crossng, advancing, and retiring; the breadth of the valley is ever the same forty yards together. At the narrow pass which has been mentioned, the rocks almost meet at the op, and the sky is seen as through a chink between them; and just by this gloomy abyss is a wider opening, more light, more verdure, more cheerfulness than anywhere else in the dale. Nor are the forms and the situations of the rocks their only variety. Many of them are perforated by large natural cavities, some of which open to the sky, some terminate in dark recesses, and through some are to be seen several more uncouth arches and rude pillars, all detached, and retiring beyond each other, with the light shining in between them, till a rock far behind them closes the perspective. The noise of the cascades in the river echoes amongst them; the water may often be heard at the same time gurgling near and roaring at a distance; but no other sounds disturb the silence of the spot. The only trace of men is a blind path, but seldom and lightly trodden, by those whom curiosity leads to see the wonders they have been told of Dovedale. It seems indeed a fitter haunt for mere ideal beings; the whole has the air of enchantment. The perpetual shifting of the scenes, the quick transitions, the total changes; then the forms all around, grotesque as chance can cast, wild as nature can produce, and various as imagination can invent; the force which seems to have been exerted to place some of the rocks where they are now fixed immoveable, the magic by which others appear still to be suspended; the dark caverns, the illuminated recesses, the fleeting shadows, and the gleams of light glancing on the sides, or trembling on the stream; and the loneliness and the stillness of the place; all crowding together on the mind, almost realize the ideas which naturally present themselves in this region of romance and of fancy.

The solitude of such a scene is agreeable, on account of the endless entertainment which its variety affords, and in the contemplation of which both the eye and the mind are delighted to indulge. Marks of inhabitants and cultivation would disturb that solitude; and ornamental buildings are too artificial in a place so absolutely free from restraint. The only accompaniments proper for it are wood and water; and by these sometimes improvements may be made. Variety is the peculiar property of the spot, and every accession to it is a valuable acquisition. On the same principle, endeavours should be used, not only to multiply, but to aggravate differences, and to increase distinctions into contrasts; but the subject will impose a caution against attempting too much. Art must almost despair of improving a scene where nature seems to have exerted her inventive powers.

II. *Factitious Accompaniments.* These consist of fences, walks, roads, bridges, seats, and buildings. (See *Practical Treatise of Gardening*, p. 593, *et seqq.*)

1. The *fence*, where the place is large, becomes necessary; yet the eye dislikes constraint. Our ideas of liberty carry us beyond our own species; the imagination feels a dislike in seeing even the brute creation in a state of confinement. The birds wafting themselves from wood to grove are objects of delight; and the hare appears to enjoy a degree of happiness unknown to the barriered flock. Besides, a tall fence frequently hides from the sight objects the most pleasing; not only the flocks and herds themselves, but the surface they graze upon. These considerations have brought the unseen fence into general use.

This species of barrier, it must be allowed, incurs a degree of deception which can scarcely be warranted upon any other occasion. In this instance, however, it is a species of fraud which we observe in nature's practice. How often have we seen two distinct herds feeding to appearance in the same extended meadow, until, coming abruptly upon a deep sunk rivulet, or an unfordable river, we discover the deception.

Besides the sunk fence, another sort of unseen barrier may be made, though by no means equal to that, especially if near the eye. This is constructed of paling, painted of the invisible green. If the colour of the back ground

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were permanent, and that of the paint made exactly to correspond with it, the deception would at a distance be complete; but back grounds in general changing with the season, this kind of fence is the less eligible. Clumps and patches of woodiness scattered promiscuously on either side of an unseen winding fence assist very much in doing away the idea of constraint.

2. The *walk*, in extensive grounds, is as necessary as the fence. The beauties of the place are disclosed that they may be seen; and it is the office of the walk to lead the eye from view to view, in order that whilst the tone of health is preserved by the favourite exercise of nature, the mind may be thrown into unison by the harmony of the surrounding objects.

The direction of the walk must be guided by the points of view to which it leads, and the nature of the ground it passes over. It ought to be made subservient to the natural impediments, the ground, wood, and water, which fall in its way, without appearing to have any direction of its own. It can seldom run with propriety any distance in a straight line; a thing which rarely occurs in a natural walk. The paths of the negroes and Indians are always crooked; and those of the brute creation are similar.

3. The *road* may be a thing of necessity, as an approach to the mansion, or a matter of amusement only, as a drive or a ride, from which the grounds and the surrounding country may be seen to advantage. It should be the study of the artist to make the same road answer, as far as may be, the twofold purpose. The road and the walk are subject to the same rule of nature and use. The direction ought to be natural and easy, and adapted to the purpose intended. A road of necessity ought to be straighter than one of mere conveniency. In this, recreation is the predominant idea; in that, utility. But even in this the direct line may be dispensed with. The natural roads upon heaths and open downs, and the grassy glades and green roads across forests and extensive wastes, are proper subjects to be studied.

4. The *bridge* should never be visible where it is not wanted. A useless bridge is a deception; deceptions are frauds; and fraud is always hateful, unless when practised to avert some greater evil. A bridge without water is an absurdity; and half an one stuck up as an eye-trap is a paltry trick, which, though it may strike the stranger, cannot fail of disgusting when the fraud is found out. In low situations, and wherever water abounds, bridges become useful, and are therefore pleasing objects; they are looked for, and ought to appear, not as objects of ornament only, but likewise as matters of utility. The walk or the road therefore ought to be directed in such a manner as to cross the water at the point in which the bridge will appear to the greatest advantage.

In the construction of bridges, also, regard must be had to ornament and utility. A bridge is an artificial production, and as such it ought to appear. It ranks amongst the noblest of human inventions; the ship and the fortress alone excel it. Simplicity and firmness are the leading principles in its construction. Mr Wheatley's observation is just when he says, "the single wooden arch, now much in fashion, seems to me generally misapplied. Elevated without occasion so much above, it is totally detached from, the river; it is often seen straddling in the air, without a glimpse of water to account for it; and the ostentation of it as an ornamental object diverts all that train of ideas which its use as a communication might suggest." But we differ from this ingenious writer when he tells us that it is spoiled if adorned, and disfigured if only painted of any other than a dusky colour. In a rustic scene, where nature wears her own coarse garb, "the vulgar foot bridge of planks, only guarded on one hand by a common rail, and supported by a few ordinary piles," may be in character; but amidst a display of ornamented nature, a contrivance of that kind would appear mean and paltry, and would be an affectation of simplicity rather than the lovely attribute itself. In cultivated scenes, the bridge ought to receive the ornaments which the laws of architectural taste allow; and the more polished the situation, the higher should be the style and finishings.

5. *Seats* have a twofold use; they are useful as places of rest and conversation, and as guides to the points of view in which the beauties of the surrounding scene are disclosed. Every point of view should be marked with a seat; and, speaking generally, no seat ought to appear but in some favourable point of view. This rule may not be invariable, but it ought seldom to be deviated from. In the ruder scenes of neglected nature, the simple trunk, rough from the woodman's hands, and the butts or stools of rooted trees, without any other marks of tools upon them than those of the saw which severed them from their stems, are seats in character; and in romantic or recluse situations the cave or the grotto are admissible. But wherever human design has been executed upon the natural objects of the place, the seat and every other artificial accompaniment ought to be in unison; and whether the bench or the alcove be chosen, it ought to be formed and finished in such a manner as to unite with the wood, the lawn, and the walk, which lie around it. The colour of seats should likewise be suited to situations. Where uncultivated nature prevails, the natural brown of the wood itself ought not to be altered; but where the rural art presides, white or stone colour has a much better effect.

6. *Buildings* probably were first introduced into gardens merely for convenience, to afford refuge from a sudden shower, and shelter against the wind, or, at the most, to be seats for a party, or for retirement. They have since been converted into objects, and now the original use is too often forgotten in the greater purposes to which they are applied. They are considered as objects only; the inside is totally neglected, and a pompous edifice frequently wants a room barely comfortable. Sometimes the pride of making a lavish display to a visitor, without any regard to the owner's enjoyments, and sometimes too scrupulous an attention to the style of the structure, occasions a poverty and dulness within which deprive the buildings of part of their utility. But in a garden they ought to be considered both as beautiful objects and as agreeable retreats; if a character becomes them, it is that of the scene they belong to, not that of their primitive application. A Grecian temple or Gothic church may adorn spots where it would be affectation to preserve that solemnity within which is proper for places of devotion. They are not to be exact models, subjects only of curiosity or study; they are also seats; and such seats will be little frequented by the proprietor, his mind being generally indisposed to so much simplicity, and so much gloom, in the midst of gaiety, richness, and variety.

But though the interior of buildings should not be disregarded, it is by their exterior that they become objects; and sometimes by the one, sometimes by the other, and sometimes by both, they are entitled to be considered as characters. As objects, they are designed either to distinguish, or to break, or to adorn, the scenes to which they are applied.

The differences between one wood, one lawn, one piece of water, and another, are not always very apparent. The several parts of a garden would, therefore, often appear similar, if they were not distinguished by buildings; but these are so observable, so obvious at a glance, so easily retained in the memory, they mark the spots where they are placed with so much strength, they attract the relation of all around with so much power, that parts thus distinguished can never be confounded together. Yet it by no means follows that therefore every scene must have its edifice. The want of one is sometimes a variety; and other circumstances are often sufficiently characteristic. It is only when these too nearly agree that we must have recourse to buildings for differences. We can introduce, exhibit, or contrast them as we please. The most striking object is thereby made a mark of distinction, and the force of this first impression prevents our observing the points of resemblance.

The uniformity of a view may be broken by similar means, and on the same principle. When a wide heath, a dreary moor, or a continual plain, is in prospect, objects which catch the eye supplant the want of variety. None are so effectual for this purpose as buildings. Plantations or water can have no very sensible effect, unless they are large and numerous, and almost change the character of the scene; but a small single building diverts the attention at once from the sameness of the extent, which it breaks but does not divide, and diversifies without altering its nature. The design, however, must not be apparent. The merit of a cottage applied to this purpose, consists in its being free from the suspicion; and a few trees near it will both enlarge the object, and account for its position. Ruins are a hackneyed device, immediately detected, unless their style be singular, or their dimensions extraordinary. The semblance of an ancient British monument might be adapted to the same end, with little trouble, and great success. The materials might be brick, or even timber plastered over, if stone could not easily be procured. Whatever they were, the fallacy would not be discernible; it is an object to be seen at a distance, rude, and large, and in character agreeable to a wild open view. But no building ought to be introduced which may not in reality belong to such a situation; no Grecian temples, no Turkish mosques, no Egyptian obelisks or pyramids, none imported from foreign countries, and unusual in this. The apparent artifice would destroy an effect, which is so nice as to be weakened, if objects proper to produce it are displayed with too much ostentation; if they seem to be contrivances, not accidents, and the advantage of their position appear to be more laboured than natural.

But in a garden, where objects are intended only to adorn, every species of architecture may therefore be admitted, from the Grecian down to the Chinese; and the choice is so free, that the mischief most to be apprehended is an abuse of this latitude in the multiplicity of buildings. Few scenes can bear more than two or three; in some, a single one has a greater effect than any number; and a careless glimpse, here and there, of such as belong immediately to different parts, frequently enlivens the landscape with more spirit than those which are industriously shown. If the effect of a partial sight, or a distant view, were more attended to, many scenes might be filled, without being crowded; a greater number of buildings would be tolerated when they seemed to be casual, not forced; and the animation and richness of the objects might be attained without pretence or display.

Too fond an ostentation of buildings, even of those which are principal, is a common error; and when all has been done, they are not always shown to the greatest advantage. Though their symmetry and their beauties ought in general to be distinctly and fully seen, yet an oblique is sometimes better than a direct view; and they are often less agreeable objects when entire, than when a part is covered, or their extent is interrupted; when they are bosomed in wood, as well as backed by it, or appear between the stems of trees which rise before or above them. Thus thrown into perspective, thus grouped and accompanied, they may be as important as if they were quite exposed, and are frequently more picturesque and beautiful.

But a still greater advantage arises from this management in connecting them with the scene. They are considerable, and different from all around them; inclined therefore to separate from the rest; and yet sometimes still more detached by the pains taken to exhibit them. That very importance which is the cause of the distinction, ought to be a reason for guarding against the independence to which it is naturally prone, and by which an object which ought to be a part of the whole is reduced to a mere individual. An elevated is generally a noble situation. When it is a point or pinnacle, the structure may be a continuation of the ascent; and on many occasions, some parts of the building may descend lower than others, and multiply the appearances of connection. But an edifice in the midst of an extended ridge commonly seems naked alone, and imposed upon the brow, not joined to it. If wood, to accompany it, will not grow there, it had better be brought a little way down the declivity; and then all behind, above, and about it, are so many points of contact, by which it is incorporated into landscape.

Accompaniments are important to a building; but they lose much of their effect when they do not appear to be casual. A little mount just large enough for it, a small piece of water below, of no other use than to reflect it, and a plantation close behind, evidently placed there only to give it relief, are as artificial as the structure itself, and alienate it from the scene of nature into which it is introduced, and to which it ought to be reconciled. These appendages therefore should be so disposed, and so connected with the adjacent parts, as to answer other purposes, though applicable to this; that they may be bonds of union, not marks of difference, and that the situation may appear to have been chosen, not made, for the building.

In the choice of a situation, that which shows the building best ought generally to be preferred. Eminence, relief, and every other advantage which can be obtained, ought to be given to an object of so much consideration. They are for the most part desirable, sometimes necessary, and exceptionable only when, instead of rising out of the scene, they are forced into it, and a contrivance to procure them at any rate is avowed without any disguise. There are, however, occasions in which the most tempting advantages of situation must be waived; the general composition may forbid a building in one spot, or require it in another; at other times the interest of the particular group it belongs to may exact a sacrifice of the opportunities to exhibit its beauties and importance; and at all times the pretensions of every individual object must give way to the greater effect of the whole.

The same structure which adorns as an object, may also be expressive as a character. Where the former is not wanted, the latter may be desirable, or it may be weak for one purpose, and strong for the other; it may be grave or gay, magnificent or simple, and, according to its style, may or may not be agreeable to the place it is applied to. But mere consistency is not all the merit which buildings can claim; their characters are sometimes strong enough to determine, improve, or correct, that of the scene; and they are so conspicuous, and so distinguished, that whatever force they have is immediately and sensibly felt. They are fit therefore to make a first impression; and when a scene is but faintly characterized, they give at once a cast which spreads over the whole, and which the weaker parts concur to support, though perhaps they were not able to produce it.

Nor do they stop at fixing an uncertainty, or removing a doubt; they raise and enforce a character already marked. A temple adds dignity to the noblest, a cottage simplicity to the most rural, scenes; the lightness of a spire, the airiness of an open rotunda, the splendour of a continued colonnade, are less ornamental than expressive; others improve cheerfulness into gaiety, gloom into solemnity, and richness into profusion. A retired spot, which might have been passed unobserved, is noticed for its tranquillity as soon as it is appropriated by some structure to retreat; and the most unfrequented place seems less solitary than one which appears to have been the haunt of a single individual, or even of a sequestered family, and is marked by a lonely dwelling, or the remains of a deserted habitation.

The means are the same, the application of them only is different, when buildings are used to correct the character of the scene; to enliven its dulness, mitigate its gloom, or to check its extravagance, and, on a variety of occasions, to soften, to aggravate, or to counteract, particular circumstances attending it. But care must be taken that they do not contradict too strongly the prevailing idea. They may lessen the dreariness of a waste, but they cannot give it amenity; they may abate horrors, but they will never convert them into graces; they may make a tame scene agreeable, and even interesting, not romantic; or turn solemnity into cheerfulness, but not into gaiety. In these, and in many other instances, they correct the character, by giving it an inclination towards a better, which is not very different; but they can hardly alter it entirely, and when they are totally inconsistent with it, they are at the best nugatory.

The great effects which have been ascribed to buildings do not depend upon those trivial ornaments and appendages which are often too much relied on; such as the furniture of a hermitage, painted glass in a Gothic church, and sculpture about a Grecian temple; grotesque or bacchanalian figures to denote gaiety, and death's heads to signify melancholy. Such devices are only descriptive, not expressive, of character; and must not be substituted in the room of those superior properties, the want of which they acknowledge, but do not supply. They besides often require time to trace their meaning, and to see their application; but the peculiar excellence of buildings is, that their effects are instantaneous, and therefore the impressions they make are forcible. In order to produce such effects, the general style of the structure, and its position, are the principal considerations. Either of them will sometimes be strongly characteristic alone; united, their powers are very great; and both are so important, that if they do not concur, at least they must not contradict one another.

Every branch of architecture furnishes, on different occasions, objects proper for a garden; and there is no restraint on our selection, provided it be conformable to the style of the scene, proportioned to its extent, and agreeable to its character. The choice of situations is also perfectly free. A hermitage, indeed, must not be close to a road; but whether it be exposed to view on the side of a mountain, or concealed in the depth of a wood, is almost a matter of indifference; that it is at a distance from public resort is sufficient. A castle must not be sunk in a dell; but that it should stand on the utmost pinnacle of a hill, is not necessary; on a lower knoll, and backed by the rise, it may appear to greater advantage as an object, and be much more important to the general composition. Many buildings, which from their splendour best become an open exposure, will yet be sometimes not ill bestowed on a more sequestered spot, either to characterize or adorn it; and others, for which a solitary would in general be preferred to an eminent situation, may occasionally be objects in very conspicuous positions. A Grecian temple, from its peculiar taste and dignity, deserves every distinction; it may, however, in the depth of a wood, be so circumstanced that the want of those advantages to which it seems entitled will not be regretted. A happier situation cannot be devised, than that of the temple of Pan on the south lodge on Enfield Chase. It is of the usual oblong form, encompassed by a colonnade; in dimensions and in style it is equal to a most extensive landscape. And yet, by the antique and rustic air of its Doric columns without bases; by the chastity of its little ornaments, a crook, a pipe, and a scrip, and those only over the doors; and by the simplicity of the whole, both within and without; it is adapted with so much propriety to the thickets which conceal it from the view, that no one can wish it to be brought forward, who is sensible to the charms of the Arcadian scene which this building alone has created. On the other hand, a very spacious field, or sheep walk, will not be disgraced by a farm house, a cottage, or a Dutch barn; nor will they, though small and familiar, appear to be inconsiderable or insignificant objects. Numberless other instances might be adduced to prove the impossibility of restraining particular buildings to particular situations, upon any general principles: the variety in their forms is hardly greater than in their application. Only let not their uses be disguised, as is often absurdly attempted with the humbler kinds of buildings. A barn dressed up in the habit of a country church, or a farm house figuring away in the fierceness of a castle, are ridiculous deceptions. A landscape daubed upon a board, and a wooden steeple stuck up in a wood, are beneath contempt.

Temples, those favourite and most costly objects in gardens, too generally merit censure for their inutility, their profusion, or the impropriety of their purpose. Whether they be dedicated to Bacchus, Venus, Priapus, or any other demon of debauchery, they are in this age equally absurd. Architecture, in this part of its sphere, may more nobly, and with greater beauty and effect, be exercised upon a chapel, a mausoleum, a monument, judiciously disposed among the natural ornaments. Sir William Harbord has given us a model of the first kind, at Gunton in Norfolk: the parish church standing in his park, and being an old unsightly building, he had it taken down, and a beautiful temple, under the direction of the Adams, erected upon its site for the same sacred purpose. The mausoleum at Castle-Howard, in Yorkshire, the seat of the Earl of Carlisle, is a noble structure; and as an instance of the last sort, may be mentioned the temple of Concord and Victory at Stowe, erected to the memory of the great Lord Chatham and his glorious war; a beautiful monumental building, suited to the greatness of the occasion.

To the great variety above mentioned must be added, as Mr Wheatley observes, the many changes which may be made by the means of ruins. They are a class by themselves, beautiful as objects, expressive as characters, and peculiarly calculated to connect with appendages into elegant groups. They may be accommodated with ease to irregularity of ground, and their disorder is improved by it. They may be intimately blended with trees and thickets; and the interruption is an advantage; for imperfection and obscurity are their properties, and to carry the imagination to something greater than is seen is their effect. They may for any of these purposes be separated into detached pieces: contiguity is not necessary, nor even the appearance of it, if the relation be preserved; but straggling ruins have a bad effect when the several parts are equally considerable. There should be one large mass to raise an idea of greatness, to attract the others about it, and to be a common centre of union to all. The smaller pieces then mark the original dimensions of one extensive structure, and no longer appear to be the remains of several little buildings.

All remains excite an inquiry into the former state of the edifice, and fix the mind in a contemplation of the use it was applied to; besides the characters expressed by their style and position, they suggest ideas which would not arise from the buildings if entire. The purposes of many have ceased. An abbey, or a castle, if complete, can now be no more than a dwelling: the memory of the times, and of the manners to which they are adapted, is preserved only in history and in ruins; and certain sensations of regret, of veneration, or compassion, attend the recollection. Nor are these confined to the remains of buildings which are in disuse; those of an old mansion raise reflections on the domestic comforts once enjoyed, and the ancient hospitality which reigned there. Whatever building we see in decay, we naturally contrast its present with its former state, and delight to ruminate on the comparison. It is true that such effects properly belong to real ruins. They are, however, produced in a certain degree by those which are fictitious. The impressions are not so strong, but they are exactly similar; and the representation, though it does not present facts to the memory, yet suggests subjects to the imagination. But, in order to affect the fancy, the supposed original design should be clear, the use obvious, and the form easy to be traced. No fragments should be hazarded without precise meaning, and an evident connection; none should be perplexed in their construction, or uncertain as to their application. Conjectures about the form raise doubts about the existence of the ancient structure. The mind must not be allowed to hesitate; it must be hurried away from examining into the reality by the exactness and the force of the resemblance.

In the ruins of Tintern Abbey, the original construction of the church is perfectly marked; and it is principally from this circumstance that they are celebrated as a subject of curiosity and contemplation. The walls are almost entire; the roof only is fallen in, but most of the columns which divided the aisles are still standing. Of those which have dropped down, the bases remain, every one exactly in its place; and in the middle of the nave four lofty arches, which once supported the steeple, rise high in the air above all the rest, each reduced now to a narrow rim of stone, but completely preserving its form. The shapes even of the windows are little altered; but some of them are quite obscured, others partially shaded, by tufts of ivy; and those which are most clear are edged with its slender tendrils and lighter foliage, wreathing about the sides and the divisions. It winds round the pillars; it clings to the walls; and in one of the aisles clusters at the top in branches, so thick and so large as to darken the space below. The other aisles, and the great nave, are exposed to the sky. The floor is entirely overspread with turf; and to keep it clear from weeds and bushes is now its highest preservation. Monkish tombstones, and the monuments of benefactors long since forgotten, appear above the green sward. The bases of the pillars which have fallen rise out of it; and maimed effigies, and sculpture worn with age and weather, Gothic capitals, carved cornices, and various fragments, are scattered about, or lie in heaps piled up together. Other shattered pieces, though disjointed and mouldering, still occupy their original places; and a staircase much impaired, which led to a tower now no more, is suspended at a great height, uncovered and inaccessible. Nothing is perfect, but memorials of every part still subsist; all certain, but all in decay, and suggesting at once every idea which can occur in a seat of devotion, solitude, and desolation. Upon such models fictitious ruins should be formed; and if any parts are entirely lost, they should be such as the imagination can easily supply from those which are still remaining. Distinct traces of the building which is supposed to have existed are less liable to the suspicion of artifice, than an unmeaning heap of confusion. Precision is always satisfactory, but in the reality it is only agreeable; in the copy it is essential to the imitation.

A material circumstance to the truth of the imitation is, that the ruins should appear to be very old. The idea is besides interesting in itself. A monument of antiquity is never seen with indifference; and a semblance of age may be given to the representation by the hue of the materials, the growth of ivy and other plants, and cracks and fragments seemingly occasioned rather by decay than by destruction. An appendage evidently more modern than the principal structure will sometimes corroborate the effect. The shed of a cottager amidst the remains of a temple, is a contrast both to the former and to the present state of the building; and a tree flourishing among ruins shows the length of time they have lain neglected. No circumstance so forcibly marks the desolation of a spot once inhabited, as the prevalence of nature over it. *Campos ubi Troja fuit*, is a sentence which conveys a stronger idea of a city totally overthrown, than a description of its remains; but in a representation to the eye, some remains must appear; and then the perversion of them to an ordinary use, or an intermixture of a vigorous vegetation, intimates a settled despair of their restoration.

SECT. II.—PRINCIPLES OF SELECTION AND ARRANGEMENT IN THE SUBJECTS OF GARDENING.

1. *Of art.* In the lower classes of rural improvements, art should be seen as little as possible; and in the more negligent scenes of nature, every thing ought to appear as if it had been done by the general laws of nature, or had grown out of a series of fortuitous circumstances. But in the higher departments art cannot be hid; and the appearance of design ought not to be excluded. A human production cannot be made perfectly natural, and, held out as such, it becomes an imposition. Our art lies in endeavouring to adapt the productions of nature to human taste and perceptions; and if much art be used, do not attempt to hide it. Art seldom fails to please when executed in a masterly manner; nay, it is frequently the design and execution, more than the production itself, that strikes us. It is the artifice, not the design, which ought to be avoided. It is the labour, and not the art, which ought to be concealed. The rural artist ought therefore, upon every occasion, to endeavour to avoid labour; or, if indispensably necessary, to conceal it. No trace should be left to lead back the mind to the expensive toil. A mound raised, a mountain levelled, or a useless temple built, convey to the mind feelings equally disgusting.

2. *Picturesque beauty.* Though the aids of art are as essential to gardening as education is to manners, yet art may do too much. She ought to be considered as the handmaid, not as the mistress, of nature; and whether she be employed in carving a tree into the figure of an animal, or in shaping a view into the form of a picture, she is equally culpable. The nature of the place is sacred. Should this tend to landscape, from some principal point of view, assist nature and perfect it; provided this can be done without injuring the views from other points. But do not disfigure the natural features of the place; do not sacrifice its native beauties to the arbitrary laws of landscape painting. Nature indeed scarcely knows the thing mankind call a landscape. The landscape painter seldom or never finds it perfected to his hands; some addition or alteration is almost always wanted. Every man who has made his observations upon natural scenery knows that the misletoe of the oak occurs almost as often as a perfect natural landscape; and to attempt to make up artificial landscape upon every occasion is unnatural and absurd.

If, indeed, the eye were fixed in one point, the trees could be raised to their full height at command, and the sun be made to stand still; the rural artist might work by the rules of light and shade, and compose his landscape by the painter's law. But whilst the sun continues to pour forth its light impartially, and the trees to rise in slow progression, it would be ridiculous to attempt it. Let him rather seek out, imitate, and associate, such striking passages in nature as are immediately applicable to the place to be improved; let him, in short, "be various, wild, and free, as Nature's self;" instead of sacrificing the natural beauties of the place to one formal landscape, let every step disclose fresh charms unsought for.

3. *Of character.* Character is very reconcilable with beauty; and, even when independent of it, has attracted so much regard as to occasion several frivolous attempts to produce it. Statues, inscriptions, and even paintings, history and mythology, and a variety of devices, have been introduced for this purpose. The heathen deities and heroes have therefore had their several places assigned to them in the woods and lawns of a garden; natural cascades have been disfigured with river gods, and columns erected only to receive quotations; the compartiments of a summer-house have been filled with pictures of gambols and revels as significant of gaiety; the cypress, because it was once used in funerals, has been thought peculiarly adapted to melancholy; and the decorations, the furniture, and the environs of a building, have been crowded with puerilities under pretence of propriety. All these devices are rather emblematical than expressive; they may be ingenious contrivances, and recal absent ideas to the recollection, but they make no immediate impression; for they must be examined, compared, perhaps explained, before the whole design of them is well understood. And though an allusion to a favourite or well-known subject of history, of poetry, or of tradition, may now and then animate or dignify a scene; yet as the subject does not naturally belong to a garden, the allusion should not be principal. It should seem to have been suggested by the scene; a transitory image, which irresistibly occurred, not sought for, not laboured, and should have the force of a metaphor, free from the detail of an allegory.

Another species of character arises from direct imitation, when a scene or an object, which has been celebrated in description, or is familiar in idea, is represented in a garden. Artificial ruins, lakes, and rivers, fall under this denomination. The air of a seat extended to a distance, and scenes calculated to raise ideas of Arcadian elegance or of rural simplicity, with many more which have been occasionally mentioned, or will obviously occur, may be ranked in this class. They are all representations. But the materials, the dimensions, and other circumstances, being the same in the copy and the original, their effects are similar in both; and if not equally strong, the defect is not in the resemblance; but the consciousness of an imitation checks that train of thought which the appearance naturally suggests. Yet an over-anxious solicitude to disguise the fallacy is often the means of exposing it. Too many points of likeness sometimes hurt the deception; they seem studied and forced; and the affectation of resemblance destroys the supposition of a reality. A hermitage is the habitation of a recluse; it should be distinguished by its solitude and its simplicity; but if it is filled with crucifixes, hour-glasses, beads, and every other trinket which can be thought of, the attention is diverted from enjoying the retreat to examining the particulars. All the collateral circumstances which agree with a character seldom meet in one subject; and when they are industriously brought together, though each be natural, the collection is artificial.

But the art of gardening aspires to more than imitation. It can create original characters, and give expressions to the several scenes superior to any they can receive from allusions. Certain properties, and certain dispositions, of the objects of nature, are adapted to excite particular ideas and sensations; many of them have been occasionally mentioned, and all are very well known. They require no discernment, examination, or discussion, but are obvious at a glance, and instantaneously distinguished by our feelings. Beauty alone is not so engaging as this species of character. The impressions it makes are more transient and less interesting; for it aims only at delighting the eye, but the other affects our sensibility. An assemblage of the most elegant forms in the happiest situations is to a degree indiscriminate, if they have not been selected and arranged with a design to produce certain expressions; an air of magnificence or of simplicity, of cheerfulness, tranquillity, or some other general character, ought to pervade the whole; and objects pleasing in themselves, if they contradict that character, should therefore be excluded. Those which are only indifferent must sometimes make room for such as are more significant; many will often be introduced for no other merit than their expression; and some, which are in general rather disagreeable, may occasionally be recommended by it.

The power of such characters is not confined to the ideas which the objects immediately suggest; for these are connected with others which insensibly lead to subjects far distant perhaps from the original thought, and related to it only by a similitude in the sensations they excite. In a prospect enriched and enlivened with inhabitants and cultivation, the attention is caught at first by the circumstances which are gayest in their season, the bloom of an orchard, the festivity of a hay field, and the carols of harvest home; but the cheerfulness which these infuse into the mind expands afterwards to other objects than those immediately presented to the eye; and we are thereby disposed to receive, and delighted to pursue, a variety of pleasing ideas, and every benevolent feeling. At the sight of a ruin, reflections on the change, the decay, and the desolation before us, naturally occur; and they introduce a long succession of others, all tinctured with that melancholy which these have inspired; or if the monument revive the memory of former times, we do not stop at the simple fact which it records, but recollect many more coeval circumstances, which we see, not perhaps as they were, but as they are come down to us, venerable with age, and magnified by fame. Even without the assistance of buildings or other adventitious circumstances, nature alone furnishes the materials for scenes which may be adapted to almost every kind of expression. Their operation is general, and their consequences are infinite. The mind is elevated, depressed, or composed, as gaiety, gloom, or tranquillity prevails in the scene; and we soon lose sight of the means by which the character is formed; we forget the particular objects it presents, and, giving way to their effects, without recurring to the cause, we follow the track they have begun, to any extent which the disposition they accord with will allow. It suffices that the scenes of nature have a power to affect our imagination and our sensibility; for such is the constitution of the human mind, that if once it is agitated, the emotion spreads far beyond the occasion. When the passions are roused, their course is unrestrained; when the fancy is on the wing, its flight is unbounded; and, quitting the inanimate objects which first gave them the spring, we may be led by thought above thought, widely differing in degree, but still corresponding in character, till we rise from familiar subjects up to the sublimest conceptions, and are wrapt in the contemplation of whatever is great or beautiful which we see in nature, feel in man, or attribute to divinity.

4. *General arrangement.* Notwithstanding the nature

of the place, as already observed, ought not to be sacrificed to the mansion, the house must ever be allowed to be a principal in the composition. It ought, in fact, to be considered as the centre of the system; and the rays of art, like those of the sun, should grow fainter as they recede from the centre. The house itself being entirely a work of art, its immediate environs should be highly finished; but as the distance increases, the appearance of design should gradually diminish, until nature and fortuitousness have full possession of the scene.

In general, the approach should be to the back front, which, in suitable situations, ought to lie open to the pasture-grounds. On the sides more highly ornamented, a well-kept gravel walk may embrace the walls; to this the shaven lawn and shrubbery succeed; next, the grounds closely pastured; and, lastly, the surrounding country, which ought not to be considered as out of the artist's reach. For his art consists not more in decorating particular spots, than in endeavouring to render the whole face of nature delightful.

Another reason for this mode of arrangement is, that objects immediately under the eye are seen more distinctly than those at a distance, and ought to be such as are pleasing in the detail. The beauties of a flower can be discerned on a near view only; whilst at a distance a roughet of coppice wood, and the most elegant arrangement of flowering shrubs, have the same effect. The most rational entertainment the human mind is capable of receiving is that of observing the operations of nature. The foliation of a leaf, the blowing of flowers, and the maturation of fruits, are amongst the most delightful subjects that a contemplative mind can be employed in. These processes of nature are slow; and, except the object fall spontaneously under the eye of the observer, the inconveniences of visiting it in a remote part so far interfere with the more important employments of life as to blunt, if not destroy, the enjoyment. This is a strong argument in favour of shrubs and flowers being planted under or near our windows, especially those from whence they may be viewed during the hours of leisure and tranquillity.

Execution of the General Subjects.

Further, the vegetable creation being subject to the animal, the shrub may be cropped, or the flower trodden down, in its day of beauty. If therefore we wish to converse with nature in private, intruders must be kept off, and the shrubbery be severed from the ground, yet not in such a manner as to drive away the pasturing stock from our sight. For this reason, the shaven lawn ought not to be too extensive, and the fence which encloses it should be such as will not interrupt the view. But whether it be seen or unseen, suspected or unsuspected, is a matter of no great import. Its utility in protecting the shrubs and flowers; in keeping the horns of the cattle from the window, and the feet of the sheep from the gravel and broken ground; in preserving that neatness on the outside, which ought to correspond with the finishings and furniture within; render it of sufficient importance to become even a part of the ornament.

III.—EXECUTION OF THE GENERAL SUBJECTS.

Improvements in general may be classed under the heads of the *Hunting-Box*, the *Ornamented Cottage*, the *Villa*, and the *Principal Residence*.

But before any step can be taken towards the execution of the design, be it large or small, a map or plan of the place, exactly as it lies in its unimproved state, should be made, with a corresponding sketch upon which to mark the intended improvements. Not a hovel nor a twig should be touched, until the artist has studied maturely the natural abilities of the place, and has decidedly fixed in his mind, and finally settled on his plan, the proposed alterations; and even then, let him temper his daring with caution.

1. *Of Improvements adapted to a Hunting-Box.*

Here art has little to do. Hunting may be called the amusement of nature; and the place appropriated to it ought to be no further altered from its natural state than decency and conveniency require. With men who live in the present age of refinement, a want of decency is a want of sense.

The style throughout should be masculine. If shrubs be required, they should be of the hardier sorts; the box, the holly, the laurustinus. The trees should be the oak and the beech, which give in autumn an agreeable variety of foliage, and anticipate as it were the season of diversion. A suite of paddocks should be seen from the house; and if a view of distant covers can be caught, the back-ground will be complete. The stable, the kennel, and the leaping-bar, are the factitious accompaniments, in the construction of which simplicity and convenience should prevail.

2. *Of the Style of an Ornamented Cottage.*

Neatness and simplicity ought to mark the style of this rational retreat. Ostentation and show should be cautiously avoided; even elegance should not be attempted, though it may not be hid, if it offer itself spontaneously. Nothing, however, should appear vulgar, nor should simplicity be pared down to baldness; every thing whimsical or expensive ought to be studiously avoided; chasteness and frugality should appear in every part. If a taste for botany lead to a collection of native shrubs and flowers, a shrubbery will be requisite; but in this every thing should be native. A gaudy exotic ought not to be admitted; nor should the lawn be kept close shaven; its flowers should be permitted to blow, and the herbage, when mown, ought to be carried off, and applied to some useful purpose. In the artificial accompaniments, ornament must be subordinate, utility must preside. The buildings, if any appear, should be those in actual use in rural economics. If the hovel be wanted, let it appear; and, as a side-screen, the barn and rick-yard are admissible, whilst the dove-house and poultry-yard may enter more freely into the composition. In a word, the ornamented cottage ought to exhibit cultivated nature in the first stage of refinement. It ranks next above the farm house. The plain garb of rusticity may be set off to advantage; but the studied dress of the artist ought not to appear. That becoming neatness, and those domestic conveniences, which render the rural life agreeable to a cultivated mind, are all that should be aimed at.

3. *Of the Embellishment of a Villa.*

This demands a style very different from the preceding. It ought to be elegant, rich, or grand, according to the style of the house itself, and the state of the surrounding country; the principal business of the artist being to connect these two in such a manner that the one shall not appear naked or flaring, nor the other desolate and inhospitable. If the house be stately, and the adjacent country rich and highly cultivated, a shrubbery may intervene, in which art may show her utmost skill. Here the artist may even be permitted to play at landscapes; for a place of this kind being supposed to be small, the purpose principally ornamental, and the point of view probably con-

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fined simply to the house, side-screens may be formed, and a fore-ground laid out suitable to the best distance that can be caught. If buildings or other artificial ornaments abound in the offscape, so as to mark it strongly, they ought also to appear more or less in the fore-ground; if the distance abound with wood, the fore-ground should be thickened, lest baldness should offend; if open and naked, elegance rather than richness ought to be studied, lest heaviness should appear.

It is far from being any part of our plan to cavil unnecessarily at artists, whether living or dead; we cannot, however, refrain from expressing a concern for the almost total neglect of the principles here in ornamenting the vicinages of villas. It is to be regretted that in the present practice these principles seem to be generally lost sight of. Without any regard to uniting the house with the adjacent country, and indeed seemingly without any regard whatever to the offscape, one invariable plan of embellishment prevails, namely, that of stripping the fore-ground entirely naked, or nearly so, and surrounding it with a wavy border of shrubs and a gravel walk; leaving the area, whether large or small, one naked sheet of green sward.

In small confined spots this plan may be eligible. But a simple border round a large unbroken lawn only serves to show what more is wanted. Simplicity in general is pleasing; but even simplicity may be carried to an extreme, so as to convey no other idea than that of poverty and baldness. Besides, how often do we see in natural scenery the holly and the fox-glove flourishing at the foot of an oak, and the primrose and the campion adding charms to the hawthorn scattered over the pastured lawn? And we conceive that single trees footed with evergreens and native flowers, and clumps as well as borders of shrubs, are admissible in ornamental as well as in natural scenery.

4. *Of the Principal Residence.*

Here the whole art centres, and the artist has full scope for a display of taste and genius. He has an extent of country under his eye, and will endeavour to make the most of what nature and accident have spread before him. Round a principal residence a gentleman may be supposed to have some considerable estate, and it is not a shrubbery and a ground only which fall under the consideration of the artist; he ought to endeavour to disclose to the view, either from the house or some other point, as much as he conveniently can of the adjacent estate. The love of possession is deeply planted in every man's breast, and places should bow to the gratification of their owners. To curtail the view by an artificial side-screen, or any other unnatural machinery, so as to deprive a man of the satisfaction of overlooking his own estate, is an absurdity which no artist ought to be permitted to be guilty of. It is very different, however, where the property of another intrudes upon the eye. Here the view may, with some colour of propriety, be bounded by a woody screen. The grounds, however, by a proper management, may be made independent of whatever is external; and though prospects are nowhere more delightful than from a point of view which is also a beautiful spot, yet if in the environs of such a garden they should be wanting, the elegant, picturesque, and various scenes within itself, almost supply the deficiency.

This is the character of the gardens at Stowe;[1] for there the views in the country are only circumstances subordinate to the scenes; and the principal advantage of the situation is the variety of the ground within the enclosure. The house stands on the brow of a gentle ascent; and part of the gardens lie on the declivity, and spread over the bottom beyond it. This eminence is separated by a broad winding valley from another which is higher and steeper; and the descents of both are broken by large dips and hollows, sloping down the sides of the hills. The whole space is divided into a number of scenes, each distinguished with taste and fancy; and the changes are so frequent, so sudden, and complete, the transitions so artfully conducted, that the same ideas are never continued or repeated to satiety.

These gardens were begun when regularity was in fashion; and the original boundary is still preserved, on account of its magnificence; for round the whole circuit of between three and four miles is carried a very broad gravel walk, planted with rows of trees, and open either to the park or the country; a deep sunk fence attends it all the way, and comprehends a space of near four hundred acres. But in the interior scenes of the garden few traces of regularity appear; and where it yet remains in the plantations, it is generally disguised. Every symptom almost of formality is obliterated from the ground; and an octagon basin in the bottom is now converted into an irregular piece of water, which receives on one hand two beautiful streams, and falls on the other down a cascade into a lake.

In the front of the house is a considerable lawn, open to the water, beyond which are two elegant Doric pavilions, placed in the boundary of the garden, but not marking it, though they correspond to each other; for still farther back, on the brow of some rising grounds without the enclosure, stands a noble Corinthian arch, by which the principal approach is conducted, and from which all the gardens are seen reclining back against their hills. They are rich with plantations, full of objects, and, lying on both sides of the house almost equally, every part is within a moderate distance, notwithstanding the extent of the whole.

On the right of the lawn, but concealed from the house, is a perfect garden scene, called the *queen's amphitheatre*, where art is avowed, though formality is avoided. The fore-ground is scooped into a gentle hollow. The plantations on the sides, though but just rescued from regularity, yet in style are contrasted to each other. They are on one hand chiefly thickets, standing out from a wood; on the other, they are open groves, through which a glimpse of the water is visible. At the end of the hollow, on a little knoll, quite detached from all appendages, is placed an open Ionic rotunda. Beyond it a large lawn slopes across the view; a pyramid stands on the brow; the queen's pillar in a recess on the descent; and all the three buildings, being evidently intended for ornament alone, are peculiarly adapted to a garden scene. Yet their number does not render it gay. The dusky hue of the pyramid, the retired situation of the queen's pillar, and the solitary appearance of the rotunda, give it an air of gravity. It is encompassed with wood, and all the external views are excluded; even the opening into the lawn is but an opening into an enclosure.

At the king's pillar, very near to this, is another lovely spot, which is small, but not confined; for no termination appears; the ground one way, the water another, retire under the trees out of sight, but nowhere meet with a boundary. The view is first over some very broken ground, thinly and irregularly planted; then between two beautiful clumps which feather down to the bottom; and, afterwards across a glade, and through a little grove beyond it, to that part of the lake where the thickets, close upon the brink, spread a tranquillity over the surface, in which the

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[1] See description of the Stowe gardens in Mr Wheatley's work, already referred to.

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shadows are reflected. Nothing is admitted to disturb that quiet. No building obtrudes; for objects to fix the eye are needless in a scene which may be comprehended at a glance, and none would suit the pastoral idea it inspires, of elegance too refined for a cottage, and of simplicity too pure for any other edifice.

The situation of the rotunda promises a prospect more enlarged; and in fact most of the objects on this side of the garden are there visible. But they want both connection and contrast; each belongs peculiarly to some other spot. They are all blended together in this without meaning, and are rather shown on a map than formed into a picture. The water only is capital; a broad expanse of it is so near as to be seen under the little groups on the bank without interruption. Beyond it is a wood, which in one place leaves the lake, to run up behind a beautiful building, of three pavilions, joined by arcades, all of the Ionic order. It is called *Kent's Building*. And never was a design more happily conceived. It seems to be characteristically proper for a garden; it is elegant, varied, and purely ornamental; it directly fronts the rotunda, and a narrow rim of the country appears above the trees beyond it. But the effect even of this noble object is fainter here than at other points; its position is not the most advantageous; and it is but one amongst many other buildings, none of which are principal.

The scene at the temple of Bacchus is in character directly the reverse of that about the rotunda, though the space and the objects are nearly the same in both; but in this all the parts concur to form one whole. The ground from every side shelves gradually towards the lake; the plantations on the further bank open to show Kent's building, rise from the water's edge towards the knoll on which it stands, and close again behind it. That elegant structure, inclined a little from a front view, becomes more beautiful by being thrown into perspective, and, though at a greater distance, is more important than before, because it is alone in the view; for the queen's pillar and the rotunda are removed far aside, and every other circumstance refers to this interesting object. The water attracts, the ground and the plantations direct, the eye thither; and the country does not just glimmer in the offscape, but is close and eminent above the wood, and connected by clumps with the garden. The scene altogether is a most animated landscape; and the splendour of the building, the reflection in the lake, the transparency of the water, and picturesque beauty of its form, diversified by little groups on the brink, while on the broadest expanse no more trees cast their shadows than are sufficient to vary the tints of the surface; all these circumstances, vying in lustre with each other, and uniting in the point to which every part of the scene is related, diffuse a peculiar brilliancy over the whole composition.

The view from Kent's building is very different from those which have been hitherto described. They are all directed down the declivity of the lawn. This rises up the ascent. The eminence being crowned with lofty wood, becomes thereby more considerable; and the hillocks into which the general fall is broken, sloping farther out this way than any other, they also acquire an importance which they had not before; that particularly on which the rotunda is placed seems here to be a profound situation; and the structure appears to be properly adapted to so open an exposure. The temple of Bacchus, on the contrary, which commands such an illustrious view, is itself a retired object, close under the covert. The wood rising on the brow, and descending down one side of the hill, is shown to be deep; is high, and seems to be higher than it is. The lawn too is extensive; and part of the boundary being concealed, it suggests the idea of still greater extent. A small portion only of the lake indeed is visible; but it is not here an object. It is a part of the spot; and neither termination being in sight, it has no diminutive appearance. If more water had been admitted, it might have hurt the character of the place, which is sober and temperate; neither solemn nor gay; great and simple, but elegant; above rusticity, yet free from ostentation.

These are the principal scenes on one side of the gardens. On the other, close to the lawn before the house, is the winding valley above mentioned, the lower part of which is assigned to the Elysian fields. These are watered by a lovely rivulet, and very lightsome and airy, so thinly are the trees scattered about them; they are open at one end to more water and a larger glade, and the rest of the boundary is frequently broken to let in objects afar off, which appear still more distant from the manner of showing them. The entrance is under a Doric arch, which coincides with an opening among the trees, and forms a kind of vista, through which a Pembroke bridge just below, and a lodge built like a castle in the park, are seen in a beautiful perspective. That bridge is at one extremity of the gardens, the queen's pillar is at another, yet both are visible from the same station in the Elysian fields; and all these external objects are unaffectedly introduced, divested of their own appurtenances, and combined with others which belong to the spot. The temple of Friendship is also in sight, just without the place; and within it are the temples of ancient Virtue and of the British worthies; the one in an elevated situation, the other low down in the valley, and near to the water. Both are decorated with the effigies of those who have been most distinguished for military, civil, or literary merit; and near to the former stands a rostral column, sacred to the memory of Captain Grenville, who fell in an action at sea. By placing here the meed of valour, and by filling these fields with the representations of those who have deserved best of mankind, the character intended to be given to the spot is justly and poetically expressed; and the number of the images which are presented or excited perfectly correspond with it. Solitude was never reckoned amongst the charms of Elysium; it has been always pictured as the mansion of delight and of joy; and in this imitation, every circumstance accords with that established idea. The vivacity of the stream which flows through the vale; the glimpses of another approaching to join it; the sprightly verdure of the green sward, and every bust of the British worthies, reflected in the water; the variety of the trees, the lightness of the greens, their disposition, all of them distinct objects, and dispersed over gentle inequalities of the ground; together with a multiplicity of objects both within and without, which embellish and enliven the scene; give it a gaiety which the imagination can hardly conceive, or the heart wish to be exceeded.

Close by this spot, and a perfect contrast to it, is the alder grove; a deep recess in the midst of a shade, which the blaze of noon cannot brighten. The water seems to be a stagnated pool, eating into its banks, and of a peculiar colour, not dirty, but clouded, and dimly reflecting the dun hue of the horse-chestnuts and alders which press upon the brink; the stems of the latter, rising in clusters from the same root, bear one another down, and slant over the water. Misshapen elms and ragged firs are frequent in the wood which encompasses the hollow; the trunks of dead trees are left standing amongst them; and the uncouth sumach, and the yew, with elder, nut, and holly, compose the underwood. Some limes and laurels are intermixed, but they are not many; the wood is in general of the darkest greens; and the foliage is thickened with ivy, which not only twines up the trees, but creeps also over the falls of the ground. These are steep and abrupt. The gravel-walk is covered with moss; and a

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grotto at the end, faced with broken flints and pebbles, preserves, in the simplicity of its materials, and the duskiness of its colour, all the character of its situation. Two little rotundas near it were better away; one building is sufficient for such a scene of solitude as this, in which more circumstances of gloom concur than were perhaps ever collected together.

Immediately above the alder grove is the principal eminence in the gardens. It is divided by a great dip into two pinnacles, upon one of which is a large Gothic building. The space before this structure is an extensive lawn. The ground on one side falls immediately into the dip; and the trees which border the lawn sinking with the ground, the house rises above them, and fills the interval. The vast pile seems to be still larger than it is, for it is thrown into perspective, and between and above the heads of the trees, the upper story, the porticoes, the turrets, and balustrades, and all the slated roofs, appear in a noble confusion. On the other side of the Gothic building, the ground slopes down a long-continued declivity into a bottom, which seems to be perfectly irriguous. Divers streams wander about it in several directions. The conflux of that which runs from the Elysian fields with another below it is full in sight; and a plain wooden bridge thrown over the latter, and evidently designed for a passage, imposes an air of reality on the river. Beyond it is one of the Doric porticoes which front the house; but now it is alone; it stands on a little bank above the water, and is seen under some trees at a distance before it. Thus grouped, and thus accompanied, it is a happy incident, concurring with many other circumstances to distinguish this landscape by a character of cheerfulness and amenity.

From the Gothic building a broad walk leads to the Grecian valley, which is a scene of more grandeur than any in the gardens. It enters them from the park, spreading at first to a considerable breadth, then winds, grows narrower, but deeper, and loses itself at last in a thicket, behind some lofty elms, which interrupt the sight of the termination. Lovely woods and groves hang all the way on the declivities; and the open space is broken by detached trees, which, near the park, are cautiously and sparingly introduced, lest the breadth should be contracted by them; but as the valley sinks, they advance more boldly down the sides, stretch across or along the bottom, and cluster at times into groups and forms, which multiply the varieties of the larger plantations. These are sometimes close coverts, and sometimes open groves. The trees rise in one upon high stems, and feather down to the bottom in another; and between them are short openings into the park or the gardens. In the midst of the scene, just at the bend of the valley, and commanding it on both sides, upon a large, easy, natural rise, is placed the temple of Concord and Victory; at one place its majestic front of six Ionic columns, supporting a pediment filled with bas relief, and the points of it crowned with statues, faces the view; at another, the beautiful colonnade, on the side, of ten lofty pillars, retires in perspective. It is seen from every part; and impressing its own character of dignity on all around, it spreads an awe over the whole. But no gloom, no melancholy, attends it. The sensations it excites are rather placid, but full of respect, admiration, and solemnity. No water appears to enliven, no distant prospect to enrich, the view; the parts of the scene are large, the idea of it sublime, and the execution happy; it is independent of all adventitious circumstances, and relies on itself for its greatness.

The scenes which have been described are such as are most remarkable for beauty or character, but the gardens contain many more; and even the objects in these, by their several combinations, produce very different effects, within the distance sometimes of a few paces, from the unevenness of the ground, the variety of the plantations, and the number of the buildings. The multiplicity of the last has indeed been often urged as an objection to Stowe; and certainly, when all are seen by a stranger in two or three hours, twenty or thirty capital structures, mixed with others of inferior note, do seem too many. But the growth of the wood every day weakens the objection, by concealing them one from the other. Each belongs to a distinct scene; and if they are considered separately, at different times, and at leisure, it may be difficult to determine which to take away. Yet still it must be acknowledged that their frequency destroys all ideas of silence and retirement. Magnificence and splendour are the characteristics of Stowe. It is like one of those places celebrated in antiquity, which were devoted to the purposes of religion, and filled with sacred groves, hallowed fountains, and temples dedicated to several deities; the resort of distant nations, and the object of veneration to half the heathen world. This pomp is, at Stowe, blended with beauty; and the place is equally distinguished by its amenity and its grandeur.

In the midst of so much embellishment as may be introduced into this species of garden, a plain field or a sheep-walk is sometimes an agreeable relief; and even wilder scenes may occasionally be admitted. These indeed are not properly parts of a garden, but they may be comprehended within the verge of it; and the proximity to the more ornamented scenes is at least a convenience, that the transition from the one to the other may be easy, and the change always in our option. For though a spot in the highest state of improvement be a necessary appendage to a seat, yet, in a place which is perfect, other characters will not be wanting. If they cannot be had on a large scale, they are acceptable on a smaller; and so many circumstances are common to all, that they might often be intermixed; they may always border on each other.

But on this head it would be in vain to attempt to lay down particular rules. Different places are marked by sets of features as different from each other as are those in men's faces. Much must be left to the skill and taste of the artist; and let these be what they may, nothing but mature study of the natural abilities of the particular place to be improved can render him equal to the execution, so as to make the most of the materials that are placed before him. Some few general rules may nevertheless be laid down. The approach ought to be conducted in such a manner that the striking features of the place shall burst upon the view at once. No trick, however, should be made use of. All should appear to fall in naturally. In leading towards the house, its direction should not be fully in front, not exactly at an angle, but should pass obliquely upon the house and its accompaniments, so that their position with respect to each other, as well as the perspective appearance of the house itself, may vary at every step; and having shown the front and the principal wing, or other accompaniment, to advantage, the approach should wind to the back front, which, as has been already observed, ought to lie open to the park or pastured grounds.

The improvements, and the rooms from which they are to be seen, should be in unison. Thus, the view from the drawing-room should be highly embellished, to correspond with the beauty and elegance within. Every thing here should be feminine, elegant, beautiful, such as attunes the mind to politeness and lively conversation. The breakfasting room should have more masculine objects in view, wood, water, and an extended country for the eye to roam over; such as allures us imperceptibly to the ride or the chase. The eating and banqueting rooms need no exterior allurements.

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There is a harmony in taste as well as in music. Variety, and even wildness upon some occasions, may be admitted; but discord cannot be allowed. If, therefore, a place be so circumstanced as to consist of properties totally irreconcilable, the parts ought, if possible, to be separated in such a manner that, like the air and the recitative, the adagio and the allegro, in music, they may set off each other's charms by the contrast. These observations may be illustrated by Mr Wheatley's description and proposed improvement of Persefield, near Chepstow, in Monmouthshire; a place upon which nature has lavished her favours, and which has been spoken of by Mr Gilpin, and other writers, in the most flattering terms.

Persefield is situated upon the banks of the river Wye, which divides Gloucestershire and Monmouthshire, and which was formerly the boundary between England and Wales. The general tendency of the river is from north to south; but about Persefield it describes by a winding course the letter S somewhat compressed. The grounds of Persefield are lifted high above the bed of the river, shelving, and form the brink of a lofty and steep precipice towards the south-west. The lower limb of the curvature is filled with Perse-wood, which makes a part of Persefield; but it is an impenetrable thicket of coppice wood, which dips to the south-east down to the water's edge, and, seen from the top of the opposite rock, has a good effect. The upper limb receives the farms of Llancot, rich and highly cultivated, broken into enclosures, and scattered with groups and single trees; two well-looking farm houses in the centre, and a neat white chapel on one side, forming altogether a lovely little paradisaical spot. The lowliness of its situation stamps it with an air of meekness and humility; and the natural barriers which surround it add that of peacefulness and security. The picturesque farms do not form a low flat bottom, subject to be overflowed by the river; but take the form of a gorget, rising fullest in the middle, and falling on every side gently to the brink of the Wye; except on the east side, where the top of the gorget leans in an easy manner against a range of perpendicular rock, as if to show its disk with advantage to the walks of Persefield

This rock stretches across what may be called the *Isthmus*, leaving only a narrow pass down into the fields of Llancot, and joins the principal range of rocks at the lower bend of the river. To the north, at the head of the latter, stands an immense rock, or rather a pile of immense rocks heaped one above another, called *Windcliff;* the top of which is elevated as much above the grounds of Persefield as those are above the fields of Llancot. These several rocks, with the wooded precipices on the side of Persefield, form a circular enclosure, about a mile in diameter, including Perse-wood, Llancot, the Wye, and a small meadow lying at the foot of Windcliff.

The grounds are divided into the upper and lower lawn by the approach to the house; a small irregular building, standing near the brink of the precipice, but facing down the lower lawn, a beautiful ground, falling "precipitately every way into a valley which shelves down in the middle," and is scattered with groups and single trees in an excellent style. The view from the house is soft, rich, and beautifully picturesque; the lawn and woods of Persefield, and the opposite banks of the river; the Wye, near its mouth, winding through meadows green as emerald, in a manner peculiarly graceful; the Severn, here very broad, backed by the wooded and highly cultivated hills of Gloucestershire, Wiltshire, and Somersetshire. Not one rock enters into the composition. The whole view consists of an elegant arrangement of lawn, wood, and water. The upper lawn is a less beautiful ground, and the view from it, though it command the "cultivated hills and rich valleys of Monmouthshire," bounded by the Severn, and backed by the Mendip Hills, is much inferior to that from the house. To give variety to the views from Persefield, to disclose the native grandeur which surrounds it, and to set off its more striking features to advantage, walks have been cut through the woods and on the face of the precipice which border the grounds to the south and east. The first point of view is marked by an alcove, from which are seen the bridge and the town of Chepstow, with its castle situated in a remarkable manner on the very brink of a perpendicular rock washed by the Wye; and beyond these the Severn shows a small portion of its silvery surface. Proceeding a little farther along the walk, a view is caught which the painter might call a complete landscape. The castle, with the serpentine part of the Wye below Chepstow, intermixed in a peculiar manner with the broad waters of the Severn, forms the fore-ground, which is backed by distant hills; the rocks, crowned with wood, lying between the alcove and the castle, to the right, and Castlehill farm, elevated upon the opposite banks of the river, to the left, form the two side-screens. This point is not marked, and must frequently be lost to the stranger. The grotto, situated at the head of Perse-wood, commands a near view of the opposite rocks, magnificent beyond description. The littleness of human art was never placed in a more humiliating point of view; the castle of Chepstow, a noble fortress, is, compared with the natural bulwarks, a mere house of cards.

Above the grotto, upon the isthmus of the Persefield side, is a shrubbery, strangely misplaced; an unpardonable intrusion upon the native grandeur of this scene. Mr Gilpin's observations upon this, as upon every other occasion, are exceedingly just. "It is a pity the ingenious embellisher of these scenes," says he, "could not have been satisfied with the great beauties of nature which he commanded. The shrubberies he has introduced in this part of his improvements, I fear, will rather be esteemed paltry." "It is not the shrub which offends; it is the formal introduction of it. Wild underwood may be an appendage of the grandest scene; it is a beautiful appendage. A bed of violets or of lilies may enamel the ground with propriety at the foot of an oak; but if you introduce them artificially in a border, you introduce a trifling formality, and disgrace the noble object you wish to adorn."

The walk now leaves the wood, and opens upon the lower lawn, until, coming near the house, it enters the alarming precipice facing Llancot; winding along the face of it in a manner which does great honour to the artist. Sometimes the fragments of rock which fall in its way are avoided, at other times partially removed, so as to conduct the path along a ledge carved out of the rock; and, in one instance, a huge fragment, of a somewhat conical shape, and many yards high, is perforated, the path leading through its base. This is a thought which will hand down to future times the greatness of the proprietor's taste; the design and the execution are equally great; not a mark of a tool to be seen; all appears perfectly natural. The arch-way is made winding, so that on the approach it appears to be the mouth of a cave; and, on a nearer view, the idea is strengthened by an allowable deception; a black dark hole on the side next the cliff, which, seen from the entrance before the perforation is discovered, appears to be the darksome inlet into the body of the cave.

From this point, that vast enclosure of rocks and precipices which marks the peculiar magnificence of Persefield is seen to advantage. The area, containing in this point of view the fields of Llancot and the lower margin of Perse-wood, is broken in a manner peculiarly picturesque by the graceful winding of the Wye; here washing a low grassy shore, and there sweeping at the feet of the rocks which rise in some places perpendicular from the water; but in general they have a wooded offset at the base,

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above which they rise to one, two, or perhaps three or four hundred feet high; exposing one full face, silvered by age, and bearded with ivy, growing out of the wrinkle-like seams and fissures. If one might be allowed to compare the paltry performances of art with the magnificent works of nature, we should say that this enclosure resembles a prodigious fortress which has long lain in ruins. It is in reality one of nature's strongholds, and as such has probably been frequently made use of. Across the isthmus, on the Gloucestershire side, there are the remains of a deep intrenchment, called to this day the *Bulwark*; and tradition still teems with the extraordinary warlike feats which have been performed among this romantic scenery.

From the perforated rock, the walk leads down to the cold bath, seated about the mid-way of the precipice, in this part less steep; and from the cold bath a rough path winds down to the meadow, by the side of the Wye, from whence the precipice on the Persefield side is seen with every advantage; the giant fragments, hung with shrubs and ivy, rise in a ghastly manner from amongst the underwood, and show themselves in all their native savageness. From the cold bath upward, a coach-road, steep and difficult, leads to the top of the cliff, at the upper corner of the upper lawn. Near the top of the road is a point which commands one of the most pleasing views of Persefield; the Wye sweeping through a grassy vale which opens to the left; Llancot backed by its rocks, with the Severn immediately behind them, and which, seen in this point of view, seems to be divided from the Wye by only a sharp ridge of rock, with a precipice on either side; and behind the Severn the vale and wooded hills of Gloucestershire.

From this place a road leads to the top of Windcliff. The face of nature probably affords not a more magnificent scene. Llancot in all its grandeur, the ground of Persefield, the castle and town of Chepstow, the graceful windings of the Wye below, and its conflux with the Severn; to the left the forest of Dean; to the right the rich marshes and picturesque mountains of South Wales; a broad view of the Severn, opening its sea-like mouth; the conflux of the Avon, with merchant ships at anchor in King-road, and vessels of different descriptions under sail; Aust Cliff, and the whole vale of Berkeley, backed by the wooded swells of Gloucestershire, the view terminating in clouds of distant hills, rising one behind another, until the eye becomes unable to distinguish the earth's billowy surface from the clouds themselves.

The leading principle of the improvement proposed by Mr Wheatley is, to "separate the sublime from the beautiful; so that in viewing the one, the eye might not so much as suspect that the other was near.

"Let the hanging walk be conducted entirely along the precipices, or through the thickets, so as to disclose the natural scenery, without once discovering the lawn or any other acquired softness. Let the path be as rude as if trodden only by wild beasts and savages, and the resting places, if any, as rustic as possible. Erase entirely the present shrubbery, and lay out another as elegant as nature and art could render it before the house, swelling it out into the lawn towards the stables; between which and the kitchen-garden make a narrow winding entrance. Convert the upper lawn into a deer-paddock, suffering it to run as wild, rough, and forest-like, as total negligence would render it."

The visitor would then enter the hanging walk by a sequestered path at the lower corner of the lawn, pursuing it through the wood to beneath the grotto, and round the headland, or winding through Perse-wood, to the perforated rock and the cold bath, without once conceiving an idea that art, or at least that much art, had been made use of in disclosing the natural grandeur of the surrounding objects, which ought to appear as if they presented themselves to his view, or at most as if nothing was wanted but his own penetration and judgment to find them out. The walk should therefore be conducted in such a manner that the breaks might be quite natural, yet the points of view obvious, or requiring nothing but a block or stone to mark them. A stranger at least wants no seat here; he is too eager in the early part of his walk to think of lounging upon a bench. From the cold bath he would ascend the steep, near the top of which a commodious bench or benches might be placed. The fatigue of ascending the hill would require a resting-place; and there are few points which afford a more pleasing view than this; it is grand, without being too broad and glaring.

From these branches he would enter the forest part. Here the idea of nature in her primitive state would be strengthened; the roughnesses and deer to the right, and the rocks in all their native wildness to the left. Even Llancot might be shut out from the view by the natural shrubbery of the cliff. The lover's leap, however, might remain; but no benches, nor other work of art, should here be seen. A natural path, deviating near the brink of the precipice, would bring the spectator down to the lower corner of the park, where benches should be placed in a happy point, so as to give a full view of the rocks and native wildnesses, and at the same time to hide the farm houses, fields, and other acquired beauties of Llancot. Having satiated himself with this savage scene, he would be led, by a still rustic path, through the labyrinth, when the shrubbery, the lawn with all its appendages, the graceful Wye, and the broad silver Severn, would break upon the eye with every advantage of ornamental nature. The transition could not fail to be striking. And from this soft scene he would be shown to the top of Windcliff, where in one vast view he would unite the sublime and beautiful of Persefield.

One particular only remains to be noticed. A place which is the residence of a family all the year, is defective if some portion of it be not set apart for the enjoyment of a fine day, for air, and exercise, in winter. To such a spot shelter is absolutely essential; and evergreens being the thickest covert, are therefore the best; their verdure also is then agreeable to the eye; and they may be arranged so as to produce a beautiful mixture of greens, with more certainty than deciduous trees, and with almost equal variety. They may be collected into a wood; and through that wood gravel-walks may be led along openings of a considerable breadth, free from large trees which would intercept the rays of the sun, and winding in such a manner as to avoid any draft of wind, from whatever quarter it may blow. But when a retreat at all times is thus secured, other spots may be adapted only to occasional purposes, and be sheltered towards the north or the east on one hand, whilst they are open to the sun on the other. The few hours of cheerfulness and warmth which its beams afford are so valuable as to justify the sacrifice even of the principles of beauty to the enjoyment of them; and therefore no objections of sameness or formality can prevail against the pleasantness of a straight walk under a thick hedge or a south wall. The eye may, however, be distorted from the screen by a border before it, where the aconite and the snowdrop, the crocus and hepatica, brought forward by the warmth of the situation, will be welcome harbingers of spring; and on the opposite side of the walk little tufts of laurustines, and of variegated evergreens, may be planted. The spot, thus enlivened by a variety of colours, and even a degree of bloom, may be still further improved by a green-house. The entertainment which exotics afford peculiarly belongs to this part of the year; and if amongst them be interspersed some of our earliest flowers, they will there blow before their time, and anticipate the gaiety of the season which is advancing. The walk may also lead to the stoves, where the climate and the plants are always the same. And the kitchen-garden should not be far off; for that is never quite destitute of produce, and always an active scene. The appearance of business is alone engaging; and the occupations there are an earnest of the happier seasons to which they are preparative. By these expedients even the winter may be rendered cheerful in a place where shelter is provided against all but the bitterest inclemencies of the sky, and agreeable objects and interesting amusements are contrived for every hour of tolerable weather.

GARDINER, Stephen, bishop of Winchester and lord chancellor of England, was the illegitimate son of Dr Lionel Woodville or Wydeville, dean of Exeter, and brother to Elizabeth, queen-consort of Edward IV. He received his academical education at Cambridge, and, after passing some time in the family of the Duke of Norfolk, was appointed secretary to Cardinal Wolsey. This situation initiated him in the conduct of affairs, and proved the foundation of his rise at court. In 1525 he was employed to draw up the plan of the alliance with Francis I.; in 1527 he was sent to Rome to negotiate the divorce of Henry VIII. from Catharine of Aragon; and he advanced so rapidly in favour, that he was styled primary secretary of the most secret councils, and described by the cardinal-minister as *dimidium sui*, or the half of himself. During his residence at Rome, the pope having fallen dangerously ill, Gardiner set all engines to work to endeavour to obtain the keys provisionally for Wolsey, and secured the suffrages of about a third of the college of cardinals in behalf of his master; but this scheme was rendered abortive by the recovery of Clement. In the matter of the divorce, Gardiner reported that all solicitations at Rome would, in his opinion, be fruitless; that the pope was immoveable in the resolution to do nothing himself; but that he might be induced to confirm such a sentence as the king could obtain from the legates. Persuaded of the soundness, as well as sincerity of this opinion, Henry recalled Gardiner, and, soon after his arrival, declared him secretary of state. About this time, 1529, he obtained his first ecclesiastical preferment, the archdeaconry of Norfolk, which was conferred on him by Bishop Nix of Norwich. Gardiner was now particularly consulted by the king in the affair of the divorce; and when Cardinal Campejus declared the cause evoked to Rome, he found out Cranmer, and introduced him to the king, a step which proved the ruin of Wolsey. In 1531 he was installed in the archdeaconry of Leicester, and soon afterwards advanced to the rich see of Winchester. As Bishop of Winchester he assisted in the court, where, in May 1533, sentence was passed by Cranmer, declaring the king's marriage with Catharine null and void; and the same year he went as ambassador to the French king at Marseilles. On his return, being called on to acknowledge the king's supremacy, he readily complied, and published a defence of it, entitled *De Vera et Falsa Obedientia.* In 1535 he resumed his embassy to France, during which he declared against a religious league with the protestant princes of Germany, and advised a political alliance. In 1538 he was sent as ambassador to the German diet at Ratisbon, where he incurred the suspicion of maintaining a secret correspondence with the pope. On the death of Cromwell, long his rival in the king's favour, the university of Cambridge elected him its vice-chancellor; and, in return for this honour, Gardiner, on all occasions, gave it the benefit of his interest at court. But, like other courtiers, he was subject to all the vicissitudes of Henry's capricious favour; and, with all his suppleness and address, he on several occasions narrowly escaped imprisonment, if not something worse. This, indeed, is the more remarkable, as the proofs of his want of honest and sound principles are manifold. He was ever the servile and ready instrument of the king's will, and made no scruple in taking part in any proceeding, however disgraceful in itself, which seemed calculated to advance his interest or secure his safety. In the proceedings against Catharine of Spain, Anne of Cleves, Catharine Howard, Anne Boleyn, Sir Thomas More, and Bishop Fisher, Gardiner was equally active in lending himself to the vindictive caprices of the despot whom he served; and no motive of gratitude, no suggestion of humanity, no awakening of conscience, seem ever to have prevented him from yielding the basest compliance with the wishes of the tyrant. In the reign of Edward VI. he opposed the Reformation, and being deprived for disobedience and contempt, was imprisoned in the Tower; but on the accession of Queen Mary he was set at liberty, and again invested with power. The unprincipled sycophant under the wayward and ferocious Henry, now proved himself an unrelenting persecutor under the bigoted Mary; and it is even said that he was transported with joy on hearing of the martyrdom of Latimer and Ridley. But his career was now approaching to its close. He died on the 12th of November 1555, at the age of seventy-two. It is said that on his deathbed the retrospect of his life and conduct filled him with horror, and that he often repeated the words, *Erravi cum Petro, sed non flevi cum Petro*, I have sinned with Peter, but I have not wept with Peter. His principal works are, 1. De Vera et Falsa Obedientia, 1534; 2. Palinodia dicti libri; 3. A Necessary Doctrine of a Christian Man, set forth by the King's Majestie of England, 1543; 4. An Explanation and Assertion of the true Catholic Faith, touching the most blessed Sacrament of the Altar, 1551; 5. Confutatio Cavillationum quibus Sacrosanctum Eucharistiæ Sacramentum ab impiis Capernaitis impeti solet, 1551, composed while a prisoner in the Tower.

GARGARISM (from γαργαριζω, *to wash the mouth*), a gargle. Its use is to cleanse the mouth and throat with, when affected with inflammations, ulcerations, and the like.

GARLAND, a sort of chaplet made of flowers, feathers, and sometimes precious stones, and worn on the head in the manner of a crown. The word is formed from the French *guirlande*, and that of the barbarous Latin *garlanda*, or Italian *ghirlanda.* Ménage traces its origin from *gyrus* through *gyrulus*, to *gyrulare*, *gyrlandum*, *ghirlandum*, and at length *ghirlanda* and *guirlande;* but Hick rejects this derivation, and brings the word from *gardel handa*, which in the northern languages signify a *nosegay artfully wrought with the hand.*

GARNET, in *Natural History*, a beautiful gem, of a red colour, with an admixture of blue. See Gem and Mineralogy.

GARNET DENNIS, an island in the Eastern Seas, about forty-two miles in circumference, and inhabited by blacks. Long. 151. 25. E. Lat. 2. 30. N.

GARONNE, Upper, a department in the south-west of France, formed out of the ancient district Toulousain, a part of Upper Languedoc, and the district of Comminges, a portion of Gascony. It is bounded on the north by the department of Tarn-Garonne, on the east by those of the Tarn and the Aude, on the south-east by that of Arriège, on the south by Spain, and on the west by the departments of the Upper Pyrenees and the Gers. The extent is 2470 square miles, or, according to the royal almanack, 642,533 hectares. The civil divisions are four arrondissements, thirty-five cantons, and 605 communes, inhabited by 427,856 individuals.

The face of the country, in by far the greatest portion of the northern division of the department, consists of low hills, and broad valleys between them; but the southern part is a mountain district, which rises gradually towards the Spanish frontier, where some of the elevations attain the height of 10,000 feet. In the northern part the land is generally fertile; but in the southern it is sterile, and, in the valleys, is better adapted for pasture than for tillage. The chief river, which gives name to the department, is navigable for boats above Toulouse, to Cazères for small boats, and below that city to the sea for variously-sized larger vessels. In the Pyrenees are some small lakes: from one of them, the Seculego, is a waterfall into another, the Espingo, which is near 800 feet high, and the latter lake is 4500 feet above the level of the sea. In no part of the world is there a greater variety of picturesque scenery than the Pyrenees present within this department.

The inhabitants, like the others in these southern departments, speak a peculiar patois, in which many Latin and Spanish words are intermixed. In some parts of the Pyrenees, especially in the Valley of Luchon, are found the Cretins, there called Cagots, with large and indistinct articulation, and a great degree of stupidity, who reside in dwellings separated from the other inhabitants, by whom all connection with them is viewed with abhorrence. The singularity is, that none of this race are found on the Spanish side of the Pyrenees.

The agriculture, except on the mountains, is well conducted, and the harvests, especially of wheat, are very abundant; besides which, much maize is occasionally grown. The neighbourhood of Toulouse is one of the most fruitful of France, as well in corn as in pasture for cattle. Much fruit is produced, and the vineyards are extensive, yielding wine of a medium quality, most of which is consumed at home, or converted into brandy. The woods yield some ship-timber and fuel, but suffered much during the Revolution.

There are no mines worked except of iron upon a small scale, though copper and lead are to be found in several parts. The manufacturing industry is almost confined to Toulouse, the capital, where linen, woollen, and silk goods are fabricated extensively, as well as snuff, starch, china, paper, hats, hose, and some other articles. In the Pyrenees there is a considerable contraband trade carried on with Spain.

GARRICK, David, the greatest actor of his age and country, was born at the Angel Inn at Hereford, in the beginning of 1716. His father, Captain Peter Garrick, was a French refugee, and had a troop of horse, which were then quartered in that city. This rank he maintained in the army for several years, and had attained a majority at the time of his death, which, however, prevented him from ever enjoying it. Mr Garrick received the rudiments of his education in the free school at Litchfield, which he afterwards completed at Rochester, under the celebrated Mr Colson, afterwards mathematical professor at Cambridge. Dr Johnson and he were fellow-students at the same school; and it is a curious fact, that these two celebrated persons came up to London in the same coach, with the intention of pushing themselves into active life. On the 9th of March 1736, he was entered at the honourable society of Lincoln's Inn. The study of the law, however, he soon quitted, and followed for some time the employment of a wine-merchant; but that too having disgusted him, he at last gave way to the irresistible bias of his mind, and joined a travelling company of comedians at Ipswich in Suffolk, under the assumed name of Lyddal. Having in this poor school of Apollo gained some acquaintance with the histrionic art, he burst at once upon the world in the year 1741, in all the splendour of perfection, at the little theatre in Goodman's Fields, then under the direction of Henry Giffard.

The character which he first performed was that of Richard III., in which, like the sun bursting from behind a cloud, he displayed in the earliest dawn even more than noontide brightness. His excellence dazzled and astonished every one; and certainly, perceiving a young man, in his twenty-fourth year, and in reality a novice to the stage, reaching at one single step to that height of perfection which maturity of years and long practical experience had not been able to bestow on the most distinguished performers of the English stage, was a phenomenon which could not but become the object of universal speculation, and of as universal admiration. The theatres at the west end of the town were deserted; Goodman's Fields, from being the rendezvous of citizens and citizens' wives alone, became the resort of all ranks of men; and Garrick continued to act till the close of the season.

Having very advantageous terms offered him for performing in Dublin during part of the summer, he went over to that city, where he found the same just homage paid to his merit which he had received from his own countrymen. To the service of the latter, however, he esteemed himself more immediately bound; and therefore, in the ensuing winter, he engaged himself to Mr Fleetwood, then manager of Drury Lane. In this theatre he continued till the year 1745, when he again went over to Ireland, and continued there the whole season, as joint-manager with Mr Sheridan, in the direction and profits of the theatre-royal in Smock Alley. From Dublin he returned to England, and was engaged for the season of 1746 with Mr Rich at Covent Garden. This was his last performance as a hired actor; for in the close of that season Mr Fleetwood's patent for the management of Drury Lane being expired, and that gentleman having no inclination further to pursue a design by which, from his want of acquaintance with the proper conduct of it, or some other cause, he had considerably impaired his fortune, Mr Garrick, in conjunction with Mr Lacy, purchased the property of that theatre, together with the renovation of the patent, and in the winter of 1747 opened it with the greater part of Mr Fleetwood's company, and with the additional strength of Mr Barry, Mrs Pritchard, and Mrs Cibber, from Covent Garden.

Were we to trace Mr Garrick through the several occurrences of a life so active, busy, and full of events as his, we should swell this account beyond all due compass. Suffice it to say, that he continued in the unmolested enjoyment of his fame and unrivalled excellence to the moment of his retirement. His universality of excellence was never once attacked by competition. Tragedy, comedy, farce; the lover and the hero; the jealous husband who suspects his wife without cause, and the thoughtless lively rake who attacks her without design; were all alike his own. Rage and ridicule, doubt and despair, transport and tenderness, compassion and contempt; love, jealousy, fear, fury, and simplicity; all in turn took possession of his features, whilst each of them appeared to be the sole possessor of his heart. In the several characters of Lear and Hamlet, Richard, Dorilas, Romeo, and Lusignane; in his Ranger, Bayes, Abel Drugger, Kitely, Brute, and Benedict, you saw the muscular conformations which your ideas attached to them all. In short, Nature, the mistress from whom alone this great performer borrowed all his lessons, being in herself inexhaustible, this her favourite son, marked out as her truest representative, found an unlimited scope for change and diversity in his manner of copying from her various productions. There is one part of theatrical conduct which ought unquestionably to be recorded to Mr

Garrick's honour, since the cause of virtue and morality, and the formation of public manners, are considerably dependent upon it; and that is, the zeal with which he aimed at banishing from the stage all those plays which carry with them an immoral tendency, and pruning from those which do not absolutely, on the whole, promote the interests of vice, such scenes of licentiousness and libertinism as a redundancy of wit and too great liveliness of imagination have induced some of our comic writers to indulge in, and to which the sympathetic disposition of an age of gallantry and intrigue has given sanction. The purity of the English stage has certainly been much more fully established during the administration of this theatrical minister than it had ever been during preceding managements. He seems to have carried his modest, moral, chaste, and pious principles with him into the very management of the theatre itself, and rescued performers from that obloquy which had attached to the profession. Of those who were accounted blackguards, unworthy the association of the world, he made gentlemen, united them with society, and introduced them to all the domestic comforts of life. The theatre was no longer esteemed the receptacle of all vice; and the moral, the serious, the religious part of mankind, did not hesitate to partake of the rational entertainment of a play, and pass a cheerful evening, undisgusted with licentiousness, and uncorrupted by the immorality of the exhibition.

Notwithstanding the numberless and laborious avocations attendant on his profession as actor, and his station as manager, yet still his active genius was perpetually bursting forth in various little productions in the dramatic and poetical way, the merit of which cannot but make us regret his want of time for the pursuance of more extensive and important works. It is certain that his merit as an author is not of the first magnitude; but his great knowedge of men and manners, of stage effect, and his happy turn for lively and striking satire, made him generally successful; and his prologues and epilogues in particular, which are almost innumerable, possess such a degree of felicity, both in the conception and execution, as to be, in fact, unequalled. His ode on the death of Mr Pelham ran through four editions in less than six weeks. His ode on Shakspeare is a masterly piece of poetry, and, when delivered by himself, produced great effect. His alerations of Shakspeare and other authors have been at imes successful, and at times exploded. The exclusion of the gravedigger's scene from Hamlet will never be forgotten to him by the inhabitants of the gallery at Drury. Though necessary to the chasteness of the scene, they cannot bear to lose so much true sterling wit and humour; and it must be owned, that exuberances of this kind, though hey hurt the uniformity, yet increase the luxuriance of the ree. Amongst his alterations may be mentioned, Every Man in his Humour, altered from Ben Johnson; Romeo and Juliet, Winter's Tale, Catherine and Petruchio, Cymbeline, Hamlet, &c. altered and made up from Shakspeare; Gamesters, a comedy, from Shirley; Isabella, from Souherne. To these we may add, as original productions, The Farmer's Return, and Linco's Travels, interludes; Guardian, Lethe, Lying Valet, Miss in her Teens, Male Coquet, Irish Widow, and other comedies in two acts; Enhanter, a musical entertainment; and Lilliput. The Christmas Tale is ascribed to him, and many others.

We now bring him to the period of his retirement in the pring of 1776, when, full of fame, having acquired a splendid fortune, and advancing into years, he thought proper to seek the repose of private life, in order to enjoy that ignified and honourable ease which he had so well earned y the activity and the merits of his dramatic reign. But hort indeed was the period allotted to him for this tranuil enjoyment; for on the 20th of January 1779, he dearted this life, leaving no one rival in excellence upon earth to compensate for his loss, or a hope of our ever meeting with his like again. Garrick's Correspondence has recently been collected and published, in two volumes 4to, with a Life prefixed.

GARRISON, in the art of war, a body of forces, disposed in a fortress, to defend it against the enemy, or to keep the inhabitants in subjection, or even to be subsisted during the winter season. Hence *garrison* and *winter quarters* are sometimes used indifferently for the same thing, whilst at other times they denote different things. In the latter case, a garrison is a place in which forces are maintained to secure it, and where a regular guard is kept, as a frontier town, a citadel, castle, tower, and the like. The garrison should be always stronger than the townsmen. Du Cange derives the word from the corrupt Latin *garnisio*, which the later writers use to signify all manner of munition, arms, victuals, and the like, necessary for the defence of a place and sustaining a siege.

GARROWS, a mountainous district of Hindustan, on the north-east frontier of Bengal, tributary to the British. It is situated between the 25th and 26th degrees of north latitude. Its boundaries are said to be Rangamutty on the north and Assam on the east, though its limits have never been exactly ascertained. The country is mountainous, but fertile and tolerably well inhabited. The chief rivers which flow from the hills are the Nati, the Maharishi, the Sumaserry, and the Mahadeo. The rivers are of a sandy, gravelly bottom, and contain limestone and iron ore. In the bed of the Mahadeo is found abundance of coals: these might be a valuable article of import into Bengal; but the inhabitants, still in a barbarous state, are ignorant of the art of mining. The people are of a stout make, vigorous and athletic, but ill looking. They are not so dark as those in Bengal. They go nearly naked; and although calling themselves Hindoos, eat all kinds of food, and drink spirituous liquors. They worship Mahadeva; and at Banjam, a pass in the hills, they worship the sun and moon. They are poor and barbarous in their habits. Their houses are of the rudest description, being raised on piles three or four feet from the ground. The houses of the better classes are more neatly executed. They are said to be cheerful in their dispositions and mild in their manners. At the foot of the Garrow Hills reside a tribe of people called Hajins, who are more like the Hindoos, and who will not kill a cow.

GARSTANG, a market-town of the county of Lancaster, in the hundred of Amounderness, 228 miles from London. It was incorporated by Charles II., but returned no member to parliament. There is a market on Thursday. The population amounted in 1801 to 731, in 1811 to 790, in 1821 to 936, and in 1831 to 929.

GARTER, Order of the, a military order of knighthood, the most noble and ancient of any lay-order in the world, instituted by Edward III. The knights companions are generally princes and peers; and the king of England is the sovereign or chief of the order. The number of knights was originally twenty-six; but six were added in 1786, on account of the increase of the royal family. They are a college or corporation, having a great and little seal.

Their officers are a prelate, chancellor, registrar, king-at-arms, and usher of the black rod. They have also a dean, and twelve canons and petty canons, vergers, and twenty-six pensioners or poor knights. The prelate is the head. This office is vested in the Bishop of Winchester, and has ever been so. Next to the prelate is the chancellor, which office is vested in the Bishop of Salisbury, who keeps the seals. The next is the registrar, who by his oath is to enter upon the registry, the scrutinies, elections, penalties, and other acts of the order, with all fidelity. The Dean of Windsor is always registrar *ex officio*. The fourth officer is Garter and king-at-arms, being two distinct offices united in one person. The Garter carries the rod and sceptre at the feast of St George, the protector of this order, when the sovereign is present; he notifies the election of new knights, attends the solemnity of their installation, carries the garter to foreign princes, and others; and he is the principal officer within the college of arms, and chief of the heralds. (See KING-AT-ARMS.) All these officers except the prelate have fees and pensions. The college of the order is seated in the castle of Windsor, within the chapel of St George, and the charter-house, erected by the founder for that purpose. The habit and ensign of the order are, a garter, mantle, cape, george, and collar. The three first were assigned the knights companions by the founder, and the george and collar by Henry VIII.

The Garter challenges pre-eminence over all the other parts of the dress, by reason that from it the noble order is denominated; that it is the first part of the habit presented to foreign princes and absent knights, who, as well as all other knights-elect, are therewith first adorned; and it is of so great honour, that by the bare investiture with this noble ensign, the knights are esteemed companions of the greatest military order in the world. It is worn on the left leg, between the knee and calf, and is enamelled with this motto, *Honi soit qui mal y pense*; the meaning of which is, that King Edward having laid claim to the kingdom of France, retorted shame and defiance upon those who should dare to think amiss of the just enterprise he had undertaken for recovering his lawful right to that crown; and that the bravery of those knights whom he had elected into this order was such as would enable him to maintain the quarrel against those who thought ill of it.

The mantle is the chief of the vestments made use of upon all solemn occasions. The colour of the mantle is by the statutes appointed to be blue. The length of the train of the mantle alone distinguishes the sovereign from the knights companions. To the collar of the mantle is fixed a pair of long strings, anciently woven with blue silk only, but now twisted round, and made of Venice gold and silk, of the colour of the robes, with knobs or buttons, and tassels at the end. The left shoulder of the mantle has from the institution been adorned with a large garter, with the device. Within this is the cross of the order, which was ordained to be worn at all times by King Charles I. At length the star was introduced, being a sort of cross irradiated with beams of silver. The collar is appointed to be composed of pieces of gold in fashion of garters, the ground enamelled blue, and the motto gold. When the knights wear not their robes, they are to have a silver star on the left side; and they commonly bear the picture of St George, enamelled on gold, and set with diamonds, at the end of a blue ribbon, crossing the body from the left shoulder. They are not to appear abroad without the garter, on penalty of six shillings and eightpence paid to the registrar.

The manner of electing a knight companion into this most noble order, and the ceremonies of investiture, are as follows: When the sovereign designs to elect a companion of the Garter, the chancellor belonging to this order draws up the letters, which, passing both under the sovereign's sign manual and signet of the order, are sent to the person by Garter principal king-at-arms; and are in this manner, or to the same effect: "We, with the companions of our most noble order of the garter, assembled in chapter, holden this present day at our castle at Windsor, considering the virtuous fidelity you have shown, and the honourable exploits you have done in our service, by vindicating and maintaining our right, &c. have elected or chosen you one of the companions of our order. Therefore, we require you to make your speedy repair unto us, to receive the ensigns thereof, and be ready for your installation."

The garter, which is of blue velvet bordered with fine gold wire, having commonly the letters of the motto of the same, is, at the time of election, buckled upon the left leg by two of the senior companions, who receive it from the sovereign, to whom it was presented upon a velvet cushion, by the Garter king-at-arms, with the usual reverence, whilst the chancellor reads the following admonition, enjoined by the statutes: "To the honour of God omnipotent, and in memorial of the blessed martyr St George, tie about thy leg, for thy renown, this noble garter; wear it as the symbol of the most illustrious order, never to be forgotten or laid aside; that thereby thou mayest be admonished to be courageous; and having undertaken a just war, in which thou shalt be engaged, thou mayest stand firm, valiantly fight, and successfully conquer." The princely garter being then buckled on, and the word of its signification pronounced, the knight-elect is brought before the sovereign, who puts about his neck, kneeling, a dark blue ribbon, whereunto is appended, wrought in gold within the garter, the image of St George on horseback, with his sword drawn, encountering the dragon. In the mean time, the chancellor reads the following admonition: "Wear this ribbon about thy neck, adorned with the image of the blessed martyr and soldier of Christ, St George, by whose imitation provoked, thou mayest so overpass both prosperous and adverse adventures, that having stoutly vanquished thy enemies both of body and soul, thou mayest not only receive the praise of this transient combat, but be crowned with the palm of eternal victory." Then the knight elected kisses the sovereign's hand; thanks his majesty for the great honour done him; and rises up and salutes all the companions severally, who return their congratulations.

Since the institution of this order there have been eight emperors and twenty-eight kings, besides numerous sovereign princes, enrolled as companions thereof. Its origin is somewhat differently related. The common account is, that the Countess of Salisbury at a ball happening to drop her garter, the king took it up and presented it to her with these words, *Honi soit qui mal y pense*, evil to him who evil thinks. This accident, it is said, gave rise to the order and the motto, it being the spirit of the times to mix love and war together; but as in the original statutes of this order there is not the least conjecture to countenance such a feminine institution, credit cannot be given to such tradition. Camden, Fern, and others, take it to have been instituted on occasion of the victory obtained by Edward over the French at the battle of Crescy. That prince, say some historians, ordered his garter to be displayed as a signal of battle; and in commemoration thereof, he made a garter the principal ornament of the order, erected in memory of this signal victory, and a symbol of the indissoluble union of the knights.

It appears from Rastel's *Chronicle*, that this order was devised by Richard I. at the siege of the city of Acre, when he caused twenty-six knights to wear thongs of blue leather about their legs, and that it was perfected in the nineteenth year of Edward III. In 1551 Edward VI. made some alterations in the ritual of this order, which he composed in Latin, the original being still extant in his own hand-writing. He there ordained that the order should no longer be called the order of St George, but that of the garter; and, instead of the george, hung at the collar, he substituted a cavalier bearing a book on the point of his sword, with the word *protectio* graven on the sword, and *verbum Dei* on the book.

GARTER principal King-at-Arms. This office was instituted by Henry V. Garter, and principal king-at-arms, are two distinct offices united in one person. Garter's employment is to attend the service of the order of the garter, for which he is allowed a mantle and badge, a house in Windsor Castle, and pensions both from the sovereign and knights, and, lastly, fees. He also carries the rod and sceptre at every feast of St George, when the sovereign is present, and notifies the election of such as are newly chosen; attends the solemnity of their installations, takes care of placing their arms over their seats, and carries the garter to foreign kings and princes; for which services it has been usual to join him in commission with some peer, or other person of distinction. The Garter's oath relates only to services being performed within the order, and is taken in chapter before the sovereign knights.

GARTER is also a term in heraldry, signifying the moiety or half of a bend.

GARTH, SIR SAMUEL, an English poet and physician, was descended from a good family in Yorkshire. He was admitted into the college of physicians at London in 1663. He at that time zealously promoted and encouraged the erecting of the dispensary for the relief of the sick poor, by giving them advice *gratis*, and medicines at low rates. This work of charity having exposed him and many other physicians to the envy and resentment of several persons of the same faculty, as well as apothecaries, he ridiculed them, with peculiar spirit and vivacity, in a poem called the *Dispensary*, in six cantos, which is highly esteemed. He was one of the most eminent members of the famous society called the *Kit Kat Club*, which consisted of noblemen and gentlemen distinguished by excellent parts, and affection to the house of Hanover. Upon the accession of George I. he was knighted, and made physician in ordinary to his majesty, and physician general to the army. Nor were these more than just rewards of his merit as a physician. He had gone through the office of censor of the college in 1702; and had practised with great reputation, and a strict regard to the honour and interest of the faculty, never stooping to prostitute the dignity of his profession, through mean and sordid views of self-interest, to any, even the most popular and wealthy characters. In a steady adherence to this noble principle, he concurred with the celebrated Dr Radcliffe, with whom he was also frequently joined in physical consultations. He had a most extensive practice, but was very moderate in his views of advancing his own fortune; his humanity and good nature inclining him more to make use of the great interest he had with persons in power, for the support and encouragement of other men of letters. He chose to live with the great in that degree of independence and freedom which became a man possessed of a superior genius, of which he was daily giving fresh proofs to the public. One of his last performances in polite letters was his translation of the fourteenth book, and the story of Cinnus in the fifteenth book, of Ovid's *Metamorphoses*. These, together with an English version of the rest, were published in 1717; and he has prefixed to the whole an excellent preface, in which he not only gives an idea of the work, and points out its principal beauties, but shows the uses of the poem, and how it may be read to most profit. The distemper which seized him the ensuing year, and terminated his life, caused a general concern, which was particularly testified by Lord Lansdowne, a brother poet. He died, after a short illness, which he bore with great patience, in January 1719.

GARVE, CHRISTIAN, an eminent German philosopher and essayist, was born on the 7th of January 1742, at Breslau, where his father exercised the trade of a dyer. He studied at the universities of Frankfort, Halle, and Leipsic, at which last place he obtained a professorship of philosophy; but was soon compelled to resign it, in consequence of bad health. He returned to his native town, where he continued to spend the remainder of his life in retirement. In his last years he suffered much from a painful and incurable disease, which he endured with the most philosophical fortitude. He died at Breslau on the 1st of December 1798. The character of Garve was exceedingly amiable, both as a man and a philosopher. His erudition was great; and his writings bear witness both to the extent of his knowledge and the accuracy of his judgment. Kant paid him the compliment of saying, that he was "a true philosopher, in the legitimate acceptation of the word." Garve invented no system of his own, nor did he attach himself to the tenets of any one master. He belonged to that class of philosophers who, without adopting any particular theory, take an impartial view of all systems of doctrine, and seek truth wherever it is to be found. The just and rational views which he inculcated on the subject of our moral and social duties, entitle him to the praise of a genuine practical philosopher. The history of philosophy is indebted to him for several new and ingenious illustrations; and he has left us a faithful though rapid sketch of the ancient and modern doctrines respecting the fundamental principles of moral philosophy. His style is uniformly simple, perspicuous, and correct.

The principal works of Garve are, 1. Dissertatio de nonnullis quæ pertinent ad logicam probabilium, 1766, 4to; 2. Dissertatio de ratione scribendi historiam philosophicam; 3. A Prize Essay in German, on the Inclinations, which was crowned by the Royal Academy of Berlin, 1769, 4to; 4. Progr. legendorum philosophorum nonnulla et exemplum, 1770, 4to; 5. Remarks on the character and writings of Gellert, 1770, 8vo, in German (this treatise was translated into French, and inserted in the French translation of Gellert's works by Pajon); 6. A dissertation, in German, on the union of morals and politics, Breslau, 1788, 8vo; also translated into French; 7. Essays, in German, on various subjects in literature, morals, and social life (of these, three volumes, we believe, were published during the author's life, and two have been added since his death); 8. A Sketch, in German, of the most remarkable principles of moral philosophy, from the time of Aristotle to the present day; which was first prefixed to his translation of Aristotle's Ethics, and afterwards printed separately, Breslau, 1798, 8vo; 9. Some observations on the most general principles of morals, in German, ibid. 1798, 8vo. Besides these works, Garve wrote a number of literary essays, which were inserted in various periodical publications. He also translated into German a variety of works, particularly from the English, many of which he enriched with valuable notes. Amongst these we may notice the Ethics, Rhetoric, and Politics of Aristotle; Cicero's Offices; Burke on the Sublime and Beautiful; Smith's Wealth of Nations; Fergusson's Principles of Moral Philosophy; and Paley's Principles of Morals and Politics. (See the *Biographie Universelle*, tome xvi. art. GARVE, by Degerando.)

GAS, in *Chemistry*, a general name for all permanently elastic fluids, which are obtained by chemical processes, as *azotic gas, muriatic acid gas, nitrous gas.* It is derived from the German *gascht* or *gast*, signifying the ebullition attending the expulsion of elastic fluids from substances in a state of effervescence.

GAS-LIGHT.

Importance of light.

Light, whether obtained from natural or artificial sources, is so necessary for the correct and successful execution of almost every operation of human industry, that whatever is calculated to simplify the means of procuring it, or to increase its intensity, cannot fail of being attended with the most beneficial consequences to civilized society. For every purpose to which it is applied, it must be admitted that the light of day, when it can be enjoyed freely and without interruption, is, by far, the most suitable; but in large and crowded cities, as well as in less favourable situations in point of climate, where the sun is sometimes shrouded for days together in dense and impenetrable clouds, it becomes expedient to compensate for the absence of his rays by artificial substitutes, which, however inferior in brilliancy and general usefulness, may nevertheless answer sufficiently well in those cases where a less ample supply of light is requisite.

Phosphorescent substances.

Some substances, denominated *phosphorescent*, have the property of absorbing the solar rays, on being exposed for a short time to their influence, and of emitting the light which they thus imbibe when they are afterwards placed in the dark; but the feeble and transient illumination which they shed, though sufficient to indicate their luminous condition, is totally unfit to afford such a supply of light as is necessary for conducting any of the operations of art, which must be performed with care and precision.

Substances from which artificial light is obtained.

During the process of combustion, however, a variety of inflammable substances, both of animal and vegetable origin, are found to give out light, as well as heat, when they undergo that species of decomposition; and hence, from the earliest periods of human society, it has been customary to burn substances of that description, for the purpose of obtaining artificial light. These substances, which were generally of a fatty or oleaginous nature, are found, when analyzed, to be composed chiefly of carbon and hydrogen. When they are exposed to a certain pitch of temperature they are resolved into some of the compound gases which result from the union of these elements, particularly carburetted and bicarburetted hydrogen, or olefiant gas, both of which are highly inflammable, and yield, during their combustion, a fine white light. To facilitate the decomposition, and carry on the combustion with due economy, a quantity of some fibrous substance, in the form of a wick, is connected with the oleaginous matter, for the purpose of causing it to burn slowly and effectually. Accordingly, if the flame be suddenly extinguished, the inflammable gas which is formed by the decomposition of the matter in immediate contact with the wick is observed to escape from it, and may be again set on fire by the application of a lighted taper.

When the light obtained from these substances must be frequently conveyed from place to place, no arrangement can be more convenient for their decomposition than that which is effected by means of the wick; but if it be to remain in a permanent position, it will frequently be more advantageous to resolve the oleaginous matter into gas, and then transmit it, in that state, through pipes, to the various points where it is to be consumed.

Though the different substances which have been used, from the earliest times, for yielding artificial light, have always been actually resolved into gas before they underwent the process of combustion, that fact was entirely unknown till pneumatic chemistry unfolded the properties of the aërial bodies, which perform so many important functions in the economy of nature, as well as in the processes of the arts. The use of gas for the purpose of illumination is therefore of recent date; but though late in its origin, the successive improvements which the invention has received, from the joint labours of chemists and practical engineers, have carried it, in a few years, to a pitch of perfection to which little can be added, either to simplify the processes for producing the gas itself, or improving its quality.

Discov of coal

Besides matters of an oleaginous nature, it has been ascertained that pit-coal and other bituminous substances yield, when they are exposed in close vessels to a high temperature, a large quantity of aërial matter, which is found to consist of various gases, most of which are extremely inflammable. This fact seems to have first attracted the notice of the Reverend Mr Clayton, who gives an account of it in a memoir on the subject, which he published in the Transactions of the Royal Society for the year 1739; and as his experiments furnish the earliest evidence of the possibility of extracting from coal, by means of heat, a permanently elastic fluid of an inflammable nature, we shall give the account of the discovery in his own words: "Having introduced a quantity of coal into a retort, and placed it over an open fire," he states that "at first there came over only phlegm, and afterwards a black oil, and then likewise a spirit arose which I could noways condense; but it forced my lute, or broke my glasses. Once when it had forced my lute, coming close thereto in order to repair it, I observed that the spirit which issued out caught fire at the flame of the candle, and continued burning with violence as it issued out in a stream, which I blew out and lighted alternately for several times. I then had a mind to try if I could save any of this spirit; in order to which I took a turbinated receiver, and putting a candle to the pipe of the receiver whilst the spirit rose, I observed that it catched flame, and continued burning at the end of the pipe, though you could not observe what fed the flame. I then blew it out and lighted it again several times; after which I fixed a bladder, squeezed, and void of air, to the pipe of the receiver. The oil and flame descended into the receiver, but the spirit still ascending, blew up the bladder. I then filled a good many bladders therewith, and might have filled an inconceivable number more; for the spirit continued to run for several hours, and filled the bladders almost as fast as a man could have blown them with his mouth; and yet the quantity of coals distilled was inconsiderable.

"I kept this spirit in the bladders a considerable time, and endeavoured several ways to condense it, but in vain; and when I had a mind to divert strangers or friends, I have frequently taken one of these bladders, and pricked a hole therein with a pin, and compressing gently the bladder near the flame of a candle till it once took fire, it would then continue flaming till all the spirit was compressed out of the bladder; which was the more surprising, because no one could discern any difference in the appearance between this bladder and those which are filled with common air."[1]

Experiments Mr M doch.

It is evident from this narrative, related with so much simplicity, that an accident which happened to Mr Clayton's apparatus was the means of leading to the discovery of coal-gas; but it does not appear that he or any other individual thought of applying the discovery to any practical purpose till the year 1792, when Mr Murdoch, who then resided at Redruth, in Cornwall, commenced a series of experiments upon the properties of the gases contained in different substances. In the course of his researches he found that the gas obtained by distillation from coal, peat, wood, and other inflammable substances, yielded a fine bright light during its combustion; and it occurred to him, that by confining it in proper vessels, and afterwards expelling it through pipes, it might be employed as a convenient and economical substitute for lamps and candles.

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[1] Mr Clayton alludes to the discovery of the gas he obtained from coal, in a letter to the Royal Society, dated May 12, 1688.

Mr Murdoch's attention to the subject having been interrupted for some time by his professional avocations, he resumed the consideration of it in 1797, when he exhibited publicly the results of his more matured plans for the preparation of coal-gas. The following year he constructed an apparatus at Soho foundery for lighting that establishment, with suitable arrangements for the purification of the gas; and these experiments, Dr Henry states, "were continued with occasional interruptions until the epoch of the peace in 1802, when the illumination of the Soho manufactory afforded an opportunity of making a public display of the new lights; and they were made to constitute a principal feature in that exhibition."

In the brief sketch which we mean to give of the progress of gas-lighting, it may be noticed that the Lyceum Theatre in London was lighted with gas in the course of the years 1803–4, under the direction of Mr Winsor, who is entitled to no small commendation for the warm interest he took in drawing the public attention to the subject; and in 1804–5 Mr Murdoch had an opportunity of carrying his plans into effect on a still larger scale, by means of the apparatus erected under his superintendence in the extensive cotton-mills of Messrs Philips and Son of Manchester.

It has been alleged that gas-lights were used in France before that mode of illumination was known in this country; but as the earliest exhibition of these lights, on which the claim of priority of discovery is founded, took place at Paris in 1802, it is evident, from the foregoing statements, that the exhibition alluded to was ten years subsequent to the first experiments of Mr Murdoch on the subject.

It might have been interesting, in a statistical point of view, to have laid before our readers an account of the extent to which gas-lighting has been carried throughout the kingdom; but in a matter which is still in progress, it is not easy to procure documents that would be applicable to any particular period of time. At the close of the year 1822, it appears, by the report of Sir William Congreve, that the capital vested in the gas-works of the metropolis amounted then to about a million sterling; while the pipes, connected with the various establishments, embraced an extent of upwards of a hundred and fifty miles. So rapid, indeed, has been the progress of this new mode of illumination, that, in the course of a few years after it was first introduced, it was adopted by all the principal towns in the kingdom, for lighting streets, as well as shops and public edifices. In private houses it found its way more slowly, partly from an apprehension, not entirely groundless, of the danger attending the use of it; and partly, from the annoyance which was experienced in many cases, through the careless and imperfect manner, in which the service-pipes were at first fitted up. These inconveniencies have been, in a great measure, if not wholly removed, by a more enlarged knowledge of the management of gas; and at present there are few private houses, in large towns, which are not either partially, or entirely lighted up by it.

Of the Site and general Arrangement of the Apparatus for the Production and Purification of Coal-Gas.

Site and general arrangements.

In describing the site and general arrangements of a gas establishment, it is not easy to give directions respecting points, which must be regulated, in every case, by circumstances of a local nature; but when a choice of ground is in our power, a spot ought to be selected having a central situation with regard to the buildings, streets, &c. it is to supply with light, and standing as nearly as possible on a medium level with them. When the manufactory is placed considerably below that level, the gas is apt to be propelled with too much velocity through the burners; and when above it, an opposite inconvenience is experienced, the gas being in that case necessarily subjected to an extra pressure, by which the chance of its escape through any imperfection of the pipes is proportionally increased. Of the two evils, therefore, the least objectionable is that in which the situation of a gas-work is below the mean level of the streets.

But besides the conditions favourable to an equable and uniform distribution of the gas at the different points to which it may be conducted, there are other considerations scarcely less important, which, in selecting a proper site for the erection of the establishment, ought not to be disregarded. Among these may be reckoned a regular supply of water for the various manipulations of the work; and facility of access for the delivery of coal, and the removal of the coke, tar, and other products of the distillation. Nor, in fixing the situation of an establishment which is professedly erected for the public benefit, ought the comfort or the interest of individuals to be entirely overlooked; for though a gas-work may not prove, under proper management, a nuisance, it can never be considered to be any advantage to the neighbourhood in which it is placed.

Apparatus for the production and purification of gas.

The apparatus for the production and purification of coal-gas consist, in the first place, of suitable vessels for decomposing by heat the coal from which the gas is to be procured; secondly, of a series of pipes for conveying off the gas, and conducting it into proper receptacles, where it may be separated from the grosser products, which tend to impair the brilliancy of the light it is capable of yielding; thirdly, of the condensing apparatus, for removing more effectually the tar and other condensible substances that come over with the gas; fourthly, of the purifying apparatus, for abstracting the sulphuretted hydrogen, carbonic acid, &c. by which the gas is contaminated; and, fifthly, of the gasometer or gas holder, with its tank, into which the gas is finally received in a purified state.

Of the Retorts, or Vessels for decomposing the Coal.

The vessels employed for the decomposition of coal and other substances capable of yielding carburetted hydrogen, by their destructive distillation, are usually formed of cast iron, and termed *retorts.* Various shapes have been adopted in the construction of these vessels; nor have their forms been more varied than the modes in which they have been disposed, in the furnaces erected for their reception. In most instances, they have been constructed of a cylindrical shape, varying in length, and diameter. Those first employed were placed with their axis in a vertical direction; but experience soon showed that this position was extremely inconvenient, on account of the difficulty it occasioned of removing the coke, and other residuary matters, after the coal had been carbonized. Attempts were made to remedy this inconvenience, by enlarging the size of the retort, and introducing the coal enclosed in a proper grating of iron, having the form of a cage. The increased dimensions of the retort, from which the principal advantage to be derived from this arrange ment was expected, were found, however, to present great obstacles to the complete carbonization of the coal; for though the disengagement of gas during the first stages of the process was sufficiently copious, it diminished rapidly the longer the distillation was continued; a crust of coke being formed next the heated metal, which not only opposed the transmission of the temperature to the internal mass of coal, but gradually prevented, by its accumulation, the extrication of the gas from the undecomposed portion of it.

Modes of heating the retorts.

The retorts were, therefore, next placed in a horizontal position, as being not only more favourable to the most economical distribution of the heat, but better adapted to the introduction of the coal, and the subsequent removal of the coke, after the carbonization was carried to a due extent. At first the heat was applied directly to the lower part of the retort, but it was soon observed that the high temperature to which it was necessary to expose it, for the perfect decomposition of the coal, proved destructive to it, and rendered it useless long before the upper part had sustained much injury. The next improvement was accordingly to interpose an arch of brickwork between it and the furnace, and to compensate for the diminished intensity of the heat by a more diffused distribution of it over the surface of the retort. This was effected by causing the flue of the furnace to return towards the mouth of the retort, and again conducting it in an opposite direction, till the heated air finally escaped into the chimney.

Form of retorts.

This arrangement, which on the whole has been found to be the best, and is now generally used, seems to admit of little improvement, unless with respect to the shape of the retort. The cylindrical form has the advantage of possessing great durability, but it is not so well fitted for rapid decomposition of the coal (on which depends much of the good qualities of the gas) as the elliptical shape. Retorts presenting a saddle-shaped section, when they are supposed to be cut transversely, appear to be preferable even to those of an elliptical form; but the greater expense of casting them, together with their inferiority in point of durability, has prevented them from coming into extensive use.

Temperature best suited.

The temperature, best suited for the production of gas from coal, being what the workmen term a *bright red*, was found to be very destructive to the retorts, when they were exposed to the direct action of the fuel; and accordingly means were employed to protect them from the rapid oxidation which they suffered under these circumstances, by interposing between them and the furnace, a partition of fire tiles or arched bricks, with side flues for the admission of the heated air. This arrangement is represented in fig. 1, Plate CCLV., where *a* is the retort, *g* the grate of the furnace, *e* the fire-brick arch, and *f*, *f* the side flues.

Oven plan of setting retorts.

With the view of occupying less room, and saving the expense of fuel, several retorts are sometimes set together in an oven of brickwork, and heated by a smaller number of furnaces than there are of retorts. By this arrangement the fuel is certainly economized; but the plan is liable to the objection, that when any one of the retorts is worn out, those connected with it cannot be used till the faulty one is replaced; and though various expedients have been proposed for obviating that inconvenience, none of them can be said to have effectually answered the purpose. Fig. 2 and 3 represent varieties in the oven plan of setting retorts.

Fuel for carbonization.

The fuel required for carbonizing a given quantity of coal may be stated to be, in general, about two fifths of its weight. It has been affirmed, indeed, that the decomposition has been effected at some establishments with less than twenty-five per cent.; but if the retorts are maintained at a proper temperature, and the carbonization is carried to a due extent, the fuel, however well economized, will rarely be less than from thirty-five to forty per cent. of the coal it is employed to decompose.

Quanti of gas yielded coal.

The quantity of gas produced during the time the coal is undergoing decomposition is extremely variable. From a small retort, exposed for eighty-five minutes to a bright red heat, which was kept up with the utmost possible uniformity, the following results were obtained from eight pounds of the Wemyss coal:

	Cub. Ft.	Cub. In.
In 1st ten minutes	6	235
2d do	8	980
3d do	8	1254
4th do	5	784
5th do	4	1450
6th do	3	313
Last twenty-five minutes	6	1660
	43	1492

At the time the process was terminated the extraction of aëriform matter had nearly ceased, so that the quantity of gas yielded by a pound of the coal was about five and a half cubic feet. The same coal carbonized on the large scale yielded, when the process was carried on for four hours, at the rate of four and one third cubic feet of gas per pound. The weight of the coke in the above experiment was 32,050 grains; and as the weight of the gas, the specific gravity of which was ·65, must have been 15,026 grains, the tar and other residuary products, including the sulphuretted hydrogen abstracted by the process of purification, must have amounted to 8924 grains.

Quantit of gas obtained from difi rent kin of coal.

When the decomposition is effected on the large scale, the quantity of gas is found to vary with the quality of the coal, and the manner in which the operation is conducted. According to Mr Peckstone, a chaldron of Newcastle Wallsend coal yields 10,000 cubic feet, being at the rate of $370\frac{1}{3}$ cubic feet per hundredweight. At Edinburgh a hundredweight of cannel coal yields 430 feet and a similar return from coal of the same species is obtained at Glasgow, and other towns in Scotland.

Quality gas duri different stages of the carb nization.

The quality of the gas yielded by coal varies greatly at different periods of the carbonizing process. The first products, when the coal has not been previously well dried, consist almost entirely of aqueous vapour and carbonic acid; these are succeeded by light carburetted hydrogen, olefiant gas, and sulphuretted hydrogen, which gradually diminish in quantity till towards the close of the process, when almost the only products are carbonic oxide, and hydrogen. Hence if the process be carried on too long, the gases obtained in the latter stages of it will not only be useless for the purpose of yielding light, but the fuel employed for their production will be expended in wasting the retorts to produce substances which, we shall afterwards find, are calculated to impair the illuminating power of the gases with which they are mixed. In the case of cannel coal, the interval between the charges of the retorts should not exceed three and a half or four hours; nor in the case of the Newcastle coal, which is not so easily decomposed, ought that interval to extend beyond six hours.

The Condensing Main and Dip Pipes.

Use of t condensi main an dip pipe

From the retorts the gas, after its production, ascends by bent pipes, called the *dip-pipes*, into what is termed the *condensing main*, which is a large cast-iron pipe, about twelve or fifteen inches in diameter, placed in a horizontal position, and supported by columns in front of the brickwork which contains the retorts. This part of a gas apparatus is intended to serve a twofold purpose: First, to condense the tar and grosser products of distillation; and, secondly, to allow each of the retorts to be charged singly without permitting the gas produced from the rest, at the time that operation is going on, to make its escape. To accomplish these objects, one end of the condensing main is closed by a flanch; and the other, where it is connected with the pipes for conducting the gas towards the tar vessel and purifying apparatus, has, crossing it, in the inside, a semi-flanch or partition, occupying the lower half of the area of the section, by which the condensing vessel is always kept half full of liquid matter.

The dip-pipe, represented by *bcdh*, fig. 1, Plate CCLV., is connected by a flanch *i*, with a branch-pipe rising from the upper side of the condensing main; and as the lower end of it dips about two inches below the level of the liquid matter, it is evident that no gas can return and escape, when the mouth-piece *m* of the retort is removed, until it has forced the liquid matter over the bend *cd*; a result which is easily prevented by making *dh* of a suitable length. The upper part of the branch *bc* of the dip-pipe is generally furnished with a ground plug *p*, to allow the removal of the tarry matter, which is apt to accumulate, in a concrete state, at the lower part of the pipe where it is nearest the furnace.

Of the Tar Apparatus.

After emerging from the lower end of the dip-pipe, the gas, now bereft of a considerable portion of the vapour of water, tar, and oleaginous matter, which ascend with it from the retort, is conveyed by pipes, for the purpose of being completely freed from these impurities, into contrivances where a more perfect condensation takes place. As the subsequent purification of the gas depends, in no small degree, upon the perfect separation of the tar and other condensible products by which it is accompanied, the construction of the vessels best calculated for attaining that end, is a matter of the utmost importance; and indeed it may be justly affirmed, that unless that separation be effectually accomplished, the action of the chemical agents, to which the gas is afterwards exposed, must be limited and imperfect.

The first arrangements, employed for the purpose of condensation, were all constructed on the supposition that the object would be best attained by causing the gas to travel through a great extent of pipes, surrounded by cold water, and winding through it, like the worm of a still, or ascending upwards and downwards in a circuitous manner. One of these condensers is represented by figs. 4, 5, 6, and 7, Plate CCLV., where ABCD is the bottom of the condenser, and EGHF the top; IKLM and PQRO show the pipes in elevation. SKLT and SORT are sections of the vessel below the condenser, for the reception of the tar, and other condensible products. This vessel is divided by plates into a number of compartments which have no communication with each other, except at the bottom, for allowing the tar to be drawn off, by one discharging pipe *abc*. The gas is admitted at V, and after a repetition of ascents and descents, escapes at W, to be afterwards conveyed to the purifying apparatus.

A cylindrical pipe being the most capacious of all pipes having the same surface, an improvement upon the condenser as here described, was conceived to be gained by causing the gas to pass between plates of metal, forming a succession of narrow chests or galleries; an arrangement by which every portion of the gas being brought into more immediate contact with the sides of the condenser, it was concluded the condensation would be proportionally more complete. Such an apparatus is represented by figs. 8, 9, and 10, Plate CCLV., where ABDC represents the bottom of the condenser, E the entrance, and F the exit pipe of the gas, which passes between the plates, as indicated by the arrows. The bottom of the plates *a*, *a*, *a* have a slight inclination, so as to cause the condensed products to flow towards the openings *a*, *b*, *c*, where they are conveyed by pipes into the general receptacle below, and afterwards drawn off by the cock H.

Improved construction of the tar apparatus.

These tar vessels, and others of a similar form to accomplish the same purpose, are constructed on the supposition that the tar and other condensible products are held in a state of suspension in the gas by heat; and that nothing more is necessary to produce their deposition, than exposure to a reduced temperature. As it appeared, however, that a large portion of the gas, after leaving the condensing main, was enveloped in thin films of tar and oleaginous matter, it occurred to the writer of this article that the disengagement of it, from the vesicles in which it was enclosed, might be more effectually promoted by interrupting it in its progress through the condenser, than by mere exposure to cold; and in conformity with this idea, he found that when the gas was forced to make its way through brushwood, placed in proper vessels for the purpose, the separation of the tar was more complete, than by the ordinary modes of condensation. ABCD, fig. 1, Plate CCLVI., represents a tar condenser constructed on that principle. *a b c d* are large vessels, either of a square or cylindrical form, for containing the brushwood and loose materials through which the gas is made to pass; E being the pipe where it enters, and F the pipe where it escapes. *ef*, *ef*, pipes for conveying the condensed products into the horizontal pipe GH, which communicates with the tar receptacle M, by the bent pipe IK. The vessels containing the brushwood may be surrounded with cold water, or with the tar pumped up from the tar receptacle; but as the loose materials, through which the gas passes, seem to have the principal share in condensing the tar, it appears to be of little consequence whether the vessels containing it be surrounded with cold water or not, provided the apparatus be placed in a shaded situation. *m*, *m*, are man-hole doors for cleansing or removing the brushwood when it becomes clogged with tar; an operation which it may be necessary to perform once a year.

Of the purifying Apparatus for separating the Gases unfit for the purposes of Illumination.

Impurities of coal-gas.

With the two compounds of hydrogen and carbon, viz. olefiant gas, and light carburetted hydrogen, which are yielded by coal during its destructive distillation by heat, several other products are obtained, which are not only useless for the purpose of illumination, but calculated to diminish the brilliancy of the light which is afforded by these gases, and even to prove a source of serious nuisance during their combustion. Among these products of a deleterious nature, are carbonic acid, and sulphuretted hydrogen; and, in smaller quantity, carbonic oxide, nitrogen, and hydrogen. The first two are by far the most objectionable of these impurities; and fortunately, their separation can be effected more easily than that of the others, whose presence is of less importance.

How separated.

Carbonic acid is readily absorbed by any of the alkalis or earthy bodies, in a caustic state; and sulphuretted hydrogen, which possesses many of the properties of an acid, unites not only with the alkalis and alkaline earths, with which it forms a species of salts termed *hydrosulphurets*, but also with the metallic oxides, most of which it reduces.

Different states in which lime is used for the purpose.

The alkalis being too expensive to be used for separating carbonic acid and sulphuretted hydrogen from coal-gas, a more economical substitute, and which answers the purpose almost equally well, is found in quicklime. This substance is accordingly used in every gas establishment on the large scale, in some form or another, for the last step of the purifying process to which coal-gas is submitted to render it fit for combustion. It is employed in two states; either in the condition of a thin paste, which the workmen call the *cream* of lime, or of a moistened powder, such as lime assumes when it is slaked with a little more than the usual quantity of water. The apparatus must therefore be accommodated, in its construction and arrangement, to these different conditions of the purifying material.

Liquid lime, or cream of lime.

When the lime is used in a liquid state, the gas is made to pass through it so as to be as much as possible exposed to its action. One of the arrangements adopted for the purpose is represented by fig. 2, Plate CCLVI., where *aa* is an oblong close vessel, divided into a number of compartments formed by vertical partitions, which are fastened to the top and sides, but open at the bottom. The lower margin of the partitions is perforated with numerous small holes through which the gas passes from one compartment to another; the cream of lime being introduced in such quantity that its surface is above the level of the uppermost row of holes. The gas enters by the pipe *c*, and, after bubbling through the holes in the partitions, from cell to cell, makes its escape in a purified state by the pipe *d*. The liquid line is introduced from time to time at *b*, and run off, after being unfit for the purpose of purification, by the pipe *e*.

Purification promoted by agitation.

It being highly conducive to the success of the purifying process that a succession of fresh portions of the liquid lime should be brought in contact with the gas as it passes through it, the material is kept, at some establishments, in a state of constant agitation by means of machinery for the purpose. Fig. 3 represents an arrangement of that kind which is used at some of the London gas-works. *aaa* is a flat cylindrical vessel in which the purification is performed, the gas entering by the pipe *c* and escaping by the pipe *d*. In the inside of this vessel is another of a similar form *ff*, terminating at the bottom in a broad horizontal flanch or circular plate *gg*, and having revolving within it an agitator *hh*, which works in an air-tight stuffing box. The gas being forced by the pressure from the retorts to descend below *g*, is more effectually exposed in its progress to the action of the lime by the commotion produced by the agitator, and finally ascends, in a purified state, through the pipe *d*. Fresh portions of the purifying material are supplied from the vessel *k* by means of the connecting pipe *b*; and the cream of lime, after being saturated with the impurities, is withdrawn at *e*. In large establishments the gas is forced in succession through several vessels of the kind described, the cream of lime being changed in each of them at different times, to render its action more uniform and regular.

To supersede the necessity of using a series of purifiers, the following arrangement has been adopted, which seems well calculated to insure great regularity of action, with a simplification in the means of attaining it: *aa*, *bb*, fig. 4, is a cylindrical vessel, placed in a slanting position, and having a number of internal partitions *h*, *h*, rising nearly as high as its axis, in which there works a spindle *kk*, carrying round with it a number of arms of unequal lengths *l*, *l*. These arms act as agitators of the liquid lime contained in the different cells, formed by the partitions *h*, *h*. The cylinder *aa*, *bb* terminates at the upper extremity in a vessel *aa*, *ff*, which is surmounted by another vessel *agg*, in which the cream of lime is prepared. Through the opening *e* a vertical axis descends, giving motion to the inclined one *k* by means of two bevelled wheels. To the vertical spindle *ii* are attached an inverted cup *m*, operating as a valve; and the arms *n*, *n* for agitating the cream of lime before it is introduced into the vessel *aa*, *ff*. The gas is introduced at *c*, and escapes at *d*; and the cream of lime no longer fit for the purpose of purification is removed by the bent pipe *g*. The gas, ascending upwards in this machine, has to pass in its progress among all the arms of the inclined axis; and being thus exposed to the perpetual spray of the liquid lime, the supply of which is constantly and regularly renewed, it finally escapes at *d* in a purified state.

Objectio to the u of lime, the liqui state.

One of the objections against the method of purifying by the cream of lime, or lime in a liquid state, is, that unless the gas be previously freed entirely from tar, that substance, enveloping it with a thin film of oleaginous matter, which has little tendency to unite with water, carries the gas along with it in rolling bubbles, so that the internal parts of it can thus scarcely ever come into contact with the purifying materials. In some of the arrangements, indeed, which we have described, mechanical contrivances are employed to agitate and disperse the gas, with the view of exposing every portion of it, more or less, to the action of the lime; but these modes of promoting the efficacy of the process cannot be resorted to without the aid of some moving power, which, in many cases, must necessarily be attended with considerable trouble, as well as additional expense. There is another objection to which this method of purification, even if it required not the assistance of machinery, must always be liable; namely, that the olefiant gas upon which the illuminating power mainly depends, is largely absorbed by water, insomuch that either oil or coal gas, standing a few days over that fluid, suffers a great deterioration of its quality, and becomes in every respect less fit for the purposes of illumination. When lime is used in the dry state, or rather in the state of a moistened powder, for purifying coal-gas, neither of these objections is at all applicable; and when the arrangements for that mode of purification are contrived with a due regard to the simplicity and convenience of the manipulations, the separation of the useless and noxious gases is effected more easily, and not less effectually, than by the method of liquid lime. The abstraction of the sulphuretted hydrogen becomes more perfect, by adding to the lime a small portion of the peroxide of manganese, which being a cheap substance, adds very little to the expense of the process. This method of purifying coal-gas having been adopted with the utmost success in many gas establishments, we shall now proceed to explain the nature of the apparatus by which it is carried into effect.

Apparat for dry lime.

Figs. 1 and 2, Plate CCLVII., represent the elevation and plan of an apparatus for dry lime, with the valves for regulating the direction of the gas when the purifying materials require to be changed. PO and QR represent double chests, formed of plates of cast iron, and which are thus capable of being water-luted at *mn*, by means of an inverted vessel of the same form *abcd*, and which is made of sheet iron. This vessel, when the purifying process is going on, is kept down by means of cross bars *g*, *g*; and it is furnished with a stop-cock *k*, for allowing the common air to escape from it when it is let down into its position, and also for allowing the admission of that air, when it must be raised for the purpose of changing the purifying materials, without which the atmospheric pressure would render it extremely difficult to remove the vessel. *x*, *x* are bolt-eyes for hooking the tackle which is employed to lift the inverted chest *abcd*. The pipe T by which the gas is introduced rises above the level of the lime contained in the uppermost sieve, so that the gas, after issuing from it, spreads itself as pointed out by the arrows, and descends downwards through the several layers of lime *o*, *o*, till it reaches the bottom of the chest, where it makes its escape at V, to pass, if necessary, through a similar process in another chest. *h*, *h* represent sections of the valves, which are luted with mercury (or with water when they are made sufficiently deep), and arranged in such a manner that the pair G, H, and the pair L, M, one of which must always be open when the other is shut, are so connected by a chain passing over a pulley, that the same operation, which shuts the one, necessarily opens the other. The valves I and K, which must in some cases be both shut at the same time, are raised and depressed by separate levers. The weights N serve to keep the valves in their proper position, when they are adjusted to a particular mode of transmitting the gas.

Having thus given a general description of the various parts of the apparatus, we shall now proceed to explain the manner of managing the valves when the gas is to pass through either of the chests singly, or through both in succession. If it is to be transmitted through the chest OP only, then the valves H and M must both be open; and of course G and L would be shut; also both K and I must be shut. Again, if the gas were to be transmitted through the chest QR only, then the valves G and L must be open, and all the rest would be shut. Lastly, if the gas is to pass through both chests in succession, then the valves G, M, and K must be open, and all the rest shut; or if we wished to make the gas pass through the chests in a different order, the state of the valves might be reversed.

The quantity of lime necessary for purifying a given volume of coal-gas varies with the quantity of sulphur contained in the coal from which the gas is produced, and may be rated at from a tenth to a twentieth part of the weight of the coal. It is proper, however, to examine at intervals, during the progress of the purification, the state of the gas by such chemical tests as are calculated to detect the presence of any of the deleterious substances with which it is usually contaminated. Thus, carbonic acid is readily discovered by agitating a small portion of the coal-gas with lime water in a limpid state, the solution being quickly rendered turbid when the most minute quantity of that gas is present. Sulphuretted hydrogen is discovered with equal facility by causing a small current of coal-gas to play against a slip of paper moistened with a weak solution of acetate of lead, or nitrate of silver, both of which instantly become black when they are exposed to the action of sulphuretted hydrogen.

Having thus explained the nature of the various processes, by which coal-gas is freed from the different impurities with which it is contaminated, in the crude state, we shall next describe the structure of the vessels which are employed for storing it up, after it is duly purified and fitted for use.

Gasometers for receiving and containing the Gas before it is consumed.

As many disadvantages would be experienced by attempting to adjust the production of the gas to the rate of its consumption, it is found to be more convenient, as well as more economical, to store up such a portion of it, during the day, as shall compensate for the deficiency of the supply that may be furnished during the time the gas is consuming, in the course of the evening. The capacity of the vessels used for this purpose, which are called *gasometers*, must be regulated by a regard to that consideration.

The form of the gasometer is generally that of an inverted cylindrical cup, the diameter of which, when economy is studied, ought to be double of its depth, or at least not more than two or three inches less. Gasometers are usually composed of sheet iron, varying in weight from two to three lbs. to the square foot, well riveted at the joints, and kept in shape by means of stays and braces formed of cast or bar iron. The sheet iron is made to overlap at the joints, a slip of canvass well besmeared with white-lead being interposed to secure perfect tightness. The prismatic shape, though occasionally adopted, is not so convenient as the cylindrical, partly on account of the difficulty of making it retain its form, and partly on account of the greater quantity of material, compared with the capacity, that is necessary for its construction.

Tank of gasometer.

The gasometer is furnished with a tank, of the same form with itself, but a little larger in dimensions, for containing the water, in which it is suspended at different altitudes, by means of a chain and counterpoise, moving over pullies. The tank is sometimes built of stone, but more frequently it is constructed of cast-iron plates bolted together by flanches, with an interval between them of about three eighths of an inch, which is afterwards filled up with iron cement.[1]

Counter-poise and chain.

A gasometer, such as has been described, is represented by fig. 1, Plate CCLVIII., in which *aaaa* is the gasometer, *dd* the suspension chain, *cc* the pullies, and *e* the counterpoise; also *bb* is the tank, and *ff* the pipes for introducing, and conducting off the gas.

As the gasometer, when it is immersed in the water of the tank, suffers a loss of weight equal to that of the portion of fluid it displaces, it is evident that unless some arrangement be made to counteract the varying pressure which must thus result from the different depths to which it may be immersed, the gas contained in the gasometer will be expelled, at different times, with a varying force. If, however, the weight of the chain of suspension, or rather the weight of that portion of it whose length is the same as the height to which the gasometer ascends, be equal to half the loss of weight which the gasometer sustains by immersion in water, a perfect compensation will be made, and an equilibrium will hold between the gasometer and its counterpoise, at all altitudes. Thus, if the weight of the gasometer were five tons, or 11,200 lbs., and it lost by immersion a seventh part of its weight, or 1600 lbs., then the weight of that portion of the chain, equal in length to the highest ascent of the gasometer, would require to be 800 lbs., and the weight of the counterpoise 11,200 — 800, or 10,400 lbs.

	lbs.
For, the gasometer being immersed, its virtual weight is 11,200 — 1600, or	9,600
Weight of portion of chain now acting with the gasometer	800
Sum is the weight of counterpoise	10,400
Again,	
The gasometer being elevated out of the water, its weight is	11,200
Weight of chain now acting in opposition to it	800
Difference is the weight of counterpoise	10,400

Though the compensation, by this adjustment of the weight of the chain, answers the purpose in the most effectual manner, the following method is by some deemed preferable. Let the counterpoise (instead of having the form as shown at *e* in the figure) consist of a long cylindrical or prismatic body, as represented by the dots *g*, *g*, having the area of its horizontal section equal to the area of a similar section of the plates of the gasometer, and be allowed to descend into the water as the gasometer rises out of it. Also let the chain *d* be of a weight equal (length for length) to a column of water of equal bulk with the counterpoise. Then, if the weight of the gasometer be, as already supposed, 11,200 lbs., the weight of the counterpoise must be the same; but the weight of that portion of the chain which, by the above arrangement, was only equal to half the loss of weight sustained by the gasometer when immersed, must now be equal to the whole of that weight.

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[1] The following iron cement is recommended by Peckstone: Take iron turnings or borings, and pound them in a mortar till they are small enough to pass through a fine sieve; then, with one pound of these borings, so prepared, mix two ounces of sal ammoniac in powder, and one ounce of flowers of sulphur, by rubbing them well together in a mortar; and afterwards keep the mixture dry till it may be wanted for use. When it is so, for every part thereof, by measure, take twenty parts of iron borings, prepared as above mentioned, and mix them well together in a mortar or other iron vessel. The compound is to be brought to a proper consistency by pouring water gently over it as it is mixing; and when used it must be applied between the flanches by means of a blunted caulking iron.

	lbs.
Then, the weight of the gasometer in the water is, as before	9,600
Weight of the chain now acting with the gasometer,	1,600
Weight of counterpoise, now out of the water	11,200
Again,	
The weight of the gasometer, out of the water, is	11,200
Weight of the chain, now acting in opposition to the gasometer	1,600
Weight of the counterpoise, in water	9,600

Pressure for expelling the gas.

Though we have only shown, in both these modes of compensation, that an equilibrium between the gasometer and its counterpoise holds, in the extreme cases, it would be easy to prove that the same thing must subsist, at all the intermediate elevations of the gasometer. At the same time it must be obvious that these contrivances, however well calculated they may be to secure the equilibrium alluded to, can have no effect in expelling the gas; and therefore, when it is wished that the contents of the gasometer shall issue from it under a certain pressure, the weight of the counterpoise must be diminished to a suitable extent. Thus, if it were required that the pressure employed for expelling the gas should be equal to that produced by a column of water three fourths of an inch deep, then it would be necessary to diminish the weight of the counterpoise by the weight of a column of water having the same diameter with the gasometer, and an altitude of three fourths of an inch. If the diameter of the gasometer above mentioned were, for example, 35 feet or 420 inches, the weight of a cylindrical portion of water having that diameter, and a depth of three fourths of an inch, would be, in grains,

$420^2 \times {\cdot}7854 \times \frac{3}{4} \times 252{\cdot}5 = 26236876$ grs. or 3748 lbs.

Hence it would be necessary to make the counterpoise 3748 lbs. lighter than it was supposed to be, according to the above-mentioned arrangements, in order that the gas might issue from the gasometer, under a pressure of three fourths of an inch of water. If the calculation were conducted with extreme accuracy, the specific gravity of the gas ought also to be taken under consideration; but the object to be attained is not of so delicate a nature as to require an attention to such minute circumstances. Besides, we shall afterwards find that the value of the arrangements we have described for obtaining an uniform and equable pressure is greatly diminished; and these are even entirely superseded by a contrivance called the governor, to be afterwards explained.

Particular forms of gasometers.

In situations where a sufficient depth of the tank cannot be easily obtained, an expedient may be resorted to, such as is represented in fig. 2. The gasometer consists of two parts, separable from each other; the one, *abba*, having the form of the common gasometer, and the other, *cccc*, being open at the top as well as the bottom, but connected with the other by a channel running around the bottom, which is filled with water. The lower part has a recurved form at the top; and this portion of it entering into the channel, becomes water-luted, by which the entire gasometer is rendered air-tight, at the line of junction. Various other contrivances have been proposed for saving room; but most of them answer the purpose so imperfectly, that they are scarcely deserving of being noticed. We shall, however, give a description of one of them, invented by M. Clegg, in which the gas is expelled by the partial revolution of the gasometer.

Revolv gasome

This kind of gasometer is represented in fig. 3, *aaa* being the cistern filled with water to the height of the dotted line; *b* the axle, which is hollow at each end, and works on friction sectors; *ddd*, a vessel supported by arms proceeding from the axle, and formed of parts of two concentric cylinders, shut at each end, and also at *g*, except where the entrance and exit gas-pipes passing from *g* to the hollow axis are connected (one of these only is shown in the figure, the other being directly behind it); the end *h* is left open, and when the gasometer is filled with gas it is just immersed in the water; *i* a pulley to which is attached a chain and weight *k*, disposed as represented. The whole apparatus is constructed so as to be an equilibrium in every position, the framing being made heavy at that part of the circle to which the gas-holder does not extend, so as to counterbalance the matter opposed to it. The gas enters at one of the hollow ends of the axis, and passes through one of the tubes *g* into the gasometer; and it is discharged under any required pressure, obtained by means of the weight *k*, through the other tube behind *g*, into the opposite extremity of the axis. Though this kind of gasometer is more expensive than one of equal capacity of the common form, yet requiring a shallow cistern for working in, it may be resorted to in some cases with advantage.

Pipes f introdu cing an dischar ing the

The gas is commonly introduced and conducted off by pipes, passing under the bottom of the tank for containing the water, in which the gasometer floats; and as these pipes are in many cases considerably below the level of the street pipes with which they communicate, they are apt to be filled up in the course of time with the condensed water which passes off in a vaporous state with the gas. To remedy this inconvenience, it is necessary to place vessels for receiving that water, in connection with the entrance and exit pipes, so contrived that the accumulated water may be easily removed from them when required. One of these vessels, which are improperly termed *syphons*, is represented by fig. 9. When the water rises to the height *d*, *e*, it is drawn off by means of a small suction pump, introduced into the pipe *ac*, which reaches within about an inch of the bottom of the syphon. To prevent too much water being removed, and thus allowing the gas to escape at *ac*, the lower end of the pipe of the suction pump should be perforated with small holes to as great a distance as the water is to be left in depth; or, if deemed preferable, the upper end of the pipe *ac* may be rendered air-tight by a screwed cap.

When access to the bottom of the tank is difficult, swivel or flexible-jointed tubes, disposed so as to rise and fall with the gasometer, are sometimes resorted to. Jointed tubes, connected by means of water-lutes, are also occasionally employed, and they are found to answer the purpose very well in situations where the water is not exposed to frost. One of these is represented in fig. 4, *a* being the pipe by which the gas is introduced, *b* a vertical pipe admitting of a small angular motion on the axis or support *c*, and connected with *a* by means of a water-lute joint. The upper end of *b* is united in a similar manner with one end of the pipe *d*, which is connected at the opposite end by means of a like entrance with the extremity of the pipe *f*, attached to the top of the gasometer; *g* is a regulating radius bar, centred to a bracket, which is fastened to the pipe *d*, and working on a fixed pivot at *i*. The gasometer, as it rises and falls, carries *f* along with it, and thus in the rest of the apparatus a motion is induced, corresponding with the connection of the different parts.

Of the Main and Service Pipes.

The gas being duly purified and prepared for combustion, the next point to be considered is the transmission of it from the gasometer to the various places where it is to be consumed. As it must sometimes be conveyed, particularly in the case of large establishments, to the distance of several miles, it is evident that unless the diameters of the various pipes through which it is to be conducted have a due relation to the quantity of gas to be transmitted, there will be a danger either of incurring an unnecessary expense, by making the pipes too large; or, what is still worse, of being exposed to a deficiency of supply, by making them too small. The first object, therefore, to be ascertained by the engineer, is the probable number of lights that may be required in the various streets and lanes in which these pipes are to be laid; and these being known, the corresponding quantity of gas, according to the quality of it, may be afterwards computed. With regard to the relative dimensions of the pipes at different distances from the gas-work, the only general rule to be observed is, that the sum of the areas of the sections of the main-pipes proceeding immediately from the gasometer, should be equal to the sum of the areas of the sections of the various branch-pipes which they supply with gas; and this rule, with some little modification, should be followed in the case of the subordinate ramifications.

In the case of good coal-gas, we may safely reckon that one fourth of a cubic foot of it will furnish the light of a moulded candle for an hour, of which one pound will, when the candles are burnt in succession, last forty hours. On this supposition, and assuming that the pressure upon the gas in the gasometer is equal to three fourths of an inch of water, the diameters of pipes necessary for conveying various quantities of gas may be stated as follows:—

Diameter of Pipe in Inches.	Quantity of Gas in Cubic Feet per Hour.	Equivalent Number of Candles.
$\frac{1}{4}$	4	16
$\frac{1}{2}$	20	80
$\frac{3}{4}$	50	200
1	90	360
2	380	1,520
3	880	3,520
4	1,580	6,320
5	2,480	9,920
6	3,580	14,320
7	4,880	19,520
8	6,380	25,520
9	8,090	32,360
10	10,000	40,000

This table has been deduced partly from theoretical considerations, and partly from the results of experiment. Peckstone affirms, in his work on Gas-lighting, that a pipe ten inches in diameter is capable of transmitting 50,000 cubic feet of gas per hour, under a pressure of one inch of water, while, according to the statement of Mr Creighton, such a pipe would scarcely convey the tenth part of that quantity, under a pressure of from four eighths to three fourths of an inch of water. It is impossible to reconcile these discordant statements, either by an allowance for the difference of pressure, or the difference of the specific gravities of the gases; for it ought to be kept in view that the discharge of gas is directly proportional to the square root of the height of the column of water by which it is pressed, and inversely as the square root of the specific gravity of the gas. Both of these propositions, however, must be greatly modified by friction, and consequently by the lengths of the pipes through which the gas is conveyed. In the supply stated to be furnished by pipes of different dimensions, we have deemed it safest rather to underrate the quantity, than overrate it.

The main-pipes are usually made of cast iron, joined together with socket joints, in lengths of three yards. The depths of the sockets vary in pipes of different sizes, from three to six inches, part of them being fitted with gasket to bring the centres of the pipes into line, and the remainder with lead after the gasket has been driven home with suitable chisels or caulking irons. The depth of lead to secure a good joint, should not be less than an inch and a half; the interval between the spigot and socket being from three eighths to seven eighths of an inch, according to the diameter of the pipe.

Necessity of giving pipes a proper inclination.

As a considerable quantity of water is carried off by the gas in the state of vapour, which is afterwards condensed in the pipes, some arrangement must be made for its collection and occasional removal; and accordingly, in laying the pipes, care must be taken to give them a regularity of declivity towards one or more points, where proper syphons, close vessels, and cocks must be placed, to receive and discharge the collected water. When these precautions are neglected, or when the levels are inaccurately taken, much annoyance is experienced; and as the evil can only be corrected by lifting and rejoining the pipes, the utmost attention should be paid to guard against it at first.

For stopping off the gas in large pipes, valves luted with water or mercury, according to the degree of pressure to be resisted, are usually employed. One of the most simple forms of these valves is represented in fig. 8, Plate CCLVIII. where *aa* is the valve, having the shape of an inverted cylindrical cup, which is raised and depressed by a rod *c* passing through an air-tight stuffing-box; and *bb* an annular cavity or interval, partially filled with water or mercury, into which the valve descends when it is shut.

Service-pipes.

To convey the gas from the main-pipes, and distribute it through the various apartments of dwelling-houses, pipes made of block-tin are generally used; these being more durable and better adapted to the purpose than pipes composed of copper or any other metal. In arranging the interior fittings, the same precautions must be observed as were recommended in the case of the main-pipes, viz. to give the various branches a due degree of inclination, so as to cause all the condensed water to flow to one or more points, where proper cocks must be placed for its removal. Unless this be done, the lights will be apt to flicker, or be extinguished at times altogether. Nor is it of trivial moment to enjoin the workmen, when they are soldering the service-pipes, to avoid with the utmost care allowing any of the melted metal to find its way into the inside of the pipes; it being in a great measure to this circumstance, that the deficiency in the supply of gas, so frequently complained of, is chiefly owing.

Of the Governor or Regulator.

Use of regulator.

The quantity of gas consumed in large towns varying greatly at different times, it is evidently a matter of some importance to the public, as well as to the manufacturers of gas, that the supply of it should be duly adjusted to the consumption; so that when the lamps are once regulated to a proper height of flame, they may continue afterwards to burn with the same steady light throughout the whole of the evening. Any contrivance that can accomplish so desirable an object must save a great deal of trouble to the consumer of gas, and much unnecessary waste of it to the manufacturer; and such is the design of the governor or regulator. Fig. 5, Plate CCLVI. represents one of these contrivances, *a* being the pipe proceeding from the gasometer, by which the gas is admitted, and *f* the pipe by which it escapes; *c* is a valve of a conical form, fitted to the seat *b*, and raised and depressed by means of the rod *dg*, to which it is attached; *ddd* is an inverted conical vessel, formed of sheet iron, which ascends and descends in the exterior vessel *ee*, in which water is contained to the level represented. The gas, entering at *a*, passes through the valve, fills the upper part of the inverted vessel *dd*, which it thus partially raises, and escapes at *f*. If the pressure from the gasometer be unduly increased or diminished, the buoyancy of *ddd* will be increased or diminished in like proportion, and the valve being by this means more or less closed, the quantity of gas escaping at *f* will be unaltered. And not only will the governor accommodate itself to the varying pressure of the gasometer, but also to the varying quantities of gas required to escape at *f* for the supply of the burners. Thus, if it were necessary that less gas should pass through *f*, in consequence of the extinction of a portion of the lights, the increased pressure which would thus be produced at the gasometer would raise the governor, and partially shut the valve, till the state of it was duly adapted to the requisite supply of gas.

Fig. 6 is another contrivance for the same purpose, which acts in a similar manner. The gas enters at *a*, and escapes at *f*. The valve *c*, with its stem, is attached to the inverted vessel *d*, which is suspended in a cistern of water *gg*, and moves upon a pivot at *c*. The action of this apparatus is the same as that of the contrivance we have already described. Both of them must be regulated by weights applied to the vessels *dd*; but these being once accommodated to the supply of gas, no further adjustment will afterwards be necessary.[1]

The Gas-Meter.

Design of the gas-meter.

The gas-meter is a simple but ingenious mechanical contrivance, the design of which is to measure and record the quantity of gas passing through a pipe in any given interval of time. The expense of these machines has hitherto formed the principal objection against their use; but already they are largely employed by several gas companies in England as well as in Scotland. They will probably be found, upon trial, to be no less advantageous to the consumer than to the manufacturer of gas, by allowing the former to use gas without any unnecessary waste of it, and securing to the latter a fair and regular price for the quantity of it actually consumed.

Fig. 7, Plate CCLVI., exhibits sections of one of these gas-meters, where *cc* represents the outside case, having the form of a flat cylinder; *a* is a tube which enters at the centre for admitting the gas, and *b* is another for conveying it off to the burners; *g*, *g* are two pivots, one supported by the tube *a*, and the other by an external water-tight cup, projecting from the outside casing, and in which is contained a toothed wheel *h*, fixed upon the pivot, and connected with a train of wheel-work (not shown in the figure) to register its revolutions. The pivots are fixed to and support a cylindrical drum-shaped vessel *ddd*, having openings *e*, *e*, *e*, *e*, internal partitions *ef*, *ef*, *ef*, *ef*, and a centre piece *ffff*, as represented in the figure. The machine is filled with water, poured in at *h* up to the level of *i*, and gas being admitted under a small pressure at *a*, it enters into the upper part of the centre piece, and forces its way through such of the openings *f* as are from time to time above the surface of the water. By its action upon the partition nearest in contact with the water (to the right hand of the figure, in which all the partitions or openings are shown), a rotatory motion is communicated to the cylinder; the gas from the opposite chamber being at the same time expelled by one of the openings *e*, and afterwards escaping at *b*, as already mentioned.

As the quantity of gas which passes through the machine in any given time depends not only upon its internal dimensions and the number of revolutions which it performs, but also upon the level of the surface of the water in which the cylinder revolves, due care must be taken to maintain the water at the same level, for the regular action of the meter. This is easily accomplished, by pouring in water when necessary, till the superfluous quantity is discharged by an orifice properly placed for the purpose.

Burners.

Principl upon wh the ligh yielded combustion, de pends.

The most economical mode of consuming gas, so as to obtain from a given volume of it the greatest possible quantity of light, both in degree and duration, is a problem of no less importance than that of the most suitable arrangements for its production and purification. The presence of oxygen, in some form or another, being essentially necessary to produce ordinary combustion, it follows, that from whatever cause that principle may be deficient in quantity, the combustion must be imperfect; and when this is the case, it appears that the light yielded by the combustible body is also diminished in a proportional degree. On the other hand, if the quantity of oxygen brought into contact with the combustible body be more than sufficient for its entire combustion, the superfluous quantity of that gas, instead of augmenting the effect, can only lower the temperature, and diminish, it may be presumed, in a corresponding degree, the intensity of the light. This must be the consequence if the brilliancy of the light yielded by a combustible body depends at all upon the temperature to which it is exposed during its combustion; and that this is the case may be inferred from the simple fact of causing the flame of a jet of gas to play, first against a sheet of ice, and then against a bar of red-hot iron, when the difference of the light will be such as to leave no doubt of the influence of temperature upon its intensity. A similar result is obtained by bringing the flames of two separate jets into contact, when an obvious increase of light is perceived. From these simple facts it may be inferred, that though a certain quantity of common air must be brought into contact with the inflamed gas to produce the greatest intensity of light, whatever exceeds that quantity will not only be useless, but, by diminishing the temperature of the flame, must tend to impair the brilliancy of its light.

But though the immediate cause of the light is probably the high temperature to which the carbonaceous portion of the gas is exposed, the condition in which the carbon exists, at the time it is so exposed, is of the utmost importance to the effect. According to the opinion of Sir Humphry Davy, as adopted by Drs Christison and Turner, "a white light is emitted only by those gases which contain an element of so fixed a nature as not to be volatilizable by the heat caused during the combustion of the gas; and that in coal-gas this fixed element is charcoal, formed by the gas undergoing decomposition before it is burnt. The white light is caused by the charcoal passing into a state, first of ignition, and then of combustion. Consequently no white light can be produced by coal or oil gas, without previous decomposition of the gas."

"That the gas undergoes decomposition before it burns, and that the carbonaceous matter is burnt in the white part of the flame in the form of charcoal, is shown by placing a piece of wire-gauze horizontally across the white part of the flame, when a large quantity of charcoal will be seen to escape from it unburnt. And that this previous change is necessary to the production of a brilliant white light, will appear, if we consider the kind of flame which is produced when decomposition does not previously take place. For example, if the gauze be brought down into the blue part, which always forms the base of the flame, no charcoal will be found to escape. Or, if the gauze be held at some distance above the burner, and the gas be kindled not below but above it, by which arrangement the air and the gas are well mixed previous to combustion, the flame is blue, and gives hardly any light. The reason is obviously, that in both cases the air is at once supplied in such quantity in proportion to the gas, that the first effect of the heat is to burn the gas, not to decompose it." (*Edin. Phil. Journ.* No. XXV.)

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[1] The regulator, which was originally invented by Mr Clegg, was afterwards improved by Mr Crosley, who enjoys, by patent, the exclusive right of furnishing it. The gas-meter was also invented by Mr Clegg, and is constructed with great accuracy by Mr Crosley.

To these statements it may be added, that if a jet of oil or coal gas, burning with a fine yellow flame in common air, be suddenly surrounded with an atmosphere of oxygen gas, the colour instantly changes into a pale blue, yielding the most feeble light; nor does the flame recover its brilliancy till the oxygen is largely diluted with carbonic acid, when it burns for a short time with greater splendour than at first. For though the light is greatly enfeebled when the combustion of the gas takes place in pure oxygen, it becomes much more vivid when the combustion is carried on in air, which is more largely charged with oxygen than common air. Hence the brilliancy of the light appears to depend upon two conditions: 1*st*, The perfect combustion of a portion of the gas, in an undecomposed state; 2*dly*, the temperature produced by that combustion upon the residual part, in a decomposed state. When a large portion of the gas is consumed in the first condition, the temperature is higher; but the undecomposed part is then too small in quantity to yield an intense light, in consequence of the attenuated state of the carbon; and, on the other hand, when a small portion of the gas is consumed in the undecomposed state, the temperature produced is too feeble to raise the temperature of the now partially decomposed part to a sufficient pitch for the full ignition of the carbon.

The conditions which thus seem to be necessary for obtaining the greatest portion of light from the combustion of a given quantity of gas, while they are perfectly consistent with the most anomalous facts presented by that process, so they appear to afford the only sure principles upon which we can proceed in the construction of gas-burners. One of the most obvious conclusions deducible from these principles is, that whatever be the form of the gas-burner, its construction should be such, that while it admits as much air, it should never admit more than is barely sufficient for the perfect combustion of the gas.

According to the experiments of Drs Christison and Turner, the character best fitted for single-jet burners appears to be about one twenty-eighth of an inch for coal-gas, and one forty-fifth for oil-gas. As these dimensions, however, must vary with the quality of the gas, we consider one thirty-sixth of an inch to be more applicable to the gas obtained from cannel coal, if its specific gravity be not less than ·65. Every form of burner composed of separate jets, in which the gas is made to issue in a horizontal or oblique direction, gives a consumption which increases in a much faster ratio than the light which it yields; and consequently, however beautiful such burners may be in appearance, they are far from being economical.

One of the most useful forms of a burner with single jets, is where there are two holes, and their directions are so inclined as to cause the streams of issuing gas to cross, and exhibit during their combustion a broad continuous flame. This burner, which is termed a *swallow-tail*, is well adapted for street-lights, as it gives a powerful light, and consumes a small quantity of gas. When the gas is emitted by a narrow slit at the top of the burner, the burner receives the name of a *bat-wing*. Fig. 11, Plate CCLVIII.

But of all the forms of the burner, that upon the Argand principle, in which the holes are arranged in a circle, so as to admit the air to have access to the flame, externally as well as internally, is the most economical, and the best calculated to secure the complete combustion of the gas. The diameter of the holes should, in this burner, be about the fortieth part of an inch for coal-gas of an ordinary good quality, and the distance between them should be such as to allow the separate flame of the different jets to unite together and form a continuous hollow cylinder of light. Fig. 12.

The construction of burners, and the most economical mode of consuming gas, having been examined with much philosophical precision by Drs Christison and Turner, we shall extract from their elaborate dissertation on the subject, the most valuable and important conclusions which these learned individuals deduced from their experiments; and this we do with greater confidence, because the results they obtained coincide very exactly with those we procured, when engaged in the same inquiry. The three leading points to which they directed their attention were, 1*st*, the length of flame most suitable for different burners; 2*dly*, the form, magnitude, and position of the orifices through which the gas is discharged; and, 3*dly*, the modifications of the light produced by the glass chimney of the Argand burner.

Length of flame.

With regard to the length of flame which afforded the greatest light compared with the expenditure of gas, they found that, in the case of the jet, the best length for coal-gas was about five inches, and for oil-gas about four inches. When the flame was kept shorter, the quantity of gas consumed was greater in comparison of the light which it yielded; but no advantage was gained by increasing the length beyond that mentioned as the most suitable for each gas; the combustion becoming less perfect, and beginning to be accompanied with the escape of the carbon in the form of smoke. Thus they found that, in the case of coal-gas having the specific gravity ·602, while the lights emitted from a two-inch and a five-inch flame were as 556 to 1978, the corresponding expenditures were to each other as 605 to 1437. But the light, in an economical point of view, must be estimated inversely as the quantity of gas from which it is obtained; and hence the ratio of the lights, in reference to the expenditure, was as $\frac{556}{605}$ to $\frac{1978}{1457}$, being as 100 to 150.

In the case of Argand burners, the augmentation of the light, in a ratio greater than the expenditure, was exemplified in a still more remarkable degree. Thus the following results were obtained with coal-gas of the specific gravity ·605, by elevating the flame of a five-holed burner, successively from half an inch to five inches.

Length of Flame.	Half-Inch.	One-Inch.	Two-Inch.	Three-Inch.	Four-Inch.	Five-Inch.
Light..............................	18·4	92·5	259·9	308·9	332·4	425·7
Expenditure........................	83·7	148	203·3	241·4	265·7	318·1
Ratio of light to expenditure..	100	282	560	582	582	604

Hence the light is increased about six times for the same expenditure, by raising the flame from half an inch to three or four inches; but very little is gained by any additional increase of the flame beyond that length, in the description of burners with which the experiments were made.

These facts receive a satisfactory explanation from the general principles which we have already laid down with respect to the combustion of the luminiferous gases. When the flame is short, the supply of oxygen for the combustion is too great; almost the whole of the gas is thus consumed before any portion of it can undergo the decomposition which is necessary for the evolution of light; while the temperature of the flame being reduced by the superfluous air which brushes along its surface, the intensity of ignition, and with it the splendour of the light, is proportionally diminished. This explanation is well illustrated by partially shutting the central part of the burner, and thus interrupting the supply of air to the internal surface of the flame; the moment this is done, the length of the flame is increased, and a visible improvement of the light takes place, thus indicating that more air was previously brought in contact with the gas than was requisite for its perfect combustion.

Magnitude and position of the orifices. The second point to which Drs Christison and Turner directed their attention was the construction of the burner itself, particularly the magnitude and position of the orifices at which the gas is emitted during its combustion. The same principles which explained the relation between the light and the expenditure, in the case of flames of different lengths, suggested the rule for regulating the dimensions of the orifices; and accordingly they justly inferred that, in a single jet, the diameter of the aperture ought to be such as to ensure the complete combustion of the gas, without rendering it more vivid than is necessary for that effect. If the orifice be too small, the greater portion of the gas is liable to be consumed without suffering a previous decomposition, and thus the light is extremely feeble; and, on the other hand, if the orifice be too large, the surface of the flame exposed to the action of the air being too small in comparison of the discharge of gas, the combustion is imperfect, and the carbon, after being separated from the hydrogen, either burns at a low temperature with a dusky flame; or, what is still worse, a large portion of it passes off in the state of smoke. In conformity with these views, they recommend, as we have already stated, a twenty-eighth of an inch for coal-gas, and a forty-fifth for oil-gas, as the most suitable dimensions for single jets. They acknowledge, however, that their experiments with coal-gas were too limited to justify them in using very confident language on the subject; and we have therefore the less hesitation in stating that we consider an orifice, varying in diameter from a thirty-second to a thirty-sixth of an inch, as better adapted to coal-gas of a specific gravity between ·62 and ·70.

Orifices of Argand burners. In Argand burners the diameter of the orifices ought to be a little smaller. Drs Christison and Turner state that the diameter which appeared to answer best for coal-gas of the specific gravity ·6, when the holes are ten in a circle of three tenths of an inch radius, was a thirty-second of an inch. We consider this, however, to be too great for coal-gas of a better quality, and would recommend, in preference, apertures varying in diameter from a thirty-sixth to a fortieth of an inch.

Distance of jet-holes. The distance between the jet-holes of Argand burners is a matter of no less importance than the diameter of the orifices, and must be regulated by the same principles. When they are so far asunder that the flames of the separate jets do not coalesce, no advantage is derived from the Argand form; but when they unite, and compose an uniform and unbroken surface of flame, the light is considerably greater, compared with the expenditure of gas, than is obtained from detached jets. In order to determine the most suitable distance at which the orifices of Argand burners should be placed, Drs Christison and Turner took a burner six tenths of an inch in diameter, which they caused to be drilled with eight, ten, fifteen, twenty, and twenty-five holes, a fiftieth of an inch in diameter; and having determined, with each of these burners, the light and expenditure, in the case of oil-gas, they obtained the following results.

Burners.	VIII.	X.	XV.	XX.	XXV.
Light	360	360	391	409	382
Expenditure	367	318	296	289	275
Ratio of light to expenditure	98	113	132	141	139

As the standard of comparison was a single jet, burning with a four-inch flame, the ratio of the light yielded by which to the expenditure was expressed by 100, it was inferred that no advantage is gained by giving the jets the Argand arrangement with a burner of the dimensions above mentioned, if the holes are only eight in number; and that the gain does not increase after the number reaches to twenty. In the former case the distance of the holes must have been ·2356 inch, or nearly one fourth of an inch, and, in the latter, ·0945; so that the most advantageous distance for jet-holes of a fiftieth of an inch in diameter would seem to be about $\frac{9}{100}$ths of an inch. For coal-gas burners, however, the distance between the jet-holes ought to be increased in a ratio varying inversely with the quality of the gas, or directly as the diameters of the orifices themselves. Hence, if the coal-gas were of an ordinary quality, the jet-holes should not be less than one eighth nor more than one sixth of an inch from each other.

Diameter of circle of holes. The distance between the orifices being once assumed, serves to determine the diameter of the circle of holes. Thus, in a burner of eighteen holes, each a seventh of an inch asunder, the circumference ought to be $18 \times \frac{1}{7} = 2{\cdot}57$ inches, and consequently the diameter of the circle of holes should be $\frac{2{\cdot}57}{3{\cdot}1416} = {\cdot}818$ inch. If the breadth of the rim be supposed a tenth of an inch, and perhaps it ought not to exceed that quantity, it may be proper, in the case of the larger burners, to contract the lower part of the central air-hole, on account of the supply of air to the inside surface of the flame increasing in a faster ratio than the number of jets.

Glass chimney. The only remaining point to be considered with respect to the burner is the glass chimney, which serves at once to protect the flame from irregular currents of air, and to convey to the gas a due supply of it during combustion. When the interval between the chimney and the external part of the flame is too great, the tendency of the air to flow through the air-hole is diminished, and the flame contracts towards the top, where it yields a dusky light, and indicates a disposition to smoke. The diameter of the chimney should therefore be reduced until it is perceived that the upper part of the flame is enlarged, and acquires the same diameter as the lower part. When this is the case, the colour of the flame is improved in brightness, and none of the carbon is uselessly wasted in the formation of smoke. On the other hand, if the supply of air to the external surface of the flame be diminished beyond a certain extent, either by reducing the diameter of the glass chimney, or by any other means, the flux of air through the central air-hole is unduly increased, the flame diverges in the form of a tulip till it touches the chimney, and the supply of air to the outside of the flame being thus interrupted, smoke is again produced. Hence the greatest degree of light, in relation to the expenditure of gas, may be expected to be obtained when the supply of air to the external and internal surface of the flame is so adjusted by the diameter of the chimney that the flame is perfectly cylindrical, neither burning with too much vivacity, nor showing any tendency to smoke. The length of the glass chimney is of much less importance than its diameter, and may vary from five to six inches.

Apparatus for Preparing Oil-Gas.

When tallow or oleaginous matter of any kind is raised to a certain pitch of temperature, it is resolved into various gases, of which the compounds of carbon and hydrogen, viz. olefiant gas or bicarburetted hydrogen, and light carburetted hydrogen, are the principal, both in point of quantity and quality, for the purposes of illumination. As oil contains in its composition a portion of oxygen, existing most probably in union with hydrogen in the state of water, that substance also yields, during its destructive distillation, a considerable quantity of carbonic oxide, as well as traces of carbonic acid, hydrogen, and even nitrogen. With these products, all of which are of a determinate character, is found in greater or lesser abundance a quantity of a very inflammable vapour,[1] which seems to be a compound of carbon and hydrogen.

Oil-gas owes its illuminating power chiefly to the proportion of olefiant gas which it contains, and the oleaginous vapour which is diffused through it; and as both of these ingredients vary exceedingly with the temperature at which the decomposition is effected, the quality of oil-gas is extremely fluctuating. When the temperature is too high, a portion of the olefiant gas and oleaginous vapour is resolved, by the deposition of carbon, into light carburetted hydrogen; and though the quantity of gas from a given portion of oil is thus increased, the quality of it is diminished in a still higher ratio. On the other hand, if the temperature be rather too low, a larger quantity of olefiant gas, mixed with a greater proportion of oleaginous vapour, is obtained; but as the latter is gradually and rapidly condensed when the gas is allowed to stand over water, the higher illuminating power of this richer gas is more than counterbalanced by the deficiency in its quantity, and the deterioration to which it is liable by keeping.

We are indebted to Dr Henry of Manchester for the first analysis of the aëriform compounds obtained by the decomposition of oil by heat; and though his elaborate researches can scarcely be said to have led to the determination of the precise products of that decomposition, they furnish data from which their true nature may be inferred, with a probability nearly as great as that which belongs to the results of direct experiment. The principal difficulty of the analysis consists in determining the condition in which the elementary principles of carbon and hydrogen exist in union with each other, and reconciling the various suppositions that may be made respecting the compounds thus formed, with the specific gravity which belongs to the original gas, supposed to be produced by their mixture.

Gas-Light.

The results of Dr Henry's first experiments were published in 1805; but it was not till about ten years after that period that an apparatus for decomposing oil, on a large scale for economical purposes, was constructed. In 1815 a patent was obtained by Mr Taylor, in which he was afterwards joined by Mr Martineau, for producing gas from oil, by means of an apparatus which was employed with little variation in all the oil-gas establishments, which were subsequently formed in various parts of the country. The general arrangements adopted in that apparatus will be readily understood from figs. 5, 6, and 7, Plate CCLVIII.

The retort *aaaa*, has the form of a horse-shoe, being recurved and furnished with two mouth-pieces. The grate of the furnace is represented by *b*. The oil which is contained in the cistern *c*, is conveyed by means of a tube *tt*, furnished with a stop-cock for regulating the discharge, and allowed to drop into the retort upon fragments of brick or coke heated to redness, to promote the decomposition. The gas, after its production, ascends from the retort, at the opposite limb where the oil entered through the upright pipe *ff*, by which it is conveyed into a close vessel *hh*, which is surrounded with cold water in the cistern *ii*. From the bottom of the vessel *hh*, a worm or spiral tube *kk* ascends, and after a few convolutions around *hh*, terminates in the pipe *l*, which descends into the air-tight chest *mm*. The gas leaving the vessel *hh*, is conducted by the spiral tube *kk*, depositing in its progress any portion of the oil that may have come over with it in a volatilized state, and escapes from the lower end of the pipe *l*, into the chest *mm*, which contains water to the depth represented. After quitting the pipe *l*, the gas is forced to traverse the inclined partition *n*, in a zig-zag manner, by means of diagonal ribs attached to its lower side, till gradually ascending, it escapes at the upper end, and rising through the water, finally passes off at *g* to the gasometer.

Loss incurred by converting oil into gas.

Oil being decomposed at a loss of nearly fifty per cent. the conversion of it into gas, after a protracted, but ineffectual competition with coal, has been gradually abandoned on the large scale, even in those places where, from the interest they had in the whale-fisheries, there was the strongest inducement to foster the unfounded prejudices, which prevailed for some time against the use of coal-gas. The exaggerated advantages which it was pretended would be derived from compressing oil-gas, and thus rendering it portable, served to prolong the gross delusions on the subject, under which the public mind, led astray as it was, not less by novelty than by erroneous statements, so long laboured; nor were these delusions fully removed, until a demonstration was given of the failure of the scheme, in the decay of the costly edifices, and expensive apparatus, which, in defiance of all sober calculation, had been constructed for carrying it into effect.

Methods for determining the Illuminating Power of the Gases.

Having described at considerable length the nature of the various manipulations by which gas is prepared, both from coal and oil, we shall now explain the methods which seem best calculated to determine their respective illuminating powers; it being by these methods that we acquire a knowledge of one of the most important tests, by which the comparative value of the gases can be ascertained.

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[1] The oleaginous vapour alluded to consists, according to the experiments of Mr Faraday, of two distinct compounds of carbon and hydrogen. One of these he terms *bicarburet of hydrogen*, which, by his analysis, is composed of six proportions of carbon and three of hydrogen. The other compound, to which Dr Thomson has given the name of *quadro-carburetted hydrogen*, consists of four proportions of carbon and four proportions of hydrogen, existing in a different state of aggregation from that in which they exist in bicarburetted hydrogen, the elementary constituents of which are in the same proportion.

Determination of the intensity of light, by the method of shadows.

The first and most obvious of these tests is to determine the intensity of the light which the gases are capable of diffusing during their combustion, upon a white and smooth surface, directly exposed to its emanations. The determination of that intensity is obtained with the greatest accuracy, not by a direct comparison of the degree of illumination shed on two separate surfaces, but by means of a happy contrivance, first proposed by Count Rumford, which allows the illuminated surfaces to be contrasted with each other on the same ground, and so closely adjoining, that the eye can readily detect the slightest difference between them. The contrivance, which is extremely simple and easily applied, is as follows: Let A and B, fig. 8, Plate CCLVI., be two luminous objects; EF a smooth and white surface, having the same inclination to the rays of light emitted by A and B; and CD an opaque cylindrical rod parallel to the surface EF; then it is evident that *aa* and *bb* will be the shadows of CD, in reference to the lights A and B. But the shadow *aa* being illuminated by the light B, and the shadow *bb* by the light A, it follows that if these shadows be perfectly the same, in point of intensity of shade, the light yielded by A and B must be the same in degree. If the shadows, however, be different, one of the lights must be removed either further from EF or brought nearer to it, until the shades seem to be exactly alike, when the light shed upon EF by A and B, must, in point of intensity, be, as before, the same. But the intensity of light, like that of other emanations proceeding in straight lines from a central point, being inversely as the square of the distance, the relative degrees of light emitted by A and B, must, in conformity with that principle, be proportional to the squares of their respective distances from the surface, on which the shadows are projected. Thus, if the light A was at the distance of fifteen feet, and the light B at the distance of twenty-five feet, their relative illuminating powers would be as the square of fifteen to the square of twenty-five; that is, as 225 to 625, or as 9 to 25. As the quantity of gas consumed in the same time to yield the supposed lights might be different, it is evident that a correct estimate of the absolute value of the gases, for the purpose of illumination, would not be duly determined, unless that circumstance were also taken into account. But the economical value of the gases, yielding equal degrees of light, being inversely as the quantities consumed, it follows that that value will be directly as the squares of the distances, at which the shadows are the same, and inversely, as the rate of consumption. Thus, if we now suppose that the gas yielding the light A consumed three cubic feet, in the same time that the gas yielding the light B consumed five cubic feet, the value of the former would be to that of the latter, as $\frac{9}{3}$ is to $\frac{25}{5}$, or as three to five. In obtaining the necessary data for determining the ratio of the lights, it may be proper to add, that the screen on which the shadows are projected should be guarded with the utmost care from all extraneous light. See PHOTOMETER.

Application of chlorine to determine the quality of gas.

Though the determination of the intensity of light by the method of shadows is extremely simple, and capable, when the necessary experiments are carefully managed, of leading to all the precision which the nature of the problem requires, it has been proposed, by those more conversant with chemical researches, to ascertain the relative value of the gases used for illumination, by finding the quantity of olefiant gas which they contain under equal volumes; it being assumed that the illuminating power of the compound combustible gases derived from the decomposition of oil and pit-coal, is directly proportional to the quantity of that gas existing in their constitution. Though that supposition is by no means a matter of certainty, or even of probability, we shall nevertheless briefly explain the mode of analysis which is recommended by those who have adopted it. According to the experiments of Dr Henry, chlorine has no action upon any of the gases obtained from oil or coal, when the influence of light is carefully excluded, with the exception of olefiant gas; and as chlorine and olefiant gas unite together in equal volumes, this property affords an easy mode of determining the quantity of the latter which may exist in any compound gas of which it forms a constituent part. All that is required for the purpose is to add somewhat more chlorine than is absolutely necessary for uniting with the olefiant gas, and to allow the mixture to remain about fifteen minutes completely excluded from light. The extent of the absorption being thus observed, half the quantity of the gas which has disappeared of the whole mixture will be olefiant gas. Thus, if twenty parts of chlorine by measure were added to twenty-five of coal-gas, and if the mixture, after being allowed to remain a sufficient length of time in the dark, was found to occupy thirty-six measures, the absorption would be nine measures, and consequently the coal-gas must have contained four and a half measures of olefiant gas, or eighteen per cent. The quantity per cent. of olefiant gas is determined without calculation, by adding to fifty measures of the gas to be analysed an equal volume of chlorine; when the diminution of volume, in the graduated jar, is the quantity which the gas contains per cent. of olefiant gas. Dr Fyfe states that the illuminating power of the different specimens of oil and coal gas which he subjected to this test bore a pretty exact ratio to the quantity of olefiant gas they contained. One great advantage to be derived from this method of testing the quality of any species of carburetted hydrogen containing olefiant gas in its composition, is, that it admits of a comparison being made between gases in different places and at different times, without the necessity of transporting them to a distance, and making a simultaneous examination of their illuminating properties.

Specific gravity o oil and co gas an imperfect te of their quality.

The specific gravity of oil and coal gas, and the quantity of oxygen which they require for their perfect combustion, have also been proposed as means of ascertaining their illuminating powers. The latter, however, even if it were a correct test, is determined with considerable difficulty; and that little reliance can be placed upon the former, may be inferred from the fact, that some of the gases which are component parts of oil and coal gas have a great specific gravity, without possessing any illuminating power. This will readily be perceived from the subjoined table.

Gases.	Specific Gravity.	Quantity of Oxygen for 100 Volumes.
Olefiant gas...........	·970	300
Carb. hydrogen.......	·556	200
Hydrogen..............	·069	50
Carbonic oxide........	·972	50
Carbonic acid.........	1·538	None.

Of these gases, carbonic oxide and carbonic acid possess the greatest specific gravity; while the latter is not only destitute of every illuminating property, but calculated, as we shall afterwards show, to deteriorate to a great extent the quality of the luminiferous gases with which it may happen to be mixed.

Comparative Merits of Oil and Coal Gas.

Though the examination of the relative values of oil and coal gas for the purposes of illumination might seem to be an inquiry little calculated to awaken party feeling, or lead to any great diversity of statement, there is perhaps no subject of investigation that has been conducted with less candour and impartiality. Nor is this remark merely applicable to the individuals who had an obvious interest in supporting the superiority of either gas; for even men of science, to whom it was apparently a matter of indifference which of the gases ought to be preferred, lent in too many instances their authority to the delusive and erroneous statements, which for a season misled public opinion on the subject.

As experience, the test to which all speculative doctrines relating to economy and public utility must ultimately yield, has already decided that, in this country at east, no establishment for manufacturing gas from oil can compete with one in which it is prepared from coal, it is ess necessary now than it was formerly to lay before our eaders a minute account of the comparative advantages of the two systems; but as there may still be cases where, rom the scarcity of coal and the abundance of oil, it might be doubtful which of them should be adopted, we hall briefly consider some of the leading points connected with the two modes of illumination. These may be discussed under the heads of, 1*st*, the illuminating power of he gases; 2*d*, their purity; 3*d*, their heating power; 4*th*, heir safety; and, 5*th*, their economy.

1st, *The Illuminating Power.*—This property may be considered either in regard to the relative light yielded by the flames of the gases, when equal surfaces are taken, r with respect to the absolute quantity of light furished by equal volumes of the gases. In the former ase, though the light of oil-gas is certainly more brilant than that of coal, the difference is so slight that it is difficult to detect it by the eye, or even by the method of shadows; but in the latter case, when the conumpt of the gas, as well as the light which it yields, is aken into account, it cannot be denied that the advanage is considerably in favour of oil-gas. In consequence, owever, of the great diversity of condition in which the wo gases are prepared, both with respect to their producon and purification, the most discordant statements have een given on this point. According to Mr Brande, oil-as and coal-gas give equal degrees of light, when their olumes are as one to two and a half; according to Dr yfe and Mr Leslie, when they are as one to one and a alf; and according to Mr Dalton, when they are as one two and a fourth. The greatest deviations were obined by Messrs Phillips and Faraday, and by Mr Ricardo, he former making the ratio as one to three and a half, nd the latter as one to four. The writer of this article, ho made the comparison between the two gases when ch of them was of the best quality, found that a very ense oil-gas, the specific gravity of which was 1·054, conmed at the rate of 2779 cubic inches per hour, and elded the light of thirteen and a half tallow candles, eing 206 cubic inches to give the light of a candle for hour; while a coal-gas, the specific gravity of which as ·675, consumed at the rate of 3900 cubic inches per ur, and yielded the light of thirteen candles, being 300 ubic inches to give the light of a candle for an hour. rom these experiments the illuminating power of the oil-s was to that of the coal-gas as 206 to 300. It may be oper to add, that the oil-gas, after being kept five days er water, consumed at the rate of 282 cubic inches per ur for the light of a candle, and that the coal-gas kept a similar manner, and for the same length of time, conmed at the rate of 409 cubic inches per hour, and gave the same degree of light. The deterioration produced on the oil-gas was therefore thirty-seven per cent. and that on the coal-gas about thirty-six and a third. According to the experiments of Drs Christison and Turner, when the oil-gas was of the best, and the coal-gas of average quality, their relative illuminating powers were as 100 to 260. This result, which was obtained from data obviously unfavourable to coal-gas, cannot be admitted as exhibiting a fair estimate of the illuminating power of the two gases; and as it may be presumed that, in some of the other experiments which they performed with a view to determine the same point, the effect of keeping the gases for different lengths of time over water may have been overlooked, the results they obtained, which make the relative powers of illumination as 100 to 233, are of less value. It appears that oil-gas suffers more by keeping, even when it is not preserved over water, than coal-gas. This seems to be owing to the deposition of an ethereal oil, already noticed, which remains suspended in the gas for a short time after it has been prepared, but which gradually separates from it when it cools, or is allowed to remain in a state of repose. It is a singular fact, that though the specific gravity of oil-gas, after it has been conveyed for some distance through pipes, is materially diminished by the loss of this oleaginous vapour, scarcely any trace of the latter is to be found in the vessels for collecting the condensed matter, between the manufactory and the houses of the consumers of the gas. The deterioration, however, is undoubted, and in some cases it amounts to thirty per cent. We have even found that the best oil-gas, if kept for several weeks over water, becomes so much debased in quality as to require 600 cubic inches per hour to yield the light of one candle. Coal-gas suffers also by keeping, but in an inferior degree; the olefiant gas, which it contains less abundantly, being more largely absorbed, in the case of oil-gas, by the water over which it stands.

Deterioration of gas by keeping it over water.

Relative illuminating power of oil and coal gas.

The mean result deduced by the writer of his article, from a very considerable number of experiments performed with great care, and by means of suitable apparatus for the purpose, is that 100 cubic inches of oil-gas are equal in illuminating power to 160 of coal-gas, both being of good quality. The coal-gas, it may be proper to mention, was produced from cannel coal, and purified without coming in contact with water, by dry lime, or at least quicklime slightly moistened, and mixed with a small portion of the peroxide of manganese. The oil-gas was in most cases obtained by the patent apparatus of Taylor and Martineau.

Purity of oil and coal gas.

2d, *The Purity.*—Under the head of purity we may consider the offensive smell belonging to the materials from which the gases are obtained; to the products connected with their decomposition; and also to the gases themselves, as well as the tendency which the gases may have to produce, during their combustion, substances capable of being deleterious to health, or injuring any kind of household furniture exposed to their influence. With respect to the first of these nuisances, it cannot be doubted that oil is more apt to prove offensive to the neighbourhood than coal. The latter, if kept for some months, only loses the water it had imbibed in the bowels of the earth, and is thus rendered more fit for yielding a better gas, as well as one more abundant in quantity; whereas the former becomes rancid and fetid by keeping, and emits, by exposure, effluvia which are equally offensive and unwholesome. The mere emptying of oil from one vessel to another, and especially the melting of some kinds of it, which is necessary before it can be introduced into the retorts, is attended with a degree of nuisance which no caution can entirely prevent. To counterbalance these disadvantages, it must be admitted that the products which result from the decomposition of coal are not only of a more offensive nature, but more abundant in quantity than those which are obtained from oil; and though the extent of the nuisance which they occasion is greatly diminished in well-regulated coal-gas works, by confining them in close vessels, it is impossible altogether to prevent the annoyance to the neighbourhood, which their removal from time to time produces.

Smell of the gases.

With respect to the smell of the two gases, they are so nearly the same when the gases are properly purified, that it would be difficult to pronounce which of them is least unpleasant. At any rate, when they are properly burnt, and consumed without any portion of them being permitted to escape, no disagreeable odour is perceptible; and, in this respect, either of them has a decided advantage over tallow or oil used for the purpose of yielding light, and burnt, according to the ordinary mode, with a wick.

Impurities of coal-gas, in its crude state.

The most serious objection, however, against the use of coal-gas, was grounded on the various impurities with which, in its crude state, it is more or less contaminated. These impurities consist, as already stated in a preceding part of this article, of tar, carbonic acid, sulphuretted hydrogen, and carbonate of ammonia, some of which are so offensive that, without being freed from them, coal-gas could never be brought into competition with oil-gas. When coal-gas was first introduced, neither the tar nor the sulphuretted hydrogen was so completely separated from it as to render it fit for being used in private dwelling-houses; and accordingly strong prejudices continued to operate against it, long after the cause which gave them birth had ceased to exist. As it is now generally admitted, however, that coal-gas is so effectually purified, in many establishments for its production, as not to exhibit the slightest trace of sulphur when exposed to the most delicate tests for detecting the presence of that substance, its value for the purpose of illumination, as contrasted with that of oil-gas, must rest chiefly on considerations of economy. It has been alleged, indeed, by Mr Brande, that though no indications of the existence of sulphur in coal-gas could be discovered in it before it was burnt, he could never procure any which did not afford traces "very minute" of sulphurous acid during its combustion. But if he had submitted oil-gas to the same ordeal he would have obtained a like result; a portion of sulphur being expelled from the coke which is used in the retorts for decomposing the oil, and which sulphur accordingly unites itself with the gas at the moment of its formation, and may be detected by exposing the condensed aqueous vapour which is formed during its combustion, to the action of the nitrate or acetate of barytes. In this respect, therefore, the two gases must be admitted to be on the same footing.

Aqueous vapour generated during the combustion of the gases.

Under the head of purity it may not be improper to notice the quantity of aqueous vapour which is produced during the combustion of the gases, by their union with the oxygen of the atmosphere, as the water thus formed may be conceived to possess in some measure the character of a nuisance. To obtain a correct estimate of the quantity of this water, generated in any case, it will be necessary to take into account the proportional relation between the volumes of the gases yielding equal degrees of illumination, and the quantities of hydrogen contained in these volumes. With respect to the former of these points, we have already stated that 100 volumes of oil-gas are equal to 160 of coal-gas; but the actual composition of the gases is still involved in some obscurity. According to the experiments of Dr Henry,[1] 100 measures of oil-gas having the specific gravity ·906 contained 38 of olefiant gas, of which, by the acknowledged constitution of that gas, 76 must have consisted of hydrogen in a condensed state. The remaining 62 parts were composed, by the analysis of that able chemist, of

Nitrogen	3.1
Carb. hydrogen	46·5
Carb. oxide	9·3
Hydrogen	3·1
	62

But 46·5 parts of carburetted hydrogen contained, in a condensed state, 93 parts of hydrogen; to which adding the simple hydrogen 3·1, and the portion of the same gas contained in the olefiant gas 76, we obtain 172·1 for the whole quantity of hydrogen in the oil-gas.

Again, Dr Henry states that 100 measures of coal-gas having the specific gravity ·650 yielded thirteen of olefiant gas, which therefore contained in the condensed state 26 of hydrogen. The remaining 87 parts consisted, according to his analysis, of

Nitrogen	1·3
Carb. hydrogen	82·2
Carb. oxide	3·5
	87

But as 82·2 parts of carburetted hydrogen must have contained, in the condensed state, 164·4 parts of hydrogen; if to this be added the hydrogen of the olefiant gas 26, we obtain 190·4 for the whole quantity of hydrogen in the coal-gas. Combining the results thus obtained with the numbers expressing the ratio of the volumes of the gases, giving equal degrees of illumination, it appears that the quantity of water generated by oil-gas will be to that generated in the same time by coal-gas, as 100 × 172·1 to 160 × 190·4, being as 17,210 to 30,464, or as five to nine nearly. Hence coal-gas must produce nearly twice as much watery vapour in an apartment, during its combustion, as oil-gas yielding the same degree of illumination.

Calculation of t quantity aqueous vapour.

To determine how far the moisture thus generated may be regarded as a nuisance, we shall make an exact calculation in the case of an apartment, which we shall suppose to be twenty feet long, sixteen feet broad, and eleven feet high, and containing therefore 6,082,560 cubic inches. To light a room of these dimensions in the way commonly done with coal-gas would require three Argand burners, each yielding the light of ten candles, and consuming about 10,000 cubic inches of gas per hour. Now, as 100 cubic inches of coal-gas of ordinary quality contain, as we have already seen, 190·4 of hydrogen in a condensed state, the quantity of the latter gas consumed by the burners would be 19,040 cubic inches, which would yield 4284 grains of aqueous vapour per hour. This quantity of water, diffused equally over the whole apartment, would add about $\frac{1}{1500}$th part of a grain to the moisture previously existing in each cubic inch. This may appear to be a very inconsiderable quantity; but as it is about a fifth part of the whole of the moisture capable of existing in the air of the atmosphere at the ordinary temperature of our rooms in winter, it would be sufficient to occasion perfect dampness in an apartment, at that season, in the course of four hours. In consequence, however, of the external cold, this state of things never takes place, the greater part of the floating vapour being reduced to the liquid form by condensation against the windows, long before the air of the apartment is generally affected by it.

Heatin power the gas

3d, *The Heating Power.*—As the heating power of gas may be regarded as being, in many cases, an advantage rather than a nuisance, we shall merely state the results produced by the combustion of certain volumes of oil and coal gas, in reference to the light which each of them yielded, when they were exposed to that process. The apparatus we used for the purpose was extremely simple, and of the following construction: *abefghcd*, fig. 9, Plate CCLVI., represents a double vessel, composed of two concentric cylinders of tin-plate, which was furnished with a lid; the external cylinder, *abcd*, was six inches in diameter, and the internal one, *fehg*, three inches, the former being twelve inches deep, and the latter six. From the bottom of the internal cylinder proceeded two tin tubes, *ikl*, the use of which was to carry off the air contaminated by combustion. When he apparatus was used, a quantity of water at a fixed temperature was poured into the space between the cylinders, ill it stood at a mark *nn* in the inside; a burner *m*, consuming a known quantity of gas, and yielding a light equal o that of a certain number of candles, was then introduced, nd allowed to remain exactly at the same distance from *fg*, ill the water reached a given temperature, the time of its loing so being carefully noted with a seconds watch. To guard against the errors arising from the dissipation of the heat during the progress of the experiments, equal porions of pounded ice were sometimes mixed with the water, nd a thermometer was applied from time to time to the pper extremities of the tubes *ikl*, to ascertain whether ny of the heated air escaped before it imparted the whole f its calorific influence to the water.

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[1] *Transactions of the Royal Society for* 1821.

The following result was obtained with oil-gas having he specific gravity ·970, the rate of consumpt being 3054 ubic inches per hour, with the light of 10·55 candles.

Temperature of water at commencement	49°·0
After ten minutes	85 ·5
... twenty ditto	115 ·0
... thirty ditto	139 ·5
... forty ditto	161 ·0
... fifty ditto	181 ·0
... sixty ditto	195 ·5

Hence 3054 cubic inches of oil-gas raised the temperaure of 270 cubic inches of water 146°½ in an hour.

Again, with coal-gas the specific gravity of which was 50, and which consumed at the rate of 3583 cubic inches er hour when it yielded the light of ten candles, the llowing results were obtained:—

Temperature of water at commencement	48°·0
After ten minutes	81 ·0
... twenty ditto	113 ·8
... thirty ditto	140 ·5
... forty ditto	163 ·0
... fifty ditto	181 ·5
... sixty do	196 ·0

ence 3583 cubic inches of this coal-gas raised the temerature of 270 cubic inches of water 148° in an hour.

As the heating power, without regard to the light, must e directly as the temperature communicated, and inverse- as the quantity of gas expended in the same time, the eating power of oil-gas is to that of coal-gas, according to e above experiment, as $\frac{146\cdot5}{3048}$ to $\frac{148}{3583}$, or as 100 to 86.

hen the relative illuminating powers of the gases are so considered, the heating powers seem to be nearly ual, but on the whole greater, in the case of coal-gas, the ratio of about 105 to 100.

4th, *The Safety of using the Gases.*—The explosive force the gases, when they are mixed with various proporns of common air, and the limits within which the exosive range is confined in the case of each gas, may be nsidered under this head.

Among the other delusive statements brought forward th so much confidence in favour of oil-gas, it was even intained, that while coal-gas is capable, when mixed with common air, of producing the most violent explosions, the former was almost exempt from that source of accident. Nor was this absurd and erroneous opinion confined to the ignorant and ill-informed upon the subject; for we find that Sir W. Congreve, in the report which he drew up for the instruction of the British Government, on the state of gas-light establishments in the metropolis, actually affirms in that document, that "the most important feature in the use of oil-gas is its safety; as, from the very narrow limits of the explosive mixture that can be formed of this gas and atmospheric air, it is scarcely possible that an accident can occur." Now, with regard to the limits of explosion thus adverted to, we have found, by the most precise experiments, varied in every conceivable way, that in general one volume of oil-gas will not explode with less than three and a half volumes of common air, nor with more than sixteen volumes; the explosion being most violent when the common air is ten times the volume of the gas; in which case we found that a third part of a cubic inch of oil-gas was capable of displacing with violence a cylindrical mass of iron upwards of forty pounds in weight. One specimen of oil-gas of the specific gravity 1·054, when it was newly prepared, and which, being kept two days, became of the specific gravity ·955, could not be made to explode with less than seven and a half volumes of common air; but it continued to explode till it was mixed with twenty-one volumes, when that effect could no longer be produced. In the case of coal-gas the explosive range was more definite, and less subject to variation in the proportions of its admixture with common air, than oil-gas; the limits being between five and sixteen of common air to one of the gas, almost invariably. The violence of the explosion was also greatly inferior to that of an equal volume of oil-gas, as might readily be inferred from its constitution. And not only are the explosions of oil-gas more formidable than those of coal-gas, but, in consequence of the specific gravity of the former approaching nearer to that of common air, they are, contrary to the assertion of Sir W. Congreve, more likely to occur; so that in both these respects oil-gas must be pronounced to be more dangerous than coal-gas.

Inquiry into the danger attending the use of gas.

As it must be evident from what we have stated, that a considerable degree of danger may be connected with the use of gas, whether obtained from oil or from coal, it may not be improper now to examine a little more in detail the real extent of this evil, in order that, by a due knowledge of the sources from which it is most likely to arise, we may be prepared to guard against its consequences; or, if that be wholly impossible, to enable us at least to judge how far the economy, and other advantages of this mode of obtaining artificial light may be regarded as an adequate compensation, for the risk incurred in adopting it. On this subject, where the safety of the public is so extensively involved, we wish to use the language of caution, but not that of timidity; and while we admit that in a few instances accidents of the most fatal nature have occurred from the use of gas, we hesitate not to affirm that these accidents might generally be traced either to gross ignorance, or culpable negligence, on the part of those who were the victims of them. Accordingly, we find that since the nature of gas has become better known, the accidents from its use are few and trifling. The danger, however, was regarded by the British legislature to be of too serious a nature to be left entirely to the discretion of the manufacturers of gas; and an inquiry into the subject was accordingly instituted in 1814, by order of the Secretary of State for the Home Department. This led to a report from the Royal Society, which was followed by a more minute examination of the subject by Sir William Congreve, who was appointed by Government to prepare a report on the state of the gas-works, in and

The subject taken up by government.

about the metropolis. In this report, which was laid before the public in 1824, Sir William Congreve arranges the dangers from the explosion of gas, as well as those arising from peculiar defects in the construction of the works, under three heads:—

1*st*, That which may occur at the gasometer.

2*dly*, That which may arise after the gas is expelled from the gasometer, in its passage through the main-pipes under the streets.

3*dly*, That which accompanies the use of it in the building where it is consumed.

Danger of explosion, at the gasometer-house.

In considering the chance of explosions occurring at the gasometer-house, he begins with remarking, that, in the first filling of a new gasometer with gas, or in refitting one which, from any cause, may have been emptied, there is no contrivance for "exhausting the atmospheric air;" and accordingly accidents, he states, have actually occurred in the first filling. In proof of this assertion he mentions that "an explosion happened at Manchester, in consequence of the people carrying lights about the gasometer to ascertain if it was air-tight in the act of filling, and very serious mischief ensued. The gasometer was blown to pieces, the house destroyed; one man is said to have been killed, and others severely injured." Now, this source of danger is easily avoided, not by any "contrivance for exhausting the air," but simply by expelling it before the gas is introduced; precisely in the same manner as the gas itself is expelled by the pressure of the gasometer.

The next cause of explosion to which he adverts, is that arising from a gasometer not perfectly air-tight being prevented from sinking by some defect in its chain of suspension. This, however, is a very imaginary case, and so unlikely to happen, that it is quite unnecessary to examine the supposed consequences by which it would be followed, these being of so contingent a nature as to be barely within the range of possibility.

Danger of explosion by lightning.

If the causes of explosion which we have noticed admit of being obviated by a proper construction of the gas apparatus, and a moderate degree of caution on the part of the workmen, there are others which Sir William Congreve has mentioned that are scarcely deserving of any consideration, such as the danger of explosion by lightning, and the chance of the counterpoise of the gasometer falling by the breaking of its suspension-chain. On the first of these sources of danger he remarks, "That it appeared to him such a combustion by lightning or otherwise would produce very destructive effects to the neighbouring buildings and gasometers, merely by the sudden rarefaction and expansion of the air caused by it; and would, in fact, produce a violent detonation and concussion, without supposing any combination of oxygen and hydrogen, but merely by the simple conflagration of the hydrogen." Are we to infer from these observations, that Sir William Congreve thought it possible that hydrogen can undergo any species of conflagration, however "simple," without the presence of oxygen? or did he merely mean to affirm, that if a gasometer were destroyed by lightning, and its contents violently discharged into the air, the dreadful effects would be produced which he describes? As we cannot suppose he entertained the former opinion, we need merely say with respect to the second, that it is not only in the highest degree improbable, but calculated to excite alarm when no reasonable cause for it exists. For, granting that a gasometer were struck by lightning, the electric fluid would either glide silently along its metallic sides to the earth, or, if it penetrated the gas, produce no change on its condition beyond a slight and partial enlargement of its bulk.

With respect to the danger arising from the breaking of the suspension-chain of the gasometer, Sir W. Congreve stated, that the gasometers are made so heavy as to require sometimes a counterpoise of six or seven tons; and he adds, that "if one of these weights should be detached while the gasometer is at work, the pressure of that gasometer on the gas would, on a sudden, be so greatly increased, that the lamps connected with it would immediately flare up to a great height, and in many situations (in shops particularly) set fire to the premises before the lamps could be turned off." This seems to be a most alarming source of danger; and the importance of it weighed so much on the mind of Sir William, that he mentions it in more than one part of his Report. It may be proper, therefore, to examine how far it is calculated to produce the direful consequences which he dreaded from its occurrence. The sudden disengagement of a weight of six or seven tons, with the increase of a corresponding pressure on the gasometer, appears at first sight to be an event likely to be attended with some of the evils, which, it is so confidently stated, would result from it; but the case is quite a hypothetical one; and had Sir W. Congreve reflected for a moment that the pressure of even six or seven tons diffused over a surface of 1200 square feet, would be no more than 550 grains on a square inch, or equal to the pressure of about two inches of water, he never would have introduced into his Report such a groundless cause for alarm. The truth is, that the falling of the counterpoise would increase the pressure upon the gas from three fourths of an inch to perhaps two and a half inches of water; and, by doing so, might excite a little momentary surprise on the part of the consumers of the gas, at the unusual size of their lights; but such an occurrence could not by any means produce the fatal consequences ascribed to it.

The danger to which the community is exposed from the risk of accidents, by the transmissions of the gas through the main-pipes, and its escape from these by leakage, into cellars and other subterraneous places, where it may accumulate in considerable quantity, in admixture with common air, is deserving of more serious examination. It is to this cause, indeed, that we must ascribe the principal accidents that have happened from the use of gas; and the utmost care ought to be taken to guard against their occurrence. The best protection from this source of danger is to be found by trying, with a forcing pump, all the pipes before they are laid, and executing the different joints, where they are connected, with a suitable quantity of lead, and in the most careful manner. When clay can be easily procured, additional security is obtained by beating it well into the tracks after the pipes are laid, so as to surround them with a coating of it to the extent of several inches. This precaution is not only a safeguard against the escape of the gas, but highly conducive to the durability of the pipes.

The last kind of danger to be considered is that which attends the use of gas, through ignorance or negligence, in the building where it is consumed. It has already been stated, that coal-gas will not explode unless it be mixed with more than three, but less than fifteen times its own bulk. If we take the last proportion, being the one from which danger is most to be apprehended in dwelling-houses, it appears that the air of an apartment could not be brought to a state which would place it within the range of explosion, unless it contained a quantity of gas, in admixture with it, equal to one fifteenth part of itself. The most probable way of such a state of things occurring, would be the neglect of turning the stop-cocks of the burners after the extinction of the light. If this were done in an apartment fifteen feet square and ten feet high, and containing therefore 2250 cubic feet, it would require at least 150 cubic feet of gas to be thrown into it before the adulterated air could explode. Now 150 cubic feet of gas would afford a light equal to that of sixty candles ourning for ten hours together,—a quantity of light which, eing ten times more than could ever be required for an partment of the size specified, it may reasonably be conluded, that unless a room were of very small dimensions, nd furnished with more gas burners than necessary, little anger could arise even from the culpable neglect of the top-cocks. At the same time it ought to be noticed, that if he air of a room were undisturbed, it is possible that a imited portion of it, sufficient to occasion a dangerous xplosion, might be brought to a detonating condition in he immediate vicinity of the burner, though the rest of he air in the apartment were not in that state. On the hole, therefore, while we are decidedly of opinion that he risk of using gas is a great deal less than is generally magined, perhaps the best security to the public will be ound to result from an exaggerated representation of its angers. Time, and the experience of its advantages, will radually remove unfounded prejudices against its use, nd ultimately render it the most general, as well as the nost useful and economical, mode of obtaining artificial ght.

5th, *The Economy of Oil and Coal Gas.*—Having exanined at some length the more important of the physical roperties of the two gases, so far as these are connected ith their utility for the purpose of illumination, we shall, stly, consider the relative advantages which they possess a commercial point of view. From a due consideration f these properties, it can scarcely be doubted that, if the wo gases could be procured equally cheap, so as to afford n equal extent and an equal degree of illumination at the ame expense, most people would be disposed to give a reference to oil-gas. The reasons however for doing so re by no means of a kind to supersede the necessity of stituting a comparison between the costs of their prouction; and in this respect, indeed, we shall find reason wonder by what sophistry and misrepresentation oil-gas ould have maintained so long a doubtful competition with al-gas.

Though the results of experiments on a small scale are requently inapplicable to extensive establishments, and, the hands of rash and speculative men, often lay the oundation of ruinous consequences, yet, when examined ith due caution, they are far from being of no value, ut, on the contrary, frequently furnish data from which uch useful information is derived. Thus, we can asertain from experiments on such a scale, what quantity gas is yielded from a particular species of coal, and hat quantity is obtained from a certain kind of oil. rom experiments of that description, it has been found at a pound of cannel coal yields, at an average, from five six cubic feet of gas, and a gallon of whale-oil from ghty to a hundred cubic feet of it; and hence we may fely infer, that sixteen pounds of that species of coal ould produce as much gas as a gallon of whale-oil. ow, sixteen pounds of coal, at 15s. per ton, would cost d.; and therefore, if we reckon the oil at 2s. per gallon, would appear that coal-gas costs little more than one venticth part of an equal volume of oil-gas. It must not inferred, however, from this result, that it would be roportionally more advantageous to employ coal in prerence to oil, for the manufacture of gas; it being possie that the smaller expense of the process of decomposion, and the difference of the illuminating powers of the gases, may compensate, to a certain extent, for so great an inequality in the cost of the materials of production. It will be necessary, therefore, to consider these points in detail, before we can form a true estimate of the relative economy of the two modes of illumination.

Before entering upon this inquiry, it may be proper to mention that a gallon of whale-oil of the specific gravity ·925 weighs almost exactly 53,950 grains. It will be necessary to keep this fact in view, to check the extravagant statements which have been given respecting the number of cubic feet of gas yielded by a gallon of oil, which in some cases have been rated so high that the weight of the gas would have exceeded the weight of the materials from which it was pretended to be derived. On this point we have it in our power to furnish the result of two years' experience, from an exact register of the quantity of gas yielded by the patent apparatus of Taylor and Martineau, at Kinfauns Castle, the residence of Lord Gray, from which it appears to be exactly 70¾ cubic feet. Hence the prime cost of a thousand cubic feet, if the oil were L.25 per ton, would be 28s., independently of the expense of manipulation, and the interest of capital. If we allow it to be only 26s., as stated by the patentees themselves, we shall find that, even on this admission, oil-gas cannot for a moment bear a comparison in point of economy with coal-gas. For if we compare this cost of oil-gas, which, we must remember, is exclusive of the expense of production, with the actual cost of a thousand cubic feet of coal-gas, which at an average may be reckoned 5s. 3d., including every expense of outlay, we shall find the one to bear to the other the ratio of about five to one. But as coal-gas is inferior in illuminating power to oil-gas, in the proportion of 100 to 160, by allowing for this difference of quality, it would appear that the prime cost of coal-gas is less than one third of the cost of the mere oil requisite to yield an equivalent quantity of oil-gas.[1]

The light yielded by oil-gas less than that obtained from oil consumed in the ordinary way

One of the delusive representations respecting oil-gas, by which the public were for a season misled, was, that more light was obtained from oil reduced to the gaseous state, than that substance is capable of yielding when it is burnt in the ordinary way. The incorrectness, however, of this assertion is clearly demonstrated by the following exposition: a gallon of whale-oil consumed with a wick, in a good Argand lamp, we found, by the method of shadows, to yield the light of ten tallow candles for seventy hours, or that of seven hundred candles for one hour. But, according to the statement of Taylor and Martineau, one and a half cubic feet of oil-gas give the light of ten candles for the same time; and therefore a gallon of oil, yielding seventy and three fourths cubic feet, ought to afford the light of 472 candles for an hour. Hence the loss of light by decomposing the oil is in the ratio of 700 to 472, or about thirty-two and a half per cent. This result coincides very nearly with that which we obtain by comparing the weight of the gas with the original weight of the oil, as already stated to be obtained at Lord Gray's gas-work. For the weight of seventy and three fourths cubic feet of oil-gas having the specific gravity ·92 (the average specific gravity we found it to have), ought to be 34,573 grains; and as a gallon of oil weighs 53,950 grains, the loss by decomposition is 19,377 grains, or nearly thirty-six per cent.

It appears from these statements, that while coal is con-

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[1] At the Perth gas-work it appears, by the result of a year's experience, that 6,179,670 cubic feet of coal-gas are sold for L.2696. s. 9d., being at the rate of nearly 8s. 9d. for a thousand cubic feet, or 14s. for an equivalent quantity of oil-gas. But the cost of e oil which yields that quantity of gas being 26s., it is evident, that without taking into account the expense of the manipulations d interest of capital, a loss of 12s. would be incurred on every 26s. expended for oil, in order to enable oil-gas to be brought into npetition with coal-gas.

Advantages of coal-gas over oil-gas.

verted by its decomposition at a gas-work into a substance greatly more valuable than the material in its original condition, oil is reduced by the same process into one of diminished value; insomuch that the manipulations and the capital expended upon an oil-gas establishment are actually applied to reduce to the extent of thirty per cent. the intrinsic value of the raw material, which, it was pretended, they improve in an equal degree. Add to this, that the loss of gas in the main pipes is found to be fully twenty per cent., and it follows that the light from oil-gas is obtained at twice the expense at which it may be procured immediately from the oil itself.

Hints respecting the Improvement of Coal-Gas.

Of all the combustible bodies having an elementary character, carbon and hydrogen are not only the most widely and copiously diffused throughout the three kingdoms of nature, but best adapted by far for the evolution of light during their combustion. It is only, however, when they are united together in due proportion that they answer the purpose most effectually; and, indeed, in a separate state, their illuminating powers are so feeble, that even when their combustion is accelerated and rendered more perfect by the presence of oxygen, the light they yield is yet unfit for many of the useful ends to which light is subservient. The substances in which carbon and hydrogen are united in the best proportion, for the production of light, are pit-coal in the mineral kingdom, and oils and fatty matter in the animal and vegetable.

The great abundance of coal, and the comparative cheapness at which it can be obtained, give it a decided advantage in point of economy over oleaginous matter, whether of animal or vegetable origin; while the processes of decomposing it, with the view of converting it into a volatile and elastic product, have been so much improved as to render the gas which it yields equally fit for the purpose of illumination with the more costly gases obtained from the oils.

The gas produced by the decomposition of coal and oleaginous matter at a high temperature is a compound of carbon and hydrogen, and consists chiefly of two gases, in which these elementary substances exist in definite proportions. One of these gases is termed carburetted hydrogen, and the other olefiant gas or bicarburetted hydrogen. The former contains one atom of carbon united with two atoms of hydrogen, and the latter an atom of each of these elements.

Light yielded by carburetted hydrogen chiefly derived from the carbon.

Of these two compounds of hydrogen and carbon, that which contains the largest proportion of the latter element is found to yield, during its combustion, the most brilliant light, and that to for a longer period of time. And, indeed, so great is the difference in these respects, that the hydrogen may not improperly be regarded as the mere solvent or vehicle of the carbon, acting the part of wick, and thus presenting that substance in a state sufficiently comminuted for its more perfect combustion. Accordingly, the more abundantly the hydrogen is impregnated with carbon, the greater may we expect to be its illuminating power, and the fitter in every respect for yielding artificial light. These views are fully supported by experiment; for not only is the brilliancy of the light modified by the quantity of carbon held in solution by the hydrogen, but the time which a given portion of the gas takes to consume away by combustion is affected by it in a still greater degree.

To determine in what ratio the illuminating power of the gases obtained both from oil and coal was reduced by diluting them in various proportions with hydrogen, we instituted a series of experiments, the results of which are of considerable importance, inasmuch as they decidedly indicate, not only that the mixture is deteriorated, but that the same quantity of carbonaceous matter yields less light the more largely it is diluted with hydrogen.

Deteri- tion by mixtu with h droge

In the first experiment we took a portion of coal-gas of the specific gravity ·67, which we found consumed at the rate of 4400 cubic inches per hour, and yielded the light of eleven candles, being 400 cubic inches per hour for the light of one candle. This gas being diluted with a fourth part of its bulk of pure hydrogen, acquired the specific gravity ·55, and wasted away at the rate of 6545 cubic inches per hour, yielding the light of ten candles. As a fifth part of the compound gas was hydrogen, the remaining four fifths, amounting to 5236 cubic inches, was the quantity of the coal-gas which, in its diluted state, gave the light of ten candles for an hour; so that 524 cubic inches of the original coal-gas were requisite to give the light of one candle for the same time. But, in its unmixed state, 400 cubic inches were sufficient to give the light of one candle for an hour; and consequently, the deterioration occasioned by the dilution was in the ratio of 524 to 400, or of 100 to 76, being 24 per cent. It must be distinctly kept in view that the deterioration has been reckoned, not with respect to the whole volume of the mixture (in which case it would have been 39 per cent.), but simply in reference to the coal-gas itself, and therefore the experiment, so far as it goes, justifies us in adopting the conclusion, that had the hydrogen existed originally in union with the coal-gas, the latter would have improved in quality 24 per cent. by its abstraction; *because the residuary portion would not only have lasted longer, but yielded during its combustion a superior light.*

In a second experiment, conducted in a similar manner, in which the proportion of hydrogen was one third of the quantity of the coal-gas, the deterioration was 27 per cent.; in a third experiment, the proportion of hydrogen being a half of the volume of the coal-gas, the deterioration amounted to 31 per cent.; and, in a fourth experiment, the quantity of hydrogen being exactly equal to that of the coal-gas, the deterioration extended to 36 per cent.

Genera conclusions.

These results indicate a progressive deterioration in the quality of coal-gas by the admixture of hydrogen; and the important conclusion to which they lead is, that the abstraction or removal of the latter, though diminishing the entire volume, would improve the nature of the residuary portion, not only in a higher ratio than the loss which the whole sustained in its bulk, but render that portion capable of yielding, for a longer period of time, a greater light than it could have done in its original state. Hence it may be inferred that the illuminating power of coal-gas, whether considered with respect to the cost of its production or the intensity of its light, admits of being improved; first, by impregnating the hydrogenous element more largely with carbon; secondly, by preventing the disengagement of hydrogen in a free state during the carbonization of the coal; and lastly, by detaching a portion of that gas from coal-gas when it already exists in admixture with it.

Modes improv coal-gas

The first of these modes of improvement seems to be practicable, at least to a certain extent, by thoroughly drying the coal[1] before it is introduced into the retorts, and modifying the pressure under which the gas is generated. The second, by intermixing with the coal some substance which is at once capable of uniting with the hydrogen, nd of being afterwards detached, in its combined state, rom the coal-gas with which it is mixed. Such a subance is sulphur; and accordingly we find that the coal which sulphur abounds, though it yields an impure gas, et, when duly purified, that gas is of a superior quality what is obtained from coal containing sulphur in more paring quantity. With respect to the third mode of imrovement, we are unfortunately, in the present state of ur knowledge, acquainted with no method of detaching ydrogen from the gases with which it is mixed in oil or oal gas, that would not impair the illuminating power of hese gases, to a greater extent perhaps than the benefit hat would be derived from the removal of the hydrogen.

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[1] The coal for making gas ought to be kept for several months well protected from moisture before it is used for the purpose. This is a point of the utmost importance in the manufacture of gas.

To determine the diminution of the illuminating power roduced by separating the particles of the inflammable as during its combustion, and thus diminishing the temerature of the flame, it occurred to the writer of the resent article, that nitrogen, neither having the property supporting combustion, nor of adding to the quantity of ombustible matter submitted to that process, was well tted to answer the intended purpose; and accordingly, mixing coal-gas of ordinary quality (which, when burnt one, yielded the light of twelve candles when it conmed 5400 cubic inches per hour) with varying portions nitrogen, results were obtained which implied that the minution of the intensity of the light proceeded in a tio much more rapid, than was observed when the gas as diluted with hydrogen. Thus, when six volumes of e coal-gas were mixed with one volume of nitrogen, the penditure per hour was 6000 cubic inches, and the ht equivalent to that of nine candles, being 667 cubic ches per hour for the light of one candle. But one xth of the whole being nitrogen, the remaining four xths, amounting to 556 cubic inches, was the quantity of e coal-gas, which, in its diluted state, afforded the light a candle for an hour. On the other hand, the quanti- of the coal-gas requisite, in its unadulterated state, to ve an equal degree of illumination, being $\frac{5400}{12}$, or 450 bic inches, it follows that the deterioration was in the tio of 556 to 450, or 100 to 81 nearly.

By diluting the same coal-gas with other proportions of trogen as subjoined, and afterwards applying to each of e results the same kind of reduction, as that which we ve already made, we have deduced the following table, hich exhibits the gradual deterioration of the illuminatg power of the same quantity of coal-gas, produced by e mere separation of the atoms of the gas, during its mbustion.

Volumes of Coal-gas.	Volumes of Nitrogen.	Illuminating Power.
60	0	100
60	10	81
60	12	69
60	15	55
60	20	37
60	30	29
60	60	4

When carbonic acid was used instead of nitrogen, simi- results were obtained; only the deterioration was conlerably greater. Thus, when five volumes of the coals were mixed with one volume of carbonic acid, the ilminating power was reduced from 100 to 30, whereas the case of the nitrogen it was from 100 to 69. It is erefore a fortunate circumstance that carbonic acid, hich is so apt to be generated during the production of al-gas, and has so debasing an influence upon its illunating power, is readily absorbed by a variety of subnces; while nitrogen, the less injurious, as well as the s abundant accompaniment, cannot be separated from e other gases with which it may exist in mixture, by y process yet known.

Deterioration of Gas by keeping it after it is prepared.

Gas-Light.

Both oil and coal gas suffer, by keeping, a gradual loss in their power of illumination, which seems to increase in a more rapid ratio than the time they are kept. The deterioration, though greatest when the gases are allowed to stand over water, takes place in a considerable degree even when they are kept over oil, or in air-tight vessels. Hence it may be presumed that the carbon held in solution by the hydrogen, is separated from that element, partly by its own gravity, and partly perhaps by uniting with the oxygen of a portion of the water over which it is suspended.

Deterioration of oil and coal-gas, when kept over water.

To whatever cause the deterioration is owing, the fact itself is undoubted. Thus, an oil-gas which, when newly prepared, had the specific gravity 1·054, gave the light of a candle for an hour when it consumed 200 cubic inches; kept two days, it gave the same light with a consumpt of 215 cubic inches per hour; and kept four days, it required, for the same light, 240 cubic inches per hour. In the case of a portion of coal-gas, which, when newly prepared, required 404 cubic inches to yield the light of a candle for an hour; the same gas kept two days required 430 cubic inches; and kept four days, 460 cubic inches to yield the same light. These results indicate a progressive deterioration in the quality of the gases, increasing with the length of time they are kept; and it is deserving of remark, that in both gases the diminution of the illuminating power decreases in a faster ratio than the time increases. After being kept three weeks, the oil-gas was so much debased in quality that it required 606 cubic inches of it to yield the light of a candle for an hour; and hence its illuminating power was reduced to one third of what it was when the gas was newly made. From these experiments it may obviously be inferred, that both oil and coal gas should be used as soon as possible after they are prepared.

Economy of Coal-Gas.

Gas superior to other modes of illumination, both in point of economy and convenience.

Among the advantages which have resulted from the introduction of coal-gas, we may reckon, 1*st*, its comparative cheapness; and, 2*dly*, its superiority to all the other modes of artificial illumination.

In forming a comparative estimate of the cost of coal-gas, and that of the other means employed for procuring artificial light, we may contrast it with the expense of wax, tallow, and oil, the ordinary substances used for the purpose. It deserves to be remarked, however, that while the price of coal, in consequence of the regular and abundant supply of that article, is liable to little fluctuation, the cost of wax, tallow, and oil, on account of the more precarious nature of the sources from which they are obtained, varies exceedingly in different seasons. The very extensive use, too, into which coal-gas has been brought, has produced a considerable effect upon the price of oil and tallow, as well as of wax; so that a comparative estimate of the expense of procuring the same extent of illumination from coal-gas and from these substances, must appear less favourable to the former than would have been the case, had the comparison been made when gas was first introduced. But assuming that a pound of tallow candles, which last, when burnt in succession, forty hours, costs ninepence; that a gallon of oil, yielding the light of six hundred candles for an hour, costs two shillings; that the expense of the light from wax is three times as great as from tallow; and that a thousand cubic feet of coal-gas cost nine shillings; we may state the relative cost of the same degree of illumination from these different substances, after making a suitable allowance for waste, wicks, &c. to be as follows:

From wax	100
From tallow	25
From oil	5
From coal-gas	3

But the light obtained from coal-gas is not only procured at a smaller expense; it is also more convenient for most purposes than the light yielded by other substances. In the ordinary mode of lighting by tallow and oil, the light derived from their combustion cannot be diminished in intensity without considerable disadvantage and trouble; whereas, in the case of gas, it may be reduced in an instant from the most perfect splendour to the feeblest degree of illumination, by the simple adjustment of the stop-cock. The advantages arising from this easy method of regulating the light of gas, when it is used in the chambers of the sick, and indeed in all apartments, where a variable, but uninterrupted supply of light must be kept up, can only be duly estimated by those who have experienced them. To every branch of manufacturing industry which requires a steady and powerful light, the benefits which have resulted from the introduction of coal-gas are not less important. In many operations the light may be conveyed by means of flexible pipes, connected together with ball and socket-joints, so as to be almost in contact with the fabric it is intended to illuminate, without the slightest risk of injury; and it may be kept in the same state for many hours in succession, or altered, as circumstances may render necessary.

For lighting churches, theatres, and other public buildings, where a strong and uniform light is required, gas answers the purpose more effectually than any other mode of illumination; partly, from the facility of its application, and partly, from the diversified and tasteful manner, in which the jets of flame may be exhibited in various kinds of burners.

As a street light, its superiority is universally admitted; and from that application of gas it cannot be doubted that the metropolis, and other large towns, have derived great additional security against the perpetration of nocturnal crimes, as well as the means of carrying on the ordinary business of life during the evening, with nearly the same convenience, as during the full light of day. (V. V. V.)

GASCOIGNE, George, an English poet of some name in the early part of the reign of Queen Elizabeth, was born at Walthamstow in Essex, of an ancient family, and educated at both universities, but principally at Cambridge. From thence he removed to Gray's Inn, and commenced student of the law; but having a genius too volatile for that study, he travelled in foreign parts, and for some time served in the army in the Low Countries. He afterwards went to France, where, it is said, he became enamoured of a Scottish lady, and married her. At length being, as Wood says, weary of vanities, he returned to England, and settled once more in Gray's Inn, where he wrote most of his dramatic and other poems. The latter part of his life he spent in his native village of Walthamstow, where he died in the year 1578. He had the character of a polite gentleman, an eloquent and witty companion, *et vir inter poetas sui seculi præstantissimus.* His plays, first printed separately, were afterwards, with several other poems, reprinted in two volumes 4to; the first of which appeared in 1577, the second in 1587.

GASPAR STRAIT, a passage in the Eastern Seas, between the east coast of the island of Banca and the west coast of the island of Billiton, which connects the Java and the China seas. It is about fourteen leagues broad, and is divided in the middle by an island called Middle or Passage Island. There is also an island in the strait, called Gaspar Island, which is about five miles in extent.

GASSENDI, Peter, one of the most celebrated philosophers France has produced, was born at Chantersier, near Digne in Provence, in 1592. When a child, he took particular delight in gazing at the moon and stars as often as they appeared in clear unclouded weather; and the pleasure he thus experienced frequently drew him into bye places, so that his parents had often to seek him, not without many anxious fears and apprehensions. They therefore put him to school at Digne, where, in a short time, he made such extraordinary progress in learning, that some persons who had seen specimens of his genius resolved to have him removed to Aix, in order to study philosophy under Fesaye, a learned Carmelite friar. This proposal was so disagreeable to his father, who intended to breed him up in his own way to country business, that he would consent to it only upon condition that his son should return home in two years at farthest. Accordingly, young Gassendi, at the end of the appointed time, repaired to Chantersier; but he had not been long there when he was invited to become professor of rhetoric at Digne, before he was quite sixteen years of age; and he had been engaged in that office but three years, when his master Fesaye dying, he was made professor in his stead at Aix. When he had been a few years at the latter place, he composed his Paradoxical Exercitations against Aristotle, which having fallen into the hands of Nicholas Peiresc, that great patron of learning joined with Joseph Walter, prior of Valette, in promoting the author; and the latter having entered into holy orders, was first made canon of the church of Digne and doctor of divinity, and then advanced to the wardenship or rectory of that church. Gassendi's fondness for astronomy grew with his years; and as his reputation daily increased, he was in the year 1645 appointed royal professor of mathematics at Paris. This professorship being chiefly designed for astronomy, our author read lectures on that science to a crowded audience. However, he did not hold this place long; for a dangerous cough, accompanied by inflammation of the lungs, obliged him in the year 1647 to return to Digne for the benefit of his native air.

Antiquarian, historian, biographer, natural philosopher, naturalist, astronomer, geometrician, anatomist, preacher, metaphysician, hellenist, dialectician, an erudite scholar, an able critic, and withal an elegant writer, Gassendi ranged through nearly the whole circle of the sciences and arts, at a period when the sciences and arts had been but recently revived; and throughout his laborious and ingenious researches he constantly manifested an excellent spirit. He was the first disciple of Bacon in France, the friend of Galileo and Kepler, the opponent of Descartes, and the precursor of Newton and of Locke. For an eloquent and comprehensive view of his labours and researches as a metaphysician, the reader is referred to the first Dissertation, prefixed to the present work.

The principal works of Gassendi are, 1. Exercitationes Paradoxicæ adversus Aristotelem, Grenoble, 1624; 2. Phænomenon rarum Romæ observatum, Amsterdam and Paris, 1630; 3. Epistolica Dissertatio in qua præcipua principia philosophiæ Roberti Fluddi deteguntur, Paris, 1631; 4. Mercurius in Sole visus et Venus invisa, Paris, 1631; 5. Proportio Gnomonis ad Solstitialem umbram observata, Massiliæ, 1636; 6. Observatio de Septo Cordis pervio, Louvain, 1640; 7. Disquisitio Metaphysica adversus Cartesium, Paris, 1642; 8. De Vita N. Fabr., Paris, 1641; 9. Epist. xx. de apparente magnitudine Solis, Paris, 1641; 10. De Motu impresso a motore translato, Paris, 1649; 11. Novem Stellæ visæ circa Jovem, Paris, 1643; 12. Disquisitio Metaphysica, seu dubitationes et instantia adversus Cartesii Metaphysicam, Amsterdam, 1644; 13. Vita Sancti Dominici primi Diniensis Episcopi, 1644; 14. Oratio inauguralis, Paris, 1645; 15. De Proportione qua gravia decidentia accelerantur, 1646; 16. Apologia adversus J. B. Morinum, Lyons, 1649; 17. De Vita et Moribus Epicuri, libri vii. Lyons, 1647; 18. Institutio Astronomica, Paris, 1647; 19. De Vita, Moribus, et Placitis Epicuri, &c., Lyons, 1649; 20. Syntagma Philosophiæ Epicuri, ibid. 1649; 21. Pièces relatives à la Discussion élevée entre Gassendi et Morin, Paris, 1650; 22. Lettre à Honoré Bouche, historien de Provence, 1652; 23. Joh. Caramuel ad Gassendum, et Fr. Gassendi responsio de infallibilitate Papæ, 1660; 24. Appendix Cometæ, Lyons, 1658; 25. Tychonis Brahæi, Copernici, Purbachii, et Regiomontani vitæ, Paris, 1654; 26. Romanum Calendarium compendiose expositum, ibid. The works of Gassendi have been collected by Montmart and De Sorbière, in the complete edition published at Lyons in 1658, and reprinted at Florence in 1728, in 6 vols. folio, to which are subjoined Syntagma Philosophicum de Gassendi and Commentarii de rebus cœlestibus. Gassendi died at Paris in the year 1658, ged sixty-three.

GASTRIC, in general, something belonging to or connected with the stomach.

GASTRIC *Juice*, a thin pellucid liquor, which distils from ertain glands in the stomach, for the dilution, &c. of the ood.

GASTROMANCY, or GASTROMANTIA, a kind of divination practised amongst the ancients by means of words roceeding or seeming to proceed out of the belly. The ord is Greek, *γαστρομαντεια*, composed of *γαστηρ*, *belly*, and *αντεια*, *divination*. There is another kind of divination lled by the same name, which is performed by means f glasses or other round and transparent vessels, within hich certain figures appear by magic art. It is so called ecause the figures appear as it were in the belly of the essels.

GASTRORAPHY, in *Surgery*, the operation of sewg up wounds of the abdomen.

GASTROTOMY, of *γαστηρ*, and *τεμνω*, *I cut*, the operation of cutting open the belly, otherwise called the *Cæsaan section.*

GATAKER, THOMAS, a learned critic and divine, was orn at London in 1574, and studied at St John's College, ambridge. He was afterwards chosen preacher at Linoln's Inn, a situation which he quitted in 1611 for the rectory of Rotherhithe in Surrey. In 1620 he made a tour rough the Low Countries; and in 1624 he published at ondon a book entitled Transubstantiation declared by e confession of the Popish Writers to have no necessary undation in God's Word, of which he likewise wrote a efence. In 1642 he was appointed one of the assembly divines, and was engaged with them in writing annotaons upon the Bible. He died in July 1654, in the eighth year of his age. Besides the above works, he pubshed, 1. A Dissertation upon the Style of the New Tesment; 2. De Nomine Tetragrammato, in defence of the ode of pronouncing the word Jehovah in England; 3. e Diphthongis, sive Bivocalibus; 4. An Edition and ranslation of Marcus Antoninus's Meditations; 5. A Colction of Sermons in folio; and many other works. His ety and charity were exemplary; and his modesty was so eat, that he declined all ecclesiastical dignities and court eferments. His extensive learning was admired by Salasius and other great men abroad; his house was a prite seminary for young gentlemen of this nation; and any foreigners resorted to him to receive advice in their idies.

GATH, or GETH, a city of the Philistines, and one of eir five principalities. It is celebrated as having given rth to Goliath. David made a conquest of Gath in the beginning of his reign over all Israel; and it continued subject to the kings his successors till the declension and decay of the kingdom of Judah. Rehoboam rebuilt or fortified it, Uzziah retook it, and Hezekiah once more reduced it under his subjection. Gath stood about five or six miles from Jamnia, about fourteen south of Joppa, and thirty-two west of Jerusalem.

GAUBIUS, JEROME-DAVID, professor of medicine at Leyden, and afterwards fellow of the royal society of London, was born at Heidelberg in the year 1705. From the Jesuits he received the rudiments of his education, and was much esteemed by them on account of his abilities; but his father afterwards sent him to the orphanhouse of Halle, lest he should be obliged to abjure his religion. The nature of the discipline, however, he found much too severe, and at his own request his father removed him. His teacher at this hospital attributing the dislike of young Gaubius to the want of genius, urged him to give his son some mechanical employment; but his father thought proper to indulge his ardent desire after knowledge, and accordingly sent him to Amsterdam to study under his uncle John, who was an eminent physician there. After prosecuting his medical studies for some time at Hordwyk, he resolved to visit Leyden, where Boerhaave was then professor, and his penetrating eye soon discovered that Gaubius was possessed of talents above mediocrity. This celebrated man honoured him with unlimited access to his house, delighted in imparting instruction to him, and gradually forwarded the cultivation of his mind. Gaubius took the degree of doctor at the age of twenty, after a disputation on the nature of solids, containing an abstract of the system which he himself subsequently followed in practice. He then travelled through various parts of Europe, and when he returned to Heidelberg by way of Strasburg, he was appointed city physician at Deventer, in the province of Overyssel; but he soon afterwards removed to Amsterdam. Boerhaave never lost sight of his favourite pupil; and when the infirmities of old age and indefatigable labour induced him to resign his chair, Gaubius was upon his recommendation appointed to succeed him. In 1738, he published his *Instructions for Writing Recipes*, which was received with merited approbation, as he had reduced the art from a mechanical into a scientific form. His Principles of Nosology is perhaps his most masterly performance, as it evinced that he was highly worthy of such a preceptor. The next publication of Gaubius, which appeared in 1771, was his *Adversaria varii Argumenti*, a work which was particularly interesting to chemists; and his oration on the two-hundredth anniversary of the academy of Leyden attracted considerable notice, as in it he traced out, with his accustomed acuteness, the principal epochs of the arts and sciences in Holland. He was likewise the author of numerous and valuable papers in the Transactions of the Society of Haerlem, and editor of many excellent performances, amongst which may be mentioned Cramer's *Elementa artis docimasticæ*, Albinus *de presagienda vita et morte*, and Swammerdam's Book of Nature, which he partly translated. His literary merit spread his fame beyond the bounds of his native country, and pupils repaired to Leyden from every part of Europe. In addition to his widely extended reputation, he was blessed with the enjoyment of good health till he attained seventy years of age; and he died on the 29th of November 1780, in his seventy-fifth year. The *Institutiones Pathologiæ Medicinalis* was deemed so valuable by Professor Ackermann, that he published a fourth edition of the work at Nuremberg in 1787.

GAUDEN, JOHN, an English prelate of considerable talents, but of a temporising and interested character, was the son of John Gauden, vicar of Mayfield in Essex, where he was born in the year 1605. Having received the rudiments of his education at Bury St Edmund's in Suffolk, he was removed to St John's College, Cambridge, where he made considerable proficiency in learning, and took his degree in arts. About 1630 he was presented to the vicarage of Chippenham in Cambridgeshire, and he also obtained the rectory of Brightwell in Berkshire. This last preferment having brought him near Oxford, he entered himself of Wadham College in that university, and became tutor to some noblemen and several young gentlemen who were placed under his care. In 1635, he took his degree as bachelor in divinity, and in 1641 he was received as doctor in the theological faculty. At the commencement of the civil war he had become chaplain to the Earl of Warwick, a Presbyterian leader; and having ranged himself on the same side as his patron, he, in the end of November, after the close imprisonment of Lord Strafford, preached a sermon before the House of Commons, which proved so agreeable to that assembly, that it is said they presented him with a large silver tankard, bearing the inscription, *Donum honorarium populi Anglicani in Parliamento congregati, Johanni Gauden;* a token of their esteem, which, if the story be true, may seem to be the stronger for its singularity and unseemliness.[1] His discourse seems to have consisted of an invective against the ecclesiastical policy of the court; and it was not only preached at a critical time, but on the solemn occasion of the sacrament being first taken by the whole house. As a reward for so conspicuous a service to the parliamentary cause, he soon afterwards received the valuable living of Bocking in Essex, which he held through all the succeeding changes of government; forbearing of necessity to use the liturgy, and complying with all the conditions which the law then required from the beneficed clergy. He was also chosen one of the assembly of divines who met at Westminster in 1643; but it has been disputed whether he took the covenant, though his own evasive answers seem rather to confirm the opinion that he had. It is said that he wrote a *Protestation* against the trial of the king in 1648, and likewise an *Invective* against those of the army and their abettors who murdered Charles I.; but neither of these pieces was published until two years after the Restoration; and even if the former had appeared at the needful time, it would have been disregarded, seeing that the solemn declaration of all the Presbyterian clergy of London against bringing Charles to trial had proved unavailing.

But the most remarkable production with which the name of Gauden has been connected is the famous Εικων Βασιλικη, or Portraiture of his Sacred Majesty in his Solitude and Sufferings, which appeared after the execution of Charles I., and in the course of a year passed through fifty editions. The *Eikon Basiliké* seems to have been intended to produce a favourable effect during the king's trial; but its publication was retarded until some days after his death, by the jealous and rigorous precautions adopted by the regicides. The impression made on the public by a work which purported to convey the pious and eloquent language of a dying king could not fail to be very considerable; and though its genuineness was from the beginning doubted or disbelieved by some, including Milton, Goodwyn, and Lilly, yet unbounded faith in its authenticity as the production of Charles himself soon became one of the fundamental articles of the royalist creed. At the Restoration, Gauden was promoted to the see of Exeter, whence he was in 1662 translated to that of Worcester. But he was so far from being satisfied with this promotion, that he looked upon it as an act of injustice. He had, it appears, applied to the king for the rich bishopric of Winchester, which he flattered himself with the hopes of obtaining; and, when he failed, the vexation he suffered on account of this disappointment is believed to have hastened his death, which took place on the 20th of September 1662. Gauden was the author of many controversial pieces, suited to the temper of the times, and to his own views, which were always those of a selfish and temporising divine.

The question, Who wrote the *Eikon Basiliké?* which Gauden published as King Charles's private meditations, has, as our readers must be aware, been long agitated; but the controversy seems at length to have been ended by a verdict upon the whole case in favour of Gauden as the author. At the moment of the Restoration, this complying person, who had thundered before the parliament against the ecclesiastical policy of the court, appears to have had as little *public* claim on the favour of Charles II. as any clergyman who had conformed to the religious principles of the parliament and the protectorate; and he was accordingly stigmatized by some zealous royalists as "the false apostate." He was sufficiently a Presbyterian in party to make him no favourite with the court; yet he was not so decided a Presbyterian in principle as to have that influence amongst his party which could make him worth so high a price as a mitre. Those who dispute his claim to be acknowledged as the writer of the *Eikon,* will not ascribe his preferment to transcendent abilities; he is not mentioned as having ever shown kindness to the royalists; there is no trace of his having corresponded with the exiled court; he contributed nothing to the recall of the king, nor indeed had he the power of performing such atoning services. Yet, though thus without the shadow of a claim to preferment on any *public* ground, and indeed one of the last persons whom the court might be supposed to have been inclined to promote, Gauden was, nevertheless, on the 3d of November 1660, appointed Bishop of Exeter, and, in a few months, he received no less than L.20,000 for the renewal of leases. Nor was he at all satisfied with this advancement. In fact, he had scarcely arrived at his episcopal palace, when, on the 21st of December, he wrote a letter to Lord Chancellor Clarendon, complaining bitterly of the "distress, infelicity, and horror" of such a bishopric, and lamenting "a hard fate which," he reminds the chancellor, he "had before deprecated." "I am not so unconscious," he adds, "to *the service done to the church and to his Majesty's family,* as to bear with patience the ruin heaped on me. Are these the effects of his liberal expressions, who told me I might have what I would desire?" Five days afterwards (26th December 1660) he wrote another letter, in which he says, "Dr Morley once offered me my option, *upon account of some service which he thought I had done extraordinary for the church and royal family,* of which he told me *your Lordship was informed.*" Gauden appears soon afterwards to have written to Sir E. Nicholas, secretary of state, a letter expressed so as to be read by the king; and on the 19th January 1661, he received an answer, in which there is the following sentence: "As for your own particular, he (the king) desires you not to be discouraged at the poverty of your bishopric at present, and if that answer not the expense that was *promised* you, *his Majesty will take you so particularly into his care,* that he bids me assure you shall have no cause to remember Bocking." On the 21st of January the importunate prelate again addressed to Clarendon a letter explicitly stating the nature of the services, which was probably rendered necessary, in his opinion, by the continued silence of the chancellor, and distinctly claiming "what goes under the late blessed king's name, the Εἰκων *or Portraiture of hys Majesty in hys Solitudes and Sufferings*," as his own production. "This book and figure," he says, "*was wholly and only my invention, making, and designe*, in order to vindicate the king's wisdome, honor, and piety. My wife indeed was conscious to it, and had an hand in *disguising the letters of that copy which I sent to the king in he Isle of Wight* by favour of the late Marquise of Hertord, which was delivered to the king by the now Bishop of Winchester (Duppa): hys majesty graciously accepted, wned, and adopted it as hys sense and genius, not only vith great approbation, but admiration. Hee kept it with ym; and though hys cruel murtherers went on to perfect ys martyrdome, yet God preserved and prospered the ook to revive hys honor, and to redeeme hys majesty's ame from that grave of contempt and abhorrence or inamy, in which they aymed to bring hym." The bishop vrote three more letters to Clarendon on the 25th Janary, the 20th February, and the 6th March; and, at last, he chancellor replied to his numerous applications in a etter dated the 13th of March 1661, in which Gauden's laim is unequivocally admitted. After many apologies or delay, and professions of good will towards his imporunate correspondent, Clarendon says, "*The particular hich you often renewed, I do confesse was imparted to me nder secrecy, and of which I did not take myself to be t liberty to take notice, and truly*, WHEN IT CEASES TO E A SECRET, *I know nobody will be gladd of it but Mr Ilton; I have very often wished I had never been trusted ith it.*"

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[1] The journals make no mention of the tankard, but bear "that the thanks of this house be given to *Mr Gaudy* and Mr Morley for their sermons last Sunday, and that they be desired, if they please, to print the same." (*Com. Journ.* ii. 40.)

Now this, taken in conjunction with Gauden's immeiate promotion to the episcopal dignity after the Restoraon, and the letter of the secretary of state, Sir E. Nichos, above referred to, appears to us to be decisive of the hole question as to the authorship of the *Eikon*. "It proper to remark here," says Sir James Mackintosh,[1] that all the letters of Gauden are still extant, indorsed y Lord Clarendon, or by his eldest son. In the course three months, then, it appears that Gauden, with unsual importunity and confidence, with complaints which ere disguised reproaches, and sometimes with an aproach to menaces, asserted his claim to be richly reward-l *as the author of the Eikon*. He affirms that it was sent the king by the Duke of Somerset, who died about a onth before his first letter, and delivered to his majesty y Dr Duppa, bishop of Winchester, who was still alive. e adds, that he had acquainted Charles II. with the seet through the Duke of York; that Morley, then bishop Worcester, had informed Clarendon of it; and that orley himself had declared the value of the service to such as to entitle Gauden to chuse his own preferment. auden thus enabled Clarendon to convict him of falseod, if his tale was untrue, in three or four circumstans, differing indeed in their importance as to the main estion, but equally material to his own veracity. A gle word from Duppa would have overwhelmed him th infamy. Some of the communications were made fore the Duke of Somerset's death, on the 24th of Ocber. How easy was it for the chancellor to ascertain ether the information had been given to the king and s brother! Morley was his bosom friend, and the spirial director of his daughter Anne, duchess of York. How ny other persons might have been quietly sounded by e numerous confidential agents of a great minister, on a nsaction which had occurred only twelve years before! suppose that a statesman then at the zenith of his eatness could not discover the truth on this subject without a noise like a judicial inquiry, would betray a singular ignorance of affairs. Did Clarendon relinquish without a struggle his belief in a book which had doubtless touched his feelings when he read it as the work of his royal master? Even curiosity might have led Charles II., when receiving the blessing of Duppa on his (Duppa's) deathbed, to ask him a short confidential question. To how many chances of detection did Gauden expose himself? How nearly impossible is it that the king, the duke, the chancellor, and Morley, should have abstained from the safest means of inquiry, and, in opposition to their former opinions and prejudices, yielded at once to Gauden's assertion, without any evidence of its truth?"

Sir James Mackintosh then goes on to show, that the previous belief of the royalist party in the genuineness of the *Eikon* very much magnifies the improbability of such suppositions. "The truth," says he, "might be discovered from the parties appealed to, and conveyed to the audacious pretender without any scandal. There was no need of any public exposure. A private intimation of the falsehood of one material circumstance must have silenced Gauden. But what, on the contrary, is the answer of Lord Clarendon? The decisive words, at length extorted from him, 'When it ceases to be a secret, I know nobody will be glad of it but Mr Milton,' express such an unhesitating assent to the claim as could only have flowed from inquiry and evidence. By confessing that the secret had been imparted to him, he admits the other material part of Gauden's statement, that the information came through Morley. It may also be remarked, that Gauden, if his story was true, chose the persons to whom he imparted it both prudently and fairly. He dealt with it as a secret the disclosure of which would injure the royal cause; and he therefore confined his communications to the king's sons and the chancellor, who could not be indisposed to the cause by it, and whose knowledge of it was necessary to justify his own legitimate claims. Had it been false, no choice could have been more unfortunate. He appealed to those who, for ought he knew, might have in their possession the means of instantly demonstrating that he was guilty of a falsehood so impudent and perilous that nothing parallel to it has ever been hazarded by a man of sound mind. How could Gauden know that the king did not possess his father's manuscript, and that Royston the printer was not ready to prove that he received it from Charles I. through hands totally unconnected with Gauden?"

This reasoning seems to be quite decisive; but as the case is argued on every point in the masterly article to which we have already alluded; and as the objections which have from time to time been raised against Gauden's claim are there victoriously refuted, whilst the peculiar character of the book itself is shown to be such as to destroy all probability of its being the composition of Charles I.; we shall content ourselves with referring the reader to the *Edinburgh Review*, vol. xliv. p. 2, *et seqq.* taken in conjunction with Dr Wordsworth's book entitled *Who wrote Icon Basiliké*, Cambridge, 1824.

GAUGING. See MENSURATION.

GAUGING-Rod, an instrument used in gauging or measuring the contents of any vessel. That usually employed is the four-foot gauging rod. It is commonly made of box, and consists of four rules, each a foot long, and about three eighths of an inch square, joined together by three brass joints; by which means the rod is rendered four feet long when the four rules are quite opened, and but one foot when they are all folded together.

GAUKARNA, a town of Hindustan, in the province of

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[1] *Edinburgh Review*, vol. xliv. p. 15.

North Canara. It consists of five hundred houses, interspersed with cocoa-nut trees; and has a temple dedicated to Mahadeva. Salt is made in the neighbourhood; but it is of bad quality, and is scarcely saleable. Long. 74. 25. E. Lat. 14. 32. N.

GAUL, an extensive country in the west of Europe, the boundaries of which in the later times of the Romans were, on the west the Atlantic, on the north the German Ocean, on the east the river Rhine and Alps, and on the south the Mediterranean and Pyrenees.

To the earliest writers we find no part of this country known, except a small portion to the south along the coast of the Mediterranean, and at that time it seems to have had no general name. The tribes on the coast were Bebryces and Ligures, and in the interior they only knew that the people were called Celtæ. The extent of their kingdom, and the shape of their land, remained perfectly unknown to the Greeks. Through Pytheas (about 334, B. C.) they first discovered that it was bounded to the north by the ocean, and that the inhabitants in the interior resembled each other in their manner of living. They therefore concluded that the Celtæ extended over the whole of the north-western portion of Europe. It was not till the conclusion of the second Punic war (201, B. C.) that the Romans began to acquire a firm footing in the south of Gaul, and thereby to obtain somewhat more accurate information respecting the interior. Scipio the elder discovered that there was a river Liger, *Loire*, in the country, and a commercial city of the Celtæ situated upon it. Still their knowledge was confined to a few scanty facts, and it was the Gallic wars of Cæsar which at last enabled them to form a correct idea of the country. They saw that the river Rhine separated the Celtæ from a perfectly different people, the Germani, and they became acquainted with the Belgæ, formed by a mixture of the two, and whose name they had never before heard. From this period no province of the kingdom became better known, nor more frequently travelled through, than Gallia, on account of the wars with the Germani, and its proximity to Britain.

Gaul was inhabited by four tribes, dissimilar to each other both in language and customs. The Aquitani, of Iberian origin; the Ligures, dwelling from the foot of the Pyrenees along the coast as far as the river Arno in Italy; the Belgæ, of Germanic and Celtic origin; and the Celtæ or Galli in the Roman language, who may be considered as the principal nation in the country. Their possessions extended from the extremities of Bretagne, through the whole country lying between the Seine and Garonne, as far as the Rhine and the Alps. There seems every reason to believe that these Celtæ came from the east, along the banks of the Danube; at least we find them in the very earliest ages settled in the south of Germany, and in the greater part of Hungary. That their occupation of Gaul must have taken place at an early period, is proved by the immigration of large bodies into Italy in the reign of Tarquinius Priscus (616–578, B. C.).

Before the time of Cæsar, the Celts lived throughout the country, divided into a number of small tribes, having each an aristocratic constitution, such as Poland once enjoyed. There was no king over the whole; but in many of the tribes we find a prince at their head. Every thing was transacted in the national assemblies, where the nobles only had a place. The lower orders seem to have been regarded in not much better light than slaves. In a country possessed by so many independent tribes, there must of course have been continual disputes; and scarcely a year passed without war. The less strong united themselves to their more powerful neighbours, and made common cause with them in their wars. The whole power seems to have been generally in the hands of the nobility, who had regular guards to protect their persons and dignity. All ancient writers speak of the strange mixture of excessive levity in the character of the Celts with foolhardiness and timidity. They were of a slender form, robust, furious in the first assault, but unable to persevere when fatigue and hardships were to be endured.

In the reign of Augustus, Gallia was first divided into regular provinces by Agrippa. These were Aquitanica, Belgica, Lugdunensis, and Provincia Romana, or Narbonensis. The inhabitants led a quiet and peaceful life under the dominion of the Romans, though they occasionally broke out in rebellion, which was generally caused by the oppression of the tax-gatherers and governors. Julius Vindex, a noble of Gaul, made an attempt in the reign of Nero to free his country from a foreign yoke; but though he managed to collect an army of a hundred thousand men, they were easily defeated by the disciplined troops of the Romans. The rebellion of the Batavi, and of the German and Belgic tribes, threatened more danger at a later period; but it was put down partly by force and partly by conciliatory measures. The inhabitants of Gaul continued to cultivate their fields in peace till the end of the second and third centuries, when the Francs and Alemanni began to make incursions into their territory. See FRANCE.

GAUNGRA, a district belonging to the Nagpoor Mahrattas, in the province of Berar, situated about the twenty-second degree of north latitude. The country is mountainous, and is intersected by the Japtee river; but very little is known respecting it.

GAUZE, in *Commerce*, a very thin, slight, transparent kind of stuff, woven sometimes of silk, and sometimes only of thread. To warp the silk for making gauze, a peculiar kind of mill is used, upon which the silk is wound. This mill is a wooden machine, about six feet high, having an axis placed perpendicularly in the middle, with six large wings, on which the silk is wound from off the bobbins by the axis turning round. When all the silk is on the mill, another instrument is used to wind it off again upon two beams; and this being done, the silk is passed through as many little beads as there are threads of silk, and thus rolled upon another beam to supply the loom. The gauze loom is much like that of the common weavers, though it has several appendages peculiar to itself.

GAVEL, in *Law*, tribute, toll, custom, or yearly revenue; of which we had in old time several kinds.

Gavel-Kind, a tenure or custom belonging to lands in the county of Kent. The word is said by Lambard to be compounded of three Saxon words, *gyfe*, *eal*, *kyn*, or *omnibus cognatione proximis data*. Verstegan calls it *gavelkind*, or give all kind, that is, to each child his part; and Taylor, in his history of *gavelkind*, derives it from the British *gavel*, that is, a hold or tenure, and *cenned*, *generatio* or *familia*; and so *gavel cenned* might signify *tenura generationis*. It is universally known what struggles the Kentish men made to preserve their ancient liberties, and with how much success those struggles were attended. And as it is principally here that we meet with the custom of gavelkind, though it was and is to be found in some other parts of the kingdom, we may fairly conclude that this was a part of these liberties; agreeably to Mr Selden's opinion, that gavelkind, before the Norman conquest, was the general custom of the realm. The principal and distinguishing properties of this kind of tenure are these: 1. The tenant is of age sufficient to alienate his estate by feoffment, at the age of fifteen. 2. The estate does not escheat in case of an attainder and execution for felony; their maxim being, "the father to the bough, the son to the plough." 3. In most places, he had the power of devising lands by will, before the statute for that purpose was made. 4. The lands descend, not to the oldest, youngest, or any one son only, but to all the sons together; which was indeed aniently the most usual course of descent all over England, hough in particular places particular customs prevailed.

GAVOTTA, or Gavotte, is a kind of dance, the air f which has two brisk and lively strains in common time, ach of which strains is twice played over. The first has sually four or eight bars; and the second contains eight, welve, or more. The first begins with a minim, or two rotchets, or notes of equal value, and the hand rising; nd it ends with the fall of the hand upon the dominant mediant of the mode, but never upon the final, unless be a rondeau. The last begins with the rise of the and, and ends with the fall upon the final of the mode.

Tempi di Gavotta, is when only the time or movement a gavotte is imitated, without any regard to the measures or number of bars or strains. Little airs are often und in sonatas, which have this phrase to regulate their otions.

GAWELGUR, a strong fortress of Hindustan, in the rovince of Berar. Its situation is elevated on a high and cky hill between the Poornah and Taptee rivers. It onsists of a citadel with an inner fort, which fronts the orth, where the rock is most inaccessible; and the citadel defended by an outer fort, and both are very strongly rtified, and the ascent by the road is very long and eep, and well defended. Notwithstanding these strong efences, it was taken by the army under General Welsley, on the 14th of December 1803, after a siege of nly two days, and was restored to the rajah on the conusion of the peace. Gawelgur is thirty-two miles northorth-west from Ellichpoor. Long. 77. 52. E. Lat. 21. 46. N.

GAY, John, a celebrated English poet, descended from n ancient family in Devonshire, was born at Exeter, and eceived his education at the free school of Barnstaple in hat county, under the care of Mr William Rayner. He as bred as a mercer in the Strand; but having a small rtune, independently of business, and considering the tendance on a shop as a degradation of those talents hich he knew himself to be possessed of, he quitted that ccupation, and applied himself to other pursuits, including the indulgence of his inclination for poetry. In 1712 e find him secretary, or rather domestic steward, to the uchess of Monmouth, a station in which he continued ntil the beginning of the year 1714, when he accompanied he Earl of Clarendon to Hanover, whither that nobleman was dispatched by Queen Anne. At the close of the ame year, the queen's death recalled him to England, here he lived in the highest estimation and intimacy of iendship with many persons of the first distinction in oint both of rank and abilities. He was even particular- noticed by Queen Caroline, then princess of Wales, to hom he had the honour of reading in manuscript his tragedy of the *Captives*; and in 1726 he dedicated his *Fables*, y permission, to the Duke of Cumberland. From the ountenance thus shown to him, and numberless promises ade him of preferment, it was reasonable to suppose, hat he would have been provided for in some office suitd to his inclination and abilities. But instead of this, in 727, he was offered the place of gentleman usher to one f the young princesses; an office which, looking on it as n indignity to a man whose talents might have been so uch better employed, he thought proper to refuse; and ome pretty warm remonstrances were made on the occaion by the Duke and Duchess of Queensberry, his sincere iends and zealous patrons, which terminated in these two oble personages withdrawing from court in disgust. Mr ay's dependence on the promises of the great, and the isappointments he met with, he has figuratively describd in his fable of the *Hare with many Friends*. However, he extraordinary success which he met with from the pubc made ample amends both in respect to satisfaction and molument; for in the season of 1727–28 appeared his *Beggar's Opera*, the success of which was not only unprecedented, but almost incredible. It had an uninterrupted run in London of sixty-three nights in the first season, and was renewed in the ensuing one with equal approbation. It spread into all the great towns of England; it was played in many places to the thirtieth and fortieth, and at Bath and Bristol to the fiftieth time; it made its progress into Wales, Scotland, and Ireland, in which last country it was acted for twenty-four successive nights; and it was even performed at the island of Minorca. Nor was the fame of this opera confined to the reading and representation alone, for the card-table and drawing-room shared with the theatre and closet in this respect; the ladies carried about the favourite songs of the piece engraven upon their fans; and screens and other pieces of furniture were decorated with designs from it. In short, the satire of this production was so striking, so apparent, and so perfectly adapted to the taste of all degrees of people, that it overthrew the Italian opera, that dagon of the nobility and gentry, which had so long seduced them to idolatry, and which Dennis by the labours and outcries of a whole life, and many other writers by the force of reason and reflection, had in vain endeavoured to drive from the throne of public taste. The profits of this piece were so very great, both to the author and the manager Mr Rich, that it gave rise to a quibble, which became frequent in the mouths of many, namely, that it had made Rich gay, and Gay rich. It has been asserted, indeed, that the author's own emoluments from it were not less than L.2000. This success induced Mr Gay to write a second part, which he entitled *Polly*. But the disgust subsisting between him and the court, together with the misrepresentations made of him as having been the author of some disaffected libels and seditious pamphlets, occasioned a prohibition and suppression of it to be sent from the lord chamberlain, at the very time when every thing was in readiness for the rehearsal of the piece. A very considerable sum, however, accrued to the author from the publication of it afterwards in quarto. Mr Gay wrote several other pieces in the dramatic line, and many valuable compositions in verse. Amongst the latter, his *Trivia, or the art of Walking the Streets of London*, though his first poetical attempt, is far from being the least considerable, and is what recommended him to the esteem and friendship of Mr Pope. But as, among his dramatic works, his Beggar's Opera did at first, and perhaps ever will, stand as an unrivalled masterpiece, so, among his poetical works, his Fables hold the same degree of estimation; the latter having been almost as universally read as the former was represented, and both equally admired. Mr Gay's disposition was sweet and affable, his temper generous, and his conversation agreeable and entertaining. But he had one foible, too frequently incident to men of literary abilities, and which subjected him at times to inconveniences which otherwise he might have avoided, namely, an excess of indolence, without any knowledge of economy. Hence, although his emoluments were, at some periods of his life, very considerable, he was at others greatly straitened in his circumstances; nor could he prevail on himself to follow the advice of his friend Dean Swift, whom we find in many of his letters endeavouring to persuade him to purchase an annuity as a reserve for the exigencies of old age. Mr Gay chose rather to throw himself on patronage, than secure to himself an independent competency by the means pointed out to him; and hence, after having undergone many vicissitudes of fortune, and being for some time chiefly supported by the liberality of the Duke and Duchess of Queensberry, he died at their house in Burlington Gardens, in December 1732. He was interred in Westminster Abbey, and a monument erected to his memory, at the expense of his noble benefactors, with an inscription expressive of their regards and his own deserts, and an epitaph in verse by Mr Pope.

GAYA, a small island in the Eastern Seas, on the north-west coast of Borneo. It is six or eight miles in circumference; and there are many smaller islets in the vicinity. Long. 116. 2. E. Lat. 7. N.

GAYAH, or Boodh Gayah, a town of Hindustan, in the province of Bahar. It is one of the most celebrated places of Hindu pilgrimage, having been the birthplace of Boodh or Buddha, one of the supposed incarnations of the Deity. Many extraordinary ceremonies are performed here by those who frequent the sacred spot. Amongst these, many of the female pilgrims, especially widows, are in the practice of shaving their hair, and devoting themselves from that time to a life of sanctity. The whole business is under the superintendence of Brahmins, who permit any person to enter the temple and approach the idol, which is that of a man sitting cross-legged, and so very rudely carved as to indicate a very remote antiquity. The Bengal government derive from the resort of pilgrims to this sacred place an annual revenue of L.16,000. Long. 85. 5. E. Lat. 24. 49. N

GAZA, or Gazis, Theodore, born at Thessalonica, now Salonica, a famous Greek, who came to reside in Italy after the capture of his native city by the Turks in 1429. After having professed Greek at Sienna, Gaza repaired to Ferrara, on the invitation of the duke, and founded in that city an academy, of which he was the first rector. He taught Greek there for several years, and with so much success, that when he had quitted Ferrara to go to Rome, whither he was called by Pope Nicolas V., it became the usage among the friends of Greek literature not to pass before the house which he had occupied without uncovering; and this usage subsisted long after his death. It was about 1455 that Gaza proceeded to Rome. He knew perfectly the Latin, which he had studied under Victorio de Feltre; and the pope wished to employ him in translating into that language some of the best Greek authors. The translation of the Problems of Aristotle, which he undertook, produced a quarrel between him and George of Trebizond, who had already translated them; but it procured him the esteem and protection of Cardinal Bessarion. He also translated the Problems of Alexander of Aphrodisus, the Tactics of Ælian, the Treatise on Composition by Dionysius of Halicarnassus, the five Homilies of St John Chrysostom on the incomprehensible nature of God, the History of Animals by Aristotle (Venice, 1476, in fol.), and that of Plants by Theophrastus (Paris, 1529, in 8vo). The two last translations formed the principal occupation of his latter years. They have been frequently reprinted; but the estimation in which they were once held has been considerably diminished. Gaza translated into Greek two works of Cicero, the Treatise on Old Age, and the Dream of Scipio; versions which, though now forgotten, were formerly in great request, if at least we may judge from the number of editions. Amongst the original productions of Gaza will always be distinguished his Greek Grammar, in four books; an excellent work, and very often printed either in whole or in part. It is written in Greek; but Erasmus has translated into Latin the first two books, and other learned men, Heresbach, Tusanus, Crocus, and Elias André, have completed the translation, and illustrated it by remarks. The Greeks attach the greatest value to this grammar. In 1768, the deacon Neophytus published at Bucharest, where he was professor of Greek, an immense commentary of 1298 pages in folio on the fourth book alone; and more recently, in 1780, Daniel Keramefs, a monk of Patmos, and professor of Greek in the gymnasium of that island, caused to be printed at Venice another commentary on the same book. Gaza is also author of a Greek Letter to Philelphus, on the origin of the Turks, printed with the Latin translation of Sebastian Casteillon, in the History of the Turks by Chalcondylas, Bâle, 1556, and with the version of Leo Alacci in his *Symmicta*, Cologne, 1653; of a paraphrase in Greek of the *Batrachomyomachia*, published not many years ago, by Fontani, from a manuscript of Florence; and of a Treatise on the ancient months, which Perellus has translated into Latin, and of which there have been several editions, amongst others that of Paris, 1530, in 8vo. In Fabricius, in Hodius (*de Græcis Illustribus*), and in the Bœrner, the reader will find the titles of the unedited works of Gaza. What has not been printed of his is of so little importance that it is doubtful if any one will ever think of publishing them. His commentary on the Delineations of Philostratus appears, however, to merit more attention, although it is not improbable that he who should give himself the trouble of searching for and examining it, would only find *scholia* of but little importance. Theodore Gaza died in 1478, in possession of a benefice in the Abbruzzi, which he had obtained by the favour of Cardinal Bessarion. (A.)

Gaza, a principal city, and one of the five satrapies of the Philistines. It was situated about a hundred stadia from the Mediterranean, on an artificial mount, and strongly walled round. It was destroyed by Alexander the Great, and afterwards by Antiochus. Gaza is now only a large village, and is divided into two parts, called Upper and Lower, both of which, taken together, are designated Gazara. There is here, however, a considerable manufacture of cotton, and great quantities of ashes for making soap are also prepared.

GAZETTE, a newspaper, or account of the transactions of all the countries in the world, printed on a loose sheet or half sheet. This name is with us confined to that paper of news published by authority. The word is derived from *gazetta*, a Venetian coin, which was the usual price of the first newspaper printed there, and which was afterwards given to the paper itself. The first gazette in England was published at Oxford, whilst the court resided there, in a folio sheet, dated 7th November 1665. On the removal of the court to London the title was changed to that of the *London Gazette*.

GAZNA, a city of Asia, once much celebrated, and the capital of a very extensive empire. It was taken by the Moguls in the year 1222.

GAZYPOOR, a district of Hindustan, in the province of Allahabad, and zemindary of Benares, situated about the 26th degree of north latitude. It is bounded on the north and east by the river Goggrah, on the south by the Ganges, and on the west by the district of Joanpore. It is one of the most fertile districts in India, remarkably well supplied with water; and has also been long celebrated for its otto of roses and rose water. Besides grain of all kinds, it produces cotton and sugar, as well as opium, and very fine indigo. It also supplies an investment of calicoes. The chief towns are Gazypoor, Azimpoor, and Dooryghaut.

Gazypoor, a town of Hindustan, in the province of Allahabad, and capital of the above district. It is situated on the bank of the Ganges, and contains a palace and a handsome mosque. In its vicinity are extensive cantonments for three regiments of cavalry. Long. 83. 33. E. Lat. 25. 35. N.

GEBY, or Gibby, an island in the Eastern Seas, surrounded by a cluster of smaller isles. It is situated in the passage between the islands of Waygoo and Gilolo, on the equinoctial line. It is about twenty-five miles long by three broad, and lies between the 129th and the 130th degrees of east longitude. It is little known in the interior. The rise of the tides here, even at spring tide, is only five feet.

GEBY ZEH, or Gebsa, a small town of Asia Minor, supposed to be the ancient Lybissa, where there is a mount, reported to be the tomb of Hannibal. Twenty-five miles east-south-east of Seutari.

GED, William, an ingenious though unsuccessful artist (a goldsmith in Edinburgh), who deserves to be noticed on account of his attempt to introduce an improvement in the art of printing. The invention, first practised by Ged in 1725, may be shortly described. From any types of Greek, Roman, or other character, he formed a plate for every age, or sheet, of a book, from which he printed, instead f using a type for every letter, as is done in the common way. This was first practised, but on blocks of wood, by he Chinese and Japanese, and pursued in the first essays f Coster. "This improvement," says James Ged, the inentor's son, "is principally considerable in three most imortant articles, viz. expense, correctness, beauty, and uniormity." In July 1729, William Ged entered into partership with William Fenner, a London stationer, who was o receive half the profits, in consideration of his advancing ll the money requisite. To supply this, Mr John James, hen an architect at Greenwich, was taken into the scheme, nd afterwards his brother Mr Thomas James, a letter-ounder, and James Ged, the inventor's son. In 1730, hese partners applied to the university of Cambridge for he printing of Bibles and common prayer books by blocks stead of single types; and, in consequence, a lease was ealed to them, on the 23d April 1731. In this attempt ey invested a large sum of money, and finished only two rayer books, when it had to be relinquished, and the ase was afterwards given up. Ged imputed his disapointment to the villany of the pressmen, and the ill treatent of his partners, particularly Fenner, whom John James nd he were advised to prosecute, but declined it. He turned to Scotland in 1736, where he gave his friends a ecimen of his performance, by an edition of Sallust inted according to his method, *tabellis seu laminis fusis.* ut being still unsuccessful, and having failed in obtaining dress from Fenner, who died insolvent, he was preparing ain to set out for London, in order to join with his son mes as a printer there, when he died, on the 19th Octoer 1749. The date of his birth is unknown.

GEDDES, Alexander, a learned Scotch Catholic dine and eminent biblical critic, was born in the parish of uthven in Banffshire, in the year 1737. His parents ere respectable, although not opulent. His father was a rmer, who deemed no trouble too great in order to procure for his children as liberal an education as possible. oth father and mother were of the Catholic persuasion, d the only book of consequence which the former had his library was an English translation of the Bible, in hich young Geddes was instructed with such care and tention that he was able to give an account of the hisry of it before he had reached the eleventh year of his ge. The first instructions he received, after those of his rents, were communicated by a school-mistress in the inity, by whom he was so much distinguished that it came the first mental gratification which, in his own opion, he ever felt. He was next placed under the tuition of a young man from the city of Aberdeen, who had been engaged by a proprietor for the education of his own children; and afterwards went to a place called Scalan, in the ghlands, where those were to be trained up who desned to devote themselves to the Catholic priesthood, ad to finish their education at some foreign university. Here it was, in this obscure retreat, that Geddes laid the fundation of that intimate acquaintance with the learne languages by which he was so eminently distinguishe in the subsequent part of his life. He went to the Sotch university at Paris in the year 1758, and soon aerwards began the study of rhetoric in the college of Navarre. By the strength of his genius, and his indefatigable attention, he soon reached the head of this class, although he had to contend with two veterans; and became the favourite of Vicaire, the professor, whose friendship lasted till the close of his life.

Instead of entering into the philosophical class at the usual time, Geddes studied that subject at home, in order to facilitate his theological studies, on which he entered under MM. Buré and de Sauvent, at the college of Navarre; whilst Lavocat at the Sorbonne was his Hebrew preceptor. His progress in the oriental languages was so great that Professor Lavocat urged him strongly to continue at Paris; but his friends prevailed with him to return to his native country in 1764. His first charge as a priest was in a Catholic chapel in the county of Angus, from which he removed to Traquair in 1765, and became chaplain to the earl of that name, where he remained for about three years. This situation was most agreeable to his literary pursuits, as he had unlimited access to an extensive library, which greatly assisted him in the prosecution of his favourite studies. He left the earl's house in the year 1768, and returned to Paris, where he devoted his time during the following winter to the perusal of books and manuscripts in the king's libraries, making large extracts from scarce copies, particularly such as were in the Hebrew tongue.

In the spring of 1769 he returned to his native country, and became pastor of a congregation at Auchinhalrig, in Banffshire, where he was for some time involved in pecuniary difficulties, out of which he was extricated by the liberality of the Duke of Norfolk. These were occasioned by the debts he incurred in building a new chapel for his flock, and in making the parsonage house one of the neatest and most convenient in Scotland. With the view of bettering his circumstances he commenced farmer; but as he had to borrow money to stock his farm, and as the crops failed for three successive seasons, he was under the necessity of abandoning this scheme in a much poorer condition than when he first projected it. His unwearied exertions, however, joined to the assistance of friends, again relieved him, and he was enabled to discharge in an honourable manner every claim against him of a pecuniary nature.

In the year 1779 he resigned his pastoral charge at Auchinhalrig, which was a heavy blow to the members of his congregation, as the zeal and diligence with which he discharged the duties of his ministerial function had endeared him to all. He was also justly esteemed for his attention to the instruction of youth. Next year the university of Aberdeen conferred on him the degree of doctor of laws, a literary honour which had never been bestowed by that body on any Roman Catholic since the Reformation. He afterwards went to London that he might prosecute his favourite studies with greater facility, and give the world his English translation of the Old and New Testament, to which he had turned his attention for a number of years. He officiated for some months after his arrival at the imperial ambassador's chapel in Duke Street, until the term of Easter 1782, when it was suppressed by order of the Emperor Joseph II., after which Dr Geddes seems to have declined entirely the exercise of his clerical functions.

No sooner had the design of Dr Geddes, relative to a new translation of the Bible, been made public, than he met with formidable opposition from his Catholic brethren; an event which the doctor seems with good reason to have anticipated. His own words on this occasion were, "I expect not excessive profits from excessive exertion. I trust I shall never want meat, and clothes, and fire; to a philosophical and contented mind, what more is necessary?" He was many years employed in preparing this

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important work for the press before he had any prospect of adequate success. In addressing the English Catholics on the subject of his translation, he says, "At any rate, I do what I think it my duty to do, and do it fairly and openly. In the following pages ye will find neither palliation nor disguise. I pour out my sentiments with the same sincerity as if I were before the tribunal of Him who is to judge the living and the dead. Mistake I may, but prevaricate I never will." He discovered this noble spirit in every action of his life, and in all his transactions and intercourse with mankind, although he did not conciliate the regard of those who could have bestowed upon him the most effectual assistance.

After spending much of his life in biblical studies, he met with a long and cruel interruption. "I had but little hope of ever living in a situation to resume them," says he, "when Providence threw me into the arms of such a patron as Origen himself might have been proud to boast of; a patron who, for these ten years past, has, with a dignity peculiar to himself, afforded me every convenience that my heart could desire towards the carrying on and completing of my arduous work." It is needless to inform the public, that the patron to whom the learned doctor here alludes was Lord Petre. For this munificence, continued throughout the whole of his life, and even beyond it by his will, Christians of every denomination will feel sentiments of gratitude, if they are qualified to form a true estimate of the advantages of free and impartial inquiry. His prospectus of a new translation of the Bible in 4to was published in 1786, and a letter to the Bishop of London on the same subject appeared in 1787. His proposals were printed in 1788.

In the year 1792 the first volume of this translation was published, dedicated to his patron Lord Petre, containing the first six books of the Old Testament. Soon after this volume made its appearance, three apostolic vicars, calling themselves the Bishops of Rama, Acanthos, and Centuriæ, issued a pastoral letter, addressed to their respective flocks over which they presided, warning them against the reception of Dr Geddes' translation. In his reply to the Bishop of Centuriæ we find these words: "Perhaps, my lord, you wish to have another occasion of exercising your episcopal authority, and of playing with censures as children do with a new ball. I wish your lordship much joy of the bauble; but however, my lord, beware of playing too often with it. Read St Chrysostom on ecclesiastical censures, and learn from him a little more moderation. Permit an old priest to tell you that it is a very great ornament in a young bishop. As to myself, my lord, I am not afraid of your threats, and shall laugh at your censures as long as I am conscious that I deserve them not. You cannot hinder me from praying at home; and at home I will pray, in defiance of your censure, as often as I please. The Chief Bishop of our souls is always accessible; and through him I can, at all times, have free access to the Father, who will not reject me, but for voluntary unrepented crimes. In the panoply of conscious innocence, the whole thunder of the Vatican would in vain be levelled at my head."

The second volume of his translation, owing to a variety of interruptions, did not make its appearance till the year 1797, to which was prefixed a dedication to her royal highness the Duchess of Gloucester, as an early, spontaneous, and liberal encourager of the work. In this volume the doctor gives up, and boldly combats, the absolute inspiration of Scripture, believing that the Hebrew, like all other historians, wrote from such human documents as they could find, and were of consequence liable to similar mistakes. This latitude of thinking naturally led the doctor to give up as fabulous, and wholly unworthy of the divine benevolence, every command, precept, and injunction, which appeared unworthy even of human authority. He denied, of consequence, that the command given to destroy the Canaanites could have had God for its author.

Gefleborg.

Dr Geddes was a man of extensive literature, uncommon liberality of thinking, and the friend of all mankind; a man of integrity, honour, and benevolence; in the strictest sense of the word a genuine Catholic, one whose love of truth was so invincible, that neither hopes nor fears could induce him to conceal it.

As a controversial writer, Dr Geddes was eminently distinguished by his letter to Dr Priestley, in defence of the divinity of Jesus Christ; and by one to a member of parliament, on the expediency of a general repeal of the penal statutes which have a respect to religious opinions. In the spring of the year 1800 he published an Apology for the Roman Catholics of Great Britain, in which he zealously defended his peculiar tenets; but displayed a commendable moderation when he mentioned the injuries to which he himself and brethren were subjected by the continuance of persecuting laws; and when he argued in behalf of abolishing all legal disabilities, he discovered the soundest logical understanding.

The principal works of Dr Geddes are, 1. Select Satires of Horace, London, 1779, 4to; 2. Prospectus of a new Translation of the Bible, ibid. 1786, 4to; 3. Letter to the Bishop of London, containing doubts, queries, &c., relative to a vernacular translation of the Holy Scriptures, ibid. 1787, 4to; 4. Letter to Dr Priestley, in which the author attempts to prove by one prescriptive argument that the divinity of Jesus Christ was a primitive tenet of Christianity, ibid. 1787, 8vo; 5. Epistola Macaronica ad fratrem de iis quæ gesta sunt in nupero Dissentientium conventu, 1790, 4to; 6. Carmen Sæculare pro Gallica gente tyrannidi aristocraticæ erepta, 1790, 4to; 7. Encyclical Letter of the Bishops of Rama, Acanthos, and Centuriæ (Walmsley, Gibson, and Douglas), with a continued commentary for the use of the vulgar, 1791; 8. The first book of the Iliad of Homer verbally rendered into English verse, 1792, 8vo; 9. L'Avocat du Diable, 1792, 4to; 10. Carmina Sæcularia tria, pro tribus celeberrimis libertatis Gallicæ epochis, 1793, 4to; 11. The Battle of Bangor, or the Church's Triumph, an heroi-comic poem, 1797, 8vo; 12. Translation of the Bible, vol. i. 1792, vol. ii. 1797; 13. A Modest Apology for the Roman Catholics of Great Britain, addressed to all moderate Protestants, 1800, 8vo; 14. Bardomachia, poema Macaronico-Latinum, 1800, 4to; 15. Paci feliciter reduci Ode Sapphica, 1801, 4to; not to mention a variety of fugitive pieces, and contributions to periodical publications. He had corrected and prepared his translation for the press up to the hundred and eighteenth psalm, when he was seized with an excruciating distemper, which put a period to his life on the 26th of February 1802.

GEFLEBORG, one of the provinces of Northern Sweden, extending from latitude 60. 10. to 62. 25. north, and from longitude 17. 15. to 21. 43. east, being 8008 square miles in extent. It comprehends four cities and 1807 insulated establishments, with 79,100 inhabitants. It is generally a hilly country, but abounding in extensive lakes. Not more than one fiftieth part of the land is cultivated, and much of that yields but scanty crops of rye or oats; but in bad years, food is so scarce that the rind of the fir-trees is used as a substitute for other aliment. The chief produce is iron, millstones, whetstones, and wood for fuel and building. Spinning and weaving for the families are conducted in each house, and their home-made woollen goods are both warm and durable.

GEFLEBORG, a city, the capital of the province of the same name, in Sweden. It stands on the river Geflean, which collects the waters of several lakes, and conveys them to the Gulf of Bothnia. It contains 1200 houses, and 5930 inhabitants. It is a town of considerable trade for the ex-

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ort of iron, wood, pitch, and tar, and has some manufacures of sail-cloth, coarse linen, and leather, and some sugar efineries, distilleries, and breweries. Long. 17. 3. 10. E. at. 60. 39. 45. N.

GEFREES, a bailiwick of the circle of the Upper Maine, the kingdom of Bavaria, extending over 101 square iles. It contains two cities, two market-towns, and fiftyree villages, with 20,980 inhabitants. It produces some orn, but better hemp and flax, and much timber from the rests, which are very extensive. Some little gold and lver is found in the mountains. The capital is the town Berneck, containing about 1000 inhabitants.

GEHENNA, a Scripture term which has given some ouble to the critics. The authors of the Louvain and Geeva versions retain the word *gehenna* as it stands in the reek, and so does M. Simon ; the English translators renr it by " hell" and " hell-fire," and so do the translators Mons and Father Bohours. The word is formed from the ebrew *gehinnom*, or valley of Hinnom. In that valley, ich was near Jerusalem, there was a place named *Toet*, where some Jews sacrificed their children to Moloch, making them pass through the fire. King Josias, to nder this place for ever abominable, made it a cloaca or mmon sewer, into which all the filth and carcasses in the y were thrown. The Jews further observed, that there s a continual fire kept there to burn and consume those rcasses ; for which reason, as they had no proper term in eir language to signify " hell," they made use of *gehenna* *gehinnom* to denote a fire unextinguishable.

GEHREN, a market-town of the duchy of Schwartzburg-nderhausen, in Germany. It stands at the junction of rivers Wohlrose and Schobser, and contains 208 houses 1411 inhabitants. It is the capital of a bailiwick comhending two other towns, thirteen villages, and three mlets, with 9391 inhabitants.

GEISLINGEN, a bailiwick of the kingdom of Wurtemg, in the circle of the Danube. It extends over 134 sare miles, and comprehends three cities, three towns, ad sixty villages, with 22,680 inhabitants. The capital, o the same name, on the Rohrbache, contains 400 houses ad 2240 inhabitants, who are famed for their wood, horn, ad ivory turnery ware, and part of whom are employed in c ton spinning by means of machinery, and also in making t machinery.

GELDERS, a town of the Prussian province of Cleeve-Jiers, on the river Nierse, which runs into the Rhine. It ctains 394 houses, and 3470 inhabitants, who are employe in cloth and linen weaving, and in the tanneries.

GELDERS, or *Guelders*, a province of the Netherlands, cposed out of the ancient province of the same name, w the addition of the districts of Sevenaer, Huissen, and Msburg, ceded by Prussia. It extends over 2094 square mes, and contains 249,177 inhabitants. On the sea shore th land is flat ; and, by being well drained and embanked, it fertile in pasture. In the island formed by the Leck, th Rhine, and the Waal, it is sandy and rather hilly ; and on he south of the Maas it is boggy and marshy. It is csidered as the most healthy of the provinces of the Nethlands. The chief products of the soil are butter, cheese, wat, buckwheat, flax, rape-seed, and oil, tobacco, hops, wuts, and fruit. There is considerable manufacturing instry exercised in making diaper and damask tableclhs and other linen, in tanneries, in paper-making, in cuery, and in other iron goods. The division is into four cies, viz. that of Arnhem, of Zutphen, of Nemwegen, an Thiel.

ELLERT, Christian Furghtegott, was born on th 4th of July 1715, at Haynichen, near Freyberg, where his ather was a clergyman. He was extraordinary professo of philosophy at Leipsic, and a distinguished writer amg the Germans. When only thirteen years of age he showed himself possessed of poetical genius ; but having none to guide his taste for composition, he was led to imitate Gunther, Neukerch, and Hanke, men of indifferent abilities. He studied theology at Leipsic in 1734, and returned home at the expiration of four years, when he commenced public speaker ; but his timid disposition prevented him from shining as an orator in the pulpit. The delicacy of his constitution forbidding him to aspire after extensive learning, he confined himself to the acquisition of that which might render him useful. He was much respected for his first attempts in poetry, called *Amusements of Reason and Wit*, which appeared in 1742.

The labour which he found requisite for the composition of sermons inclined him to lay aside the clerical profession, and devote himself wholly to the instruction of youth, in which he not only implanted knowledge in the minds of his pupils, but also inspired them with the love of religion and virtue. He was made master of arts in 1744, and published the first volume of his Fables in the ensuing year. His *Swedish Countess* was the first German romance deserving of notice. He gave the world the second part of his Fables in 1748, although two years before this period he had been much afflicted with an hypochondriacal affection. In 1751 he was solicited to accept the office of extraordinary professor of philosophy, together with a decent salary, which was augmented on the termination of the war.

Assailed by unconquerable lowness of spirits and confirmed melancholy, he still exhibited the same patience, resignation, and universal philanthropy, as he had ever shown, qualities which excited the admiration of the enemy during the war. His sufferings continued to increase in severity, and at last terminated his existence on the 13th of December 1769. He contributed much to the improvement of the taste and morals of his countrymen, and their gratitude for his services made them deeply lament his loss. His praise was resounded by every voice, and his likeness was cast in gypsum and moulded in wax ; it was engraved on copper, and represented in sculpture and in painting.

It is said of this amiable man and captivating writer, by Kutner, who wrote the lives of German authors, that it will probably be a century before the appearance of another poet, so fully qualified to excite the love and admiration of his contemporaries, and to obtain so powerful an influence over the taste and habits of thinking of all descriptions of men. It would indicate too much partiality to call him a genius of the first class, but he certainly was a most agreeable and fertile writer ; a poet to whom religion and virtue are deeply indebted ; an able reformer of public manners, and fonder of affording consolation than of plunging into despondency. " As long," says Kutner, " as the Germans shall understand their present language, will the works of Gellert be read ; and his character will be honoured while virtue is known and respected." The following is a list of his principal works : 1. Dissertation on the Epistolary Style ; 2. Canticles, or Religious Poetry ; 3. Moral and Didactic Poetry ; 4. Tales and Fables ; 5. Comedies, Leipsic, 1745, in 8vo ; 6. The Swedish Countess of C * * * Leipsic, 1746, in 8vo ; 7. Mixed Works ; 8. Dissertations on Literature and Morals, Leipsic, 1747, in 8vo ; 9. Moral Lessons, published after his death by J. A. Schlegel and G. L. Heyer, Leipsic, 1770, in 2 vols. 8vo.

GELLI, John Baptist, an eminent Italian writer, was born of mean parents, at Florence, in the year 1498. He was bred a tailor, some say a shoemaker ; but he had such an extraordinary genius, that he acquired several languages, and made uncommon progress in the belles-lettres ; and, though he continued to work at his trade, became acquainted with all the wits and learned men at Florence, and his merit was universally known. He was chosen a member of the academy there, and the city made him a burgess.

He acquired the highest reputation by his works, which are, 1. Capriccj del Bottajo, Florence, 1548, in 8vo; 2. La Circe, Florence, 1549, in 8vo; 3. Two comedies in prose, one entitled La Sporta, and the other Lo Errore; 4. Tutti i Trionfi, Carri, Mascherate o Canti carnascialeschi, or songs composed for the popular festivities of Florence, from the time of Lorenzo the Magnificent till 1559; 5. Various translations from the Latin, as the *Hecuba* of Euripides, from the Latin of Erasmus, the Life of Alphonso of Este, Duke of Ferrara, from the Latin of Paulus Jovius, &c. Gelli died in 1563.

GELLIBRAND, HENRY, a laborious astronomer of the seventeenth century, was born in the year 1597. Though he was not without prospects of advancement in the church, yet he became so enamoured of mathematical studies, that on the death of his father he became a student at Oxford, contented himself with his private patrimony, and devoted himself solely to this study. On the death of Mr Gunter, he was recommended by Mr Briggs to the trustees of Gresham College, for the astronomical professorship there; and to this he was elected in the year 1627. As Mr Briggs died in 1630, before he had finished his *Trigonometria Britannica*, the work was, at his request, completed by Gellibrand. He wrote several other things, chiefly tending to the improvement of navigation; and died in 1636.

GELLIUS, AULUS, a celebrated Roman, who flourished under Antoninus Pius, A. D. 140, and died about the beginning of the reign of Marcus Aurelius. Of his private history we can only collect a few facts. He was the disciple of Fronto and Sulpicius Apollinaris; and as it was still the custom in his time for the young nobility to complete their education at Athens, it appears that Gellius proceeded to that city, and studied philosophy under Taurus and Peregrinus Proteus. On his return to Rome he attended the philosopher Favorinus, many of whose maxims he has transmitted to us. He is known to us particularly for a work entitled *Noctes Atticæ*, in twenty books, which he composed principally whilst residing on a small property belonging to him near Athens. It is still complete, with the exception of the eighth book. It consists of a number of extracts, which the author had made in the perusal of Greek and Latin authors, formed into a collection without our being able to perceive any particular connection or methodic arrangement. It is, however, of great value, as it furnishes us with many curious facts respecting the language, history, and antiquities of the ancients, as well as with numerous fragments of earlier writers now entirely lost, by which we are enabled to clear up many obscure points in ancient history. His style has been too highly commended by some, and decried by others. It is frequently careless, and there is a fondness displayed for obsolete expressions, those particularly used by the older comic writers, which gives it an air of affectation. Editions: Editio princeps ex recens. Jo. Andreæ, Rom. 1469, 1472; ed. cum not. et emend. Gronov. Lugd. Bat. 1687; Biponti, 1784; ed. A. Lion. Götting. 1824. (See Steinbrenner; Erzalungen nach Aulus Gellius, Zerbst. 1829.)

GELNHAUSEN, a town, or rather city, of Hesse Cassel, in the province of Hanau. It is on the great road from Frankfort to Saxony, which causes much active trade. The situation is fine, overlooking the river Kinsig; and the position being strong, was occupied by the Bavarian army to impede the French in their retreat after the defeat they had sustained at Leipsic in 1813. The Bavarians were however defeated, and Bonaparte secured the passage for his troops. It contains many inns, and 3140 inhabitants.

GELON, one of the most illustrious characters which Sicily produced, the chief transactions of whose life extend from the period when he became Prince of Gelon, 491, to his death, 478 B. C. He was descended from a family who had come from Telos, an island of the Egean Sea, into Sicily, when the city of Gela was founded. Here Gelon was born; and when Hippocrates fell in battle, the inhabitants of Gela made an attempt to free themselves from the dominion of his children. Gelon, however, espoused their cause; but when he had defeated their army, the opportunity to make himself tyrant of his native place was too favourable to be allowed to escape. His authority being established at Gela, he was invited by some exiles from Syracuse to use his influence to restore them to their country. In this too he was successful, and thus became sovereign of Syracuse, which he made the capital of his kingdom, 488 B. C.

It was now the policy of Gelon to embellish and improve the city of which he had made himself master. To increase its population, he compelled the inhabitants of Camarina, of Megara, and a portion of those of Gela, to take up their residence in his new abode; but he soon had affairs of a more important nature to occupy his attention. The power of the Carthaginians had already begun to make itself felt beyond their own immediate vicinity; and Gelon was not slow in perceiving that he must prepare for a formidable contest. He made application to the Greeks for assistance, 484 B. C.; but they refused to interfere; and by his own resources he succeeded in defeating the Carthaginians. It was now his turn to prove to the Greeks the folly of the policy which they had pursued. He refused to aid them, 480 B. C., when they were threatened with invasion by Xerxes, unless they consented to declare him commander-in-chief of the Grecian forces. To such a proposition they would not deign to listen, and in the mean time Gelon found sufficient employment in opposing the attacks of the Carthaginians. The two armies met near the city of Himera; and by a stratagem of Gelon, the Carthaginians were completely defeated, and their general Hamilcar killed.

From this period Gelon seems to have devoted himself to promote the happiness of his people. He increased the wealth of his kingdom, and employed himself in framing a code of laws on just and sound principles. On his deathbed he named his brother Hiero as his successor; and the high respect with which he was regarded by the Syracusans induced them to acquiesce in the appointment. (Herodotus, vii. 153, 166; Diodorus Sic. xi. 21-25. See HIERO.)

GEM, a common appellation for all precious stones, and particularly for those which are employed in jewellery. Brilliancy of lustre, richness of hue, and the most perfect transparency, are the desiderata of this class of minerals; and the value of those specimens in which such characters are combined is enhanced according to their size, in an extremely rapid ratio. At the head of the gems stands the diamond, which, for brilliancy of lustre, or *water* as it is termed, has not a rival. As elsewhere stated, it is principally the production of certain parts of Hindustan and Brazil, where it occurs in alluvial soil, or in conglomerate of the most recent formation. The oriental ruby, when perfect in transparency and colour, and of considerable size, vies with the diamond in value. Its most noted locality is the Capellan Mountains, near Syrian, in the kingdom of Ava. Next in order is the sapphire, which varies from a rich dark blue to a very slight tinge of the same colour, sometimes presents distinct colours in the same specimen, and is frequently transparent and colourless. It is met with in considerably larger masses than the preceding, and is only found in Ceylon. The peculiar colour of the emerald is well known. No gem is more frequently made mention of in sacred history, and none even at the present day stands in higher estimation amongst the crowned heads of the East. The aquamarine of lapidaries is, mineralogically speaking, a pale-blue variety of the same species, though one of very inferior value. Topazes occur under an infinity of forms, and are found in most quarters of the globe. From the changes which they undergo when exposed to heat, besides the fine colours they present naturally, topazes are peculiarly dapted to the purposes of the lapidary. The richest cooured garnets are the production of Ceylon and Greenand. Chrysolites of a brilliant pale-green colour are rought to Great Britain from Constantinople; hyacinths f a deep red from Ceylon; and tourmalines of a great ariety of hues from all parts of the world. The opal, nd many varieties of quartz, as the amethyst, onyx, arde, cats-eye, and agate, are also occasionally included nder the general denomination of gem.

Generally speaking, the different species of precious stones occur in small masses. All of them are found in a rystalline state, and present the peculiar forms which ature has assigned them. Many of these forms are sinularly beautiful; and their variety, particularly in the iamond and topaz species, is as great as any other class f the mineral kingdom affords. It is not, however, under these splendid forms that the gems are most commonly found. Most of them are the productions of Inia, Ceylon, Pegu, or Brazil, where, having been washed om their matrix in some of the primitive ranges, they are collected, in a rolled and rubbed state, in the channels of he rivers. Every trace of their original form is thus frequently lost; and, to add to the distress of the crystallographer, fine stones rarely come through the hands of Inan lapidaries without receiving farther abrasion or cutng. This circumstance of their so rarely presenting stinctive forms renders the peculiar hardness of this ass of stones a most important characteristic, and one which, whatever be their external shape or appearance, an never be mistaken. By this means too the real stone easily distinguished from the fictitious, which is occaonally made to bear so close a similitude, that an unractised eye finds it almost impossible to detect the difrence.

GEMAPPE, or JEMMAPPES, a village of the Nethernds, in the province of Hainault, near the river Scheldt, the road from Valenciennes to Mons. It is remarkable r the victory gained by the French under Dumouriez er the Austrians in 1792, by which the former became asters of the Austrian Netherlands.

GEMBLOUX, a town of the province of Namur, in the rcle of that name. It is situated on the river Orneau, d contains 1660 inhabitants, who are employed mostly the iron manufacture. It is remarkable for the battle ught near it in 1578, when the Austrians were defeated the Spanish army under the command of Don Juan of ustria.

GEMINI, in *Astronomy*, the TWINS, a constellation or n of the zodiac, the third in order, representing Castor d Pollux. These names are also given to two stars in ts constellation. Castor is a star of the third, and Polx of the second magnitude. The former, seen through a tescope, is a beautiful double star, that is, two stars of the fh and sixth magnitudes, one of which revolves about te other, forming a binary system.

GEMINIANI, a celebrated musician and composer, was bn at Lucca in the year 1680. He received his first insuctions in music from Alessandro Scarlatti; and after tt became a pupil of Carlo Ambrosio Lunati, surnamed *I Gobbo*, a most celebrated performer on the violin; after wich he became a disciple of Corelli, and under him fished his studies on that instrument. In the year 1714 h came to England, where in a short time he so recommnded himself by his exquisite performance, that all who pfessed to love and understand music were captivated with hearing him. Many of the nobility laid claim to the honour of being his patrons; but he seemed chiefly to attach himself to Baron Kilmansegge, chamberlain to King George I. as elector of Hanover, and a favourite of that prince. In 1716 he published and dedicated to his patron twelve sonatas *a violino, violone, e cembalo;* the first six with fugues, or double stops as they are vulgarly called; the last with airs of various measures, such as allemandes, courantes, and jiggs. This publication was so well relished by the baron, that he mentioned Geminiani to the king as an excellent performer; in consequence of which our musician had the honour to perform before his majesty, in concert with the celebrated Handel, who played on the harpsichord. But though Geminiani was exceedingly admired, yet he had not a talent for associating music with poetry, nor do we find that he ever became a public performer; he was therefore obliged to depend for his subsistence on the friendship of his patrons and the profits which accrued to him from teaching. He had also the misfortune to be an enthusiast in painting; and the versatility of his temper was such, that, in order to gratify this passion, he not only suspended his studies, and neglected to exercise his talents, but involved himself in debts. In 1727 he was offered the place of master and composer of the state music in Ireland; but this could not be conferred on a Catholic, and Geminiani refused to change his religion; upon which it was given to Matthew Dubourg, a young man who had been one of his pupils, and was a celebrated performer on the violin. Geminiani then set himself to compose parts to the *opera quinta* of Corelli; or, in other words, to make concertos of the first six of his solos. This work he completed, and, with the help of a subscription, at the head of which were the names of the royal family, published in 1726. In 1732 he published his *opera seconda*, which contains a celebrated minuet that goes by his name. He published many other pieces, the profits of which did not much mend his circumstances; but this perhaps was owing to his rambling disposition and enthusiastic fondness for painting. He was also an utter stranger to the business of an orchestra, and had no idea of the labour and pains necessary in the instruction of singers for the performance of music to which they were strangers. The consequence of this was, that a *concerto spirituale*, which he had advertised for his own benefit in 1748, failed in the performance. The audience, however, compassionated his distress, and sat very silent till the books were changed; when the performance was continued with compositions of the author's own, which he executed in such a manner as has never been forgotten. The profits arising from this performance enabled him to take a journey to Paris, where he staid long enough to get plates engraven for a score of solos, and the parts of two operas of concertos. About the year 1755 he returned to England, and advertised them for sale. In 1761 Geminiani went over to Ireland, and was kindly entertained there by Mr Matthew Dubourg, who had been his pupil, and was then master of the king's band in Ireland. This person, through the course of his life, had ever been disposed to render him friendly offices; and it was but a short time after Geminiani's arrival at Dublin that he was called upon to do him the last. It appears that Geminiani had spent many years in compiling an elaborate treatise on music, which he intended for publication; but soon after his arrival at Dublin, by the treachery of a female servant, who, it was said, had been recommended to him for no other end than that she might steal it, it was conveyed away, and could not be recovered. The greatness of this loss, and his inability to repair it, made a deep impression on his mind, and, as it is conjectured, hastened his end; at least he survived it but a short time, ending his days on the 17th of September 1762. The following list comprehends the whole of his publications, except two or three articles of small account, viz. twelve solos for a violin, *opera prima ;* six concertos in seven parts, *opera seconda ;* six concertos in seven parts, *opera terza ;* twelve solos for a violin, *opera quarta ;* six solos for a violoncello, *opera quinta ;* the same made into solos for a violin ; six concertos from his *opera quarta ;* six concertos in eight parts, *opera settima ;* rules for playing in taste ; a treatise on good taste ; the art of playing the violin ; twelve sonatas from his first solos, *opera undecima ;* Ripieno parts to ditto ; lessons for the harpsichord ; *Guido Armonica ;* supplement to this ; the art of accompaniment, two books ; his first two operas of concertos in score ; and the Enchanted Forest. Of his solos the *opera prima* is esteemed the best. Of his concertos some are excellent, others of them scarcely pass the bounds of mediocrity. The sixth of the third opera not only surpasses all the rest, but, in the opinion of the best judges of harmony, is the finest instrumental composition extant.

GEMISHKHANA, or SILVER-HOUSE, a town of Asia Minor, on the borders of Armenia, so called from a silver mine in its neighbourhood, which, however, has greatly declined in its produce. The town is better built than most towns in the Turkish dominions, and is said to contain 7000 inhabitants. It is thirty miles south from Trebisond.

GEMONIÆ SCALÆ, or *Gradus* GEMONII, amongst the Romans, was much the same as gallows or gibbet in England. Some say they were thus denominated from the person who raised them ; others, from the first criminals who suffered on them ; and others, from the verb *gemo,* I sigh or groan. The *gradus gemonii,* according to Publius Victor or Sextus Rufus, was a place raised on several steps, whence criminals were precipitated ; others represent it as a place whereon offenders were executed, and afterwards exposed to public view. The *gemoniæ scalæ* were in the tenth region of the city, near the temple of Juno. Camillus first appropriated the place to this use in the year of Rome 358.

GENAPPE, a town of the Netherlands, in the province of South Brabant, between Brussels and Namur. Being near to Waterloo, it became the scene of some bloody conflicts on the evening after the great battle of the 18th of June 1815. It contains 1400 inhabitants.

GENDER, among grammarians, a division of nouns, or names, to distinguish the two sexes. This was the original intention of gender ; but afterwards words, which had no proper relation either to the one sex or the other, had genders assigned them, and this was at length established by custom. Hence genders vary according to the languages, or even according to the words introduced from one language into another. Thus, *arbor* in Latin is feminine, but *arbre* in French is masculine ; and *dens* in Latin is masculine, but *dent* in French is feminine. The oriental languages frequently neglect the use of genders, and the Persian language has none at all. The Greeks and Latins generally content themselves with expressing the genders by different terminations ; as *bonus equus,* a good horse ; *bona equa,* a good mare. But in English we frequently go farther, and express the difference of sex by different words, as boar, sow ; boy, girl ; buck, doe ; bull, cow ; cock, hen ; dog, bitch, and so of others. We have only about twenty-four feminines distinguished from the males by the variation of the termination of the male into *ess ;* of which number are abbot, abbess ; count, countess ; actor, actress ; heir, heiress ; prince, princess, which is all that our language knows of any thing like genders. The Greek and Latin, besides the masculine and feminine, have the neuter, common, and doubtful gender ; and likewise the epicene, or promiscuous, which under one single gender and termination includes both the kinds.

GENEALOGY, an enumeration of a series of ancestors, or a summary account of the relations and alliances of a person or family, both in the direct and collateral line. The word is Greek, γενεαλογια, which is formed of γενος, *race* or *lineage,* and λογος, *discourse.*

GENEALOGICA ARBOR, or *TREE of Consanguinity,* signifies a genealogy or lineage drawn out under the figure of a tree, with its root, trunk or stem, and branches. The genealogical degrees are usually represented in circles, ranged over, under, and beside each other. This the Greeks called *stemmata,* a word signifying crown, garland, or the like.

GENERAL, an appellation given to whatever belongs to a whole genus.

GENERAL, in the art of war, he who commands a brigade, a division, a corps, or an army. See ARMY.

GENERAL is also used for the chief of an order of monks, or of all the houses and congregations established under the same rule. Thus we say the general of the Franciscans, Cistertians, and so on.

GENERALISSIMO, called also *captain-general,* and simply *general,* is an officer who commands all the military powers of a nation ; who gives orders to all the other general officers, and receives no orders himself excepting from the king. M. Balzac observes, that the Cardinal de Richelieu first coined this word, of his own absolute authority, upon his going to command the French army in Italy.

GENERATE, in *Music,* is used to signify the operation of that mechanical power in nature, which every sound has in producing one or more different sounds. Thus any given sound, however simple, produces along with itself its octave, and two other sounds extremely sharp, namely, its twelfth above, that is to say, the octave of its fifth, and the other the seventeenth above, or, in other words, the double octave of its third major. Whether we suppose this procreation of sounds to result from an aptitude in the texture and magnitude of certain particles in the air, for conveying to our ears vibrations that bear those proportions, one to another, as being determined at once by the partial and total oscillations of any musical string, or from whatever economy of nature we choose to trace it, the power of one sound thus to produce another, when in action, is said to *generate.* The same word is applied by Signior Tartini and his followers, to any two sounds which, when simultaneously heard, produce a third.

GENERATED, or GENITED, is used by some mathematical writers for whatever is produced, either in arithmetic, by the multiplication, division, or extraction of roots ; or in geometry, by the finding of the contents, areas, and sides ; or of extreme and mean proportionals, without arithmetical addition and subtraction.

GENERATING LINE, or FIGURE, in *Geometry,* is that which, by its motion of revolution, produces any other figure, plane, or solid.

GENERATION, in *Physiology.* See PHYSIOLOGY.

GENERATION is used, though somewhat improperly, for genealogy, or the series of children issuing from the same stock. Thus the gospel of St Matthew commences with the book of the generation of Jesus Christ. The latter and more accurate translators, instead of *generation* use the word *genealogy.*

GENERATION is also used to signify a people, race, or nation, especially in the literal translations of the Scripture, where the word generally occurs wherever the Latin has *generatio,* and the Greek γενεσις.

GENERATION is also used in the sense of an age, or the ordinary period of man's life. Thus we say, to the third and fourth generation. In this sense historians usually reckon a generation the space of thirty-three years or thereabouts.

GENERATOR, in *Music*, signifies the principal sound r sounds by which others are produced. Thus the lowest for the treble of the harpsichord, besides its octave, ill strike an attentive ear with its twelfth above, or G in lt, and with its seventeenth above, or E in alt. The C, herefore, is called their *generator*, the G and E its products or harmonics. But in the approximation of chords r G, its octave below is substituted, which constitutes a fth from the generator, or lowest C; and for E, is likeise substituted its fifteenth below, which, with the aboveentioned C, forms a third major. To the lowest notes, herefore, exchanged for those in alt by substitution, the enominations of products or harmonics are likewise given, hilst the C retains the name of their *generator*. But still, ccording to the system of Tartini, two notes in concord, hich when sounded produce a third, may be termed the ncurring generators of that third. (See *Génération armonique*, by M. Rameau; also the delineation of artini's system, called The Power and Principles of Harony.)

GENESIS, the first book of the Old Testament, conining the history of the creation, and of the lives of the st patriarchs. The book of Genesis stands at the head the Pentateuch. Its author is held to be Moses, and contains the relation of 2369 years, or from the beginng of the world till the death of Joseph. The Jews were rbidden to read the beginning of Genesis, and the benning of Ezekiel, until they had attained thirty years of ge. The Hebrews call this book *Beraschith*, because it gins with that word, which, in their language, signifies *principio*, or in the beginning. The Greeks give it the ame *Genesis*, Γενεσις, production, generation, because it gins with the history of the production or generation of l beings. This book, besides the history of the creation, ntains an account of the original innocence and fall of an; the propagation of mankind; the rise of religion; e general defection and corruption of the world; the luge; the restoration of the world; the division and opling of the earth; and the history of the first patrichs till the death of Joseph. It was easy for Moses to satisfied of the truth of what he delivered in this book, cause it came down to him through a few hands; for om Adam to Noah there was one man, Methuselah, who ed long enough to see them both; in like manner Shem nversed with Noah and Abraham, Isaac with Abraham d Joseph, from whom the records of this book might sily be conveyed to Moses by Amram, who was conmporary with Joseph.

Genesis, in *Geometry*, denotes the formation of a line, ane, or solid by the motion or flowing of a point, line, surface.

GENETHLIA, in *Antiquity*, a solemnity observed in emory of some person deceased.

GENETHLIACI, in *Astrology*, persons who erect hoscopes, or pretend to foretell what shall befall a man by eans of the stars which presided at his nativity. The rd is formed from the Greek *γενεθλη*, *origin*, *generation*, *tivity*. The ancients called them *Chaldæi*, and also by e general name of *mathematici*; accordingly, the various il and canon laws, which we find made against the maematicians, only respect the *genethliaci* or astrologers. ey were expelled from Rome by a formal decree of the nate, and yet found so much protection from the creduy of the people that they remained unmolested in the ty. Hence an ancient author speaks of them as *homim genus quod in civitate nostra semper et vetabitur et reebitur.*

GENEVA, a canton of Switzerland, comprehending the ty of that name, and the territory around it to the exnt of about ninety-eight square miles, with about 44,000 habitants, four fifths of whom reside within the city. Geneva, the largest city of Switzerland, is situated on the Lake of Geneva, where the river Rhone issues from it, and is divided by that river into two parts of unequal size. The streets are narrow, the houses lofty, and the appearance, except on the boulevards, is gloomy. It contains five reformed, one Lutheran, and one Catholic church, and about 30,000 inhabitants. It is a place of great activity in many branches of manufacture. The chief of these in amount is watchmaking and jewellery, in which many workmen are employed. Tanning, calico-printing, twine-spinning, hatmaking, whitesmiths' work, copper utensils, saddlery, silk and woollen shawls, besides copperplate and letterpress printing, are all occupations carried on, and the amount of which exported to other countries is very considerable. The fisheries in the Lake of Geneva and on the Rhone are also important branches of industry. Many individuals are said to have amassed very large fortunes, which they employ extensively in speculations in the funds of all nations, in banking, and in exchanges.

Much learning still exists in the city, and in former times it produced men of eminence in most branches of literature and science, among whom may be mentioned Calvin, Diodati, Tronchen, Casaubon, Rousseau, Neckar, Bonnet, and others. Long. 6. 4. 49. E. Lat. 46. 12. 15. N. See Switzerland.

Geneva *Lake*. This lake is in the shape of a crescent. Switzerland forms the hollow, and Savoy the convex part, the greatest breadth being about twelve miles. The country on the side of Savoy is full of high and craggy mountains; but from Geneva to the environs of Lausanne it slopes to the margin of the lake, and is very rich and fertile. The banks rise considerably in the neighbourhood of Lausanne, and form a most beautiful terrace, with a rapid descent a few miles beyond the town. In the neighbourhood of Vevay a plain begins, and continues for a great way beyond the end of the lake, but is contracted towards the water by the approach of the mountains. The lake itself appears at a distance of a beautiful blue colour, and the water is very clear and transparent. Near Geneva the coast of the lake abounds with pebbles; between that city and Lausanne it is sandy; from thence to Chillon it is bounded by hard calcareous rocks; and the extremity of the shores is a marsh formed by mud collected from the river Rhone. The greatest depth of this lake found by M. de Luc is a hundred and sixty fathoms.

Geneva, or *Gin*, among distillers, an ordinary malt spirit, distilled a second time, with the addition of some juniper berries.

GENEVIEVE, Fathers or Religious of, the name of a congregation of regular canons of the order of St Augustin, established in France. The congregation takes its name from the abbey of St Geneviève, which is the chief of the order, and whose abbot is the general thereof. The abbey itself took its name from St Geneviève, the patroness of the city of Paris, who died in the year 512. Five years after her death, Clovis erected the church of St Geneviève, under the name and invocation of St Peter, where her relics are still, or were till lately preserved, her shrine visited, and her image carried in procession with great ceremony upon extraordinary occasions.

GENEVOIS, a province of Savoy, with the title of dukedom, in the kingdom of Sardinia, and on the borders of Switzerland. It extends over 682 square miles, contains three cities, and 147 towns and villages, with 69,867 inhabitants. By the congress of Vienna this province, as well as those of Chablais Faussigny, and the upper part of Chambery, wherein Rumelly is situated, are declared to be for ever neutral territories. The capital of the province is Annecy.

GENIAL, an epithet given by the Pagans to certain gods who were supposed to preside over generation. The genial gods, says Festus, were Earth, Air, Fire, and Water. The twelve signs, together with the sun and moon, were also sometimes ranked in the number.

GENII, a sort of intermediate beings, believed by the Mahommedans to exist, between men and angels. They are of a grosser fabric than the latter, but much more active and powerful than the former. Some of them are good, others bad, and they are capable of future salvation or damnation like men. The orientals pretend that these genii inhabited the world many thousand years before the creation of Adam, under the reigns of several princes, who all bore the common name of Solomon; that falling at length into an almost general corruption, Eblis was sent to drive them into a remote part of the earth, there to be confined; and that some of that generation still remaining were by Tahmurath, one of the ancient kings of Persia, forced to retreat into the famous mountain of Kaph. They also established several ranks and degrees among this kind of beings, some being called absolutely *Jin*, others *Peri* or fairies; some *Div* or giants, others *Tacwin* or fates.

GENITES, among the Hebrews, those descended from Abraham, who were without any mixture of foreign blood.

The Greeks distinguished by the name of *genites* such of the Jews as were descended from parents who, during the Babylonish captivity, had not allied with any gentile family.

GENITIVE, in *Grammar*, the second case of the declension of nouns. The relation of one thing considered as belonging in some manner to another, has occasioned a peculiar termination of nouns, called the *genitive case;* but in the modern languages a sign is made use of to express the relation of this case. In English the particle *of*, in French *de* or *du*, is prefixed. But in strictness there are no cases in either of these languages, inasmuch as they do not express the different relations of things by different terminations, but by prepositions, which is otherwise in the Latin.

GENIUS, a good or evil spirit or demon, whom the ancients supposed to watch over every person, to direct his birth, accompany him in life, and be his guard till death. Amongst the Romans the name *genius* was, according to Festus, given to the god who had the power of doing all things, *deum qui vim obtineret rerum omnium gerendarum;* but Vossius (*De Idol.*) prefers reading *genendarum*, and Censorinus frequently uses *gerere* for *gignere*. Accordingly St Augustin (*De Civitate Dei*) relates, after Varro, that the genius was a god who had the power of generating all things, and presided over them when produced. Festus adds that Aufustius spake of the genius as the son of god, and the father of men, who gave them life. Others, however, represented the genius as the peculiar or tutelary god of each place; and it is certain that the last is the most usual meaning of the word. The ancients had their *genii* of nations, of cities, of provinces, and the like. Nothing is more common than the inscription on medals of *Genius Populi Rom.*, the genius of the Roman people; or *Genio Pop. Rom.*, to the genius of the Roman people. In this sense *genius* and *lar* were the same thing; as, in effect, Censorinus and Apulius affirm they were.

GENIUS, in literature and the fine arts, a natural talent or disposition to do one thing more than another, or the aptitude a man has received from nature to perform well and easily that which others can do but indifferently and with a great deal of pains.

GENLIS, an arrondissement of the department of the Oise, in France, extending over 530 square miles. It is divided into seven cantons, and these into 151 communes, inhabited by 73,912 persons. The capital, of the same name, is a city situated on the river Nonnette. It is an ill-built place. The cathedral has the loftiest tower of any in France. It contains nine other churches, two hospitals, with 940 dwellings, and 4520 inhabitants. It has manufactories of linen, lace, leather, cutlery, and some cotton spinning. Long. 2. 29. 53. E. Lat. 49. 12. 8. N.

GENOA, a duchy forming a part of the kingdom of Sardinia, in Italy, which, till the congress of Vienna, was the ancient republic of that name. On the north it is bounded by Piedmont, Parma, and Tuscany, on the east by Massa-Corrara, on the south by the Mediterranean Sea, and on the west by Nice. It extends over 2420 square miles. It was before transferred to the king of Sardinia, and divided into provinces; but when the Ligurian republic was established by the French, it was by them formed into four departments. These lines of demarcation have, however, been abolished, and now the duchy is formed into fifteen circles or arrondissements, the boundaries and extent of which are not accurately defined, but each of which has its separate intendancy. The population is 609,500, living in nineteen cities and 725 towns and villages.

The duchy is a narrow strip of land bordering on the Mediterranean, and enclosed by the Apennines, which separate it from the rest of Italy. It may be viewed in two parts: 1*st*, The mountains, which are mostly bare and barren, except in some valleys between them, and are impassable, except by two roads which lead to Piedmont and eastern Italy; 2*dly*, the sea-coast, where the land rises slip by slip in the form of terraces, and is for the most part sandy on the lower elevation; whilst on the higher, what little soil there is is mixed with slate.

The greater part of the land belongs to the old Genoese noble families, or to the clergy; and the cultivator either farms it at a rent in produce, or on joint account with the proprietor. The whole duchy scarcely grows as much wheat, maize, and barley, as serves for three months' consumption, and the deficiency is supplied either from Piedmont or from more remote countries. The chief product of the soil is the olive, the oil of which forms the most valuable article of export; but besides that, large quantities of oranges, citrons, pomegranates, and pine-apples, are sent to France, to Switzerland, and to Germany. Figs, almonds, capers, truffles, and morels, are exported to more distant markets. Chestnuts are grown abundantly on the mountains, and, with potatoes, form among the poorer classes substitutes for bread. The wine in general is of a bad quality, with few and insignificant exceptions. The cultivation of silk is moderate in quantity and inferior in quality. The fishery is pursued with little success, as the fish is scarce, except those of the smaller kinds.

The manufactures sank during the revolutionary scenes which the republic of Genoa witnessed; but they have been gradually returning to their former prosperity of late years. They now make silks and silk hosiery, fine thin woollens, hats, shoes, paper, chocolate, white lead, silver goods, and much candied fruit, which form articles of export. The restoration of the Bank of St George, which has now a capital of 1,220,000 livres, has been found highly beneficial to commerce. The other sea-ports, besides Genoa, are Spezzia, Savona, Porto Maurizzio, Vintigmilia, Finale, and Sestri. The population at present amounts to about 80,000.

GENOA, a city, the capital of the duchy of that name, is the seat of an archbishop, of the government boards, and of the senate. It is in the form of an amphitheatre, the streets rising above one another from the sea-shore, so that it has a magnificent appearance at a distance. It is surrounded with fortifications, which are very extensive, as they enclose both gardens and fields. The interior of the enclosure or city consists of irregular and narrow streets, in which magnificent palaces and houses six stories high are crowded together. The Strada Novi and

Genovesi.

the Strada Balbi, which consist of palaces, are not more than twenty-four feet wide, and the Piazza Reale is the only part which is tolerably open and airy. The city contains, besides the cathedral, fifty-two parish churches, and sixty-nine others belonging to different convents. There are several hospitals, two of which receive 1000 patients each, and several other charitable institutions. There is a university, with a library of 70,000 volumes and 1000 manuscript works, besides other establishments for in- truction in the fine arts and the sciences.

The most remarkable object is the harbour, enclosed by two moles, each 7000 feet in length, at the termination of which stand the light-houses. It is capable of receiving hips of the greatest draught of water, which are secure gainst all winds but that directly south. More than 3000 essels, besides coasters, enter it yearly. The inhabitants re industrious, and provide many articles for commerce, which are noticed in the account of the duchy in this work. The theatres and other conveniences are numer- us, and splendidly conducted, as in other Italian cities. Long. 8. 53. 2. E. Lat. 44. 23. 48. N.

GENOVESI, Anthony, an eminent Italian writer, was orn on the 1st of November 1712, at Castiglione, near alerno, in the kingdom of Naples. From his earliest ears he showed an uncommon capacity; but after receiving such education as his native village could afford, his ather obliged him to devote himself to the study of scho- astic theology, with a view to the ecclesiastical profes- on. In a short time he distinguished himself as a pro- cient in dialectics; but having formed an attachment to young woman, he was on the point of sacrificing to her l his professional prospects, when his father, who had btained a knowledge of the circumstance, removed him o another village, where he found a priest who diverted is attention to different objects. Having been afterwards xcommunicated by the Archbishop of Conza, for acting part in a comedy, he returned to Castiglione, where, aving found his mistress married, he re-assumed the cas- ock, and took priest's orders at Salerno in 1736. Here e soon distinguished himself so much by his talents and nowledge, that the archbishop of this town confided to im the chair of eloquence. At this period Genovesi was mere school theologian; but a friend of his, a young ec- esiastic, now made him aware that there were sources f knowledge beyond the scholastic sphere, more exten- ve, more interesting, and more real, than those to which e had hitherto applied. Genovesi entered into this new ntellectual world by the perusal of some romances; from hese he proceeded to the study of history; and, stepping om one subject to another, he finally applied himself to he study of modern philosophy, and read with attention he works of Leibnitz and Locke. In the hope of acquiring ill further information, he repaired to the capital; and s he did not possess the necessary means of maintaining imself there, he resolved to exercise the profession of ad- ocate; but having become disgusted with the details of ractice, he soon sacrificed his hopes of fortune to the leasures of study. He improved his knowledge of the reek, and of several of the modern languages, attended l the most celebrated professors of the university of aples, and soon perceived the imperfections of the exist- g system of public instruction.

Notwithstanding the progress which philosophy had ade in other countries, the kingdom of Naples was, at hat period, in a state almost retrograde, or at least sta- onary. Genovesi felt this, and he resolved to accom- ish certain reforms in the system of education, with a ew to the amelioration of the condition of his country- en. None ever succeeded better in this generous de- gn. Although there existed at Naples a university ce- brated for the learning of several of its professors, the pupils had long been accustomed to carry on their studies in private schools. Genovesi having conceived the design of opening one of these seminaries, he procured the appointment of extraordinary professor of metaphysics in the university, in order that he might appear before the public in a known character. He had formed peculiar methods of his own in all the faculties which constitute the philosophical course; and his first essays induced him to publish his *Elements of Metaphysics*, of which the first volume appeared in 1743, and afterwards, in 1745, his *System of Logic*.

In these two works he made ample use of the doctrines of Bacon, Descartes, Leibnitz, and Locke; and having substituted philosophical doubt for implicit belief, the observation of nature for the speculations of the schools, and reason for authority, this was sufficient to cause him to be denounced as an infidel, or at least as an irreligious person, by those who still adhered to the scholastic methods. He would probably have fallen a sacrifice to these prejudices, had he not been supported by Galiani, archbishop of Tarentum, grand almoner of the king, and grand master of the university; but notwithstanding this protection, he experienced some trouble and difficulty in obtaining the professorship of moral philosophy; and he was disappointed in an attempt to procure the chair of theology.

The unjust and obstinate hostility which he suffered on account of his theological works diverted him, for some time, from this dangerous path of inquiry, and brought him back to that of philosophy. He published a continuation of his *Elements of Metaphysics*, but, with every new volume, he continued to experience the censures and opposition of the partisans of the scholastic routine. Amongst these were the Cardinal Spinelli, archbishop of Naples, and an Abbé Magli, whom Genovesi covered with ridicule, in his work entitled *Lettere a un Amico Provinciale*. In spite of these continual jarrings, Genovesi obtained the approbation and esteem of Pope Benedict XIV., of several cardinals, and of most of the learned men who at that period flourished in Italy. Of this number was Intieri, a Florentine, who having spent a long time at Naples, became much attached to that country. This man, as distinguished for his philanthropical qualities as for the extent and solidity of his acquirements, was still more estimable on account of the use which he made of his fortune. It is to him that Italy is indebted for her first chair of political economy; he founded it, at his own expense, with the sanction of government, in the university of Naples, under three conditions, namely, that the lectures should be given in Italian, that Genovesi should be the first professor, and that, after his death, no ecclesiastic should succeed him.

Genovesi opened his first course of lectures on the 5th of November 1754, with great success. The novelty and the interest of the subject, the eloquent style and agreeable manner of the professor, attracted a crowd of auditors, and made a deep and lively impression. Nothing, indeed, was talked of but agriculture and commerce. To gratify the taste of the public for these new inquiries, he afterwards published his *Lectures on Commerce*, and Carey's *Account of the Trade of England*, translated into Italian by his brother, and enriched with notes by himself. His *Lectures on Commerce* was indisputably the most interesting work he had hitherto published. There are some errors, indeed, in his method, and even in his doctrines; but the work contains many important truths relative to every department of public administration, and a good application of analysis to subjects which had not hitherto been sufficiently investigated. Finally, it had the merit of being the first work which introduced into Italy, and particularly into the kingdom of Naples, a taste for the study of political economy.

The great success of these lectures, which were delivered in Italian, induced Genovesi to draw up a complete code of philosophy in that language. It was at this time the custom in Italy, and particularly at Naples, to teach every thing in Latin; a practice which prevented knowledge from spreading among those classes to whom that language was not familiar; and the Neapolitans, at that period, wanted education perhaps more than any other people. He had published, in Italian, his *Meditazioni Filosofiche,* on religion and morals; and his *Lettere Accademiche,* on the utility of the arts and sciences; a treatise written in opposition to the well-known work of Rousseau on that subject. Following out his plan, he began to recast all his Latin works, to improve their form, and to give them a more interesting character. The first which he published was his treatise on *Logic;* a work which went through several editions. He afterwards published his *Metaphysics,* divided into three parts; the first containing an essay on cosmology, the second on theology, and the third on anthropology. In 1767, he published part of a work on the *Science of the Rights and Duties of Man;* but this work was never completed. In all his writings, and particularly in his *Meditations* and *Letters,* the style is somewhat affected; at the same time they present us with a good exposition of the ideas and systems of the most celebrated philosophers.

After the suppression of the order of the Jesuits, when it became a question with the government whether they ought to be reinstated in their superintendence of public instruction, Genovesi was consulted, and his advice was, to replace the scholastic chairs by schools of mathematics, physics, and history; and he proposed one chair for the illustration of Cicero's *Offices.*

From the commencement of the year 1763, Genovesi had felt the symptoms of a dangerous malady; but he continued to teach and to write to the last day of his life; and before his death he had the satisfaction of witnessing the great success of his labours. Since the days of Telesius and Campanella, no school had attained more credit and celebrity at Naples than that of Genovesi. Pupils, some of them men of the most illustrious rank, flocked to his lectures; and those who heard him generally adopted his ideas and followed his maxims. He handled the most abstruse subjects in the most agreeable manner, and in a style almost poetical; a circumstance which gave him a great command over the attention, as well as over the judgment, of his pupils. Indeed all that Italy has since produced in philosophical and economical science may be said to have originated in the school which he founded. He died of an attack of dropsy, on the 22d of September 1769, aged about fifty-seven.

The following list of Genovesi's works is taken from Fabroni, *Vitæ Italorum doctrina excellentium:* 1. Disciplinarum metaphysicarum Elementa Mathematicum in morem adornata, 1744–1751, 4 vols. 8vo; 2. Elementorum Artis logico-criticæ libri quinque, Naples, 1745; 3. Discorso sopra alcuni trattati d'Agricoltura, ibid. 1753; 4. Lettere Accademiche, ibid. 1764; 5. Storia del Commercio della Gran Brettagna, &c. 1757; 6. Delle Lezioni di Commercio; 7. Discorso sopra l'Agricoltura, with a translation of Tull's Husbandry; 8. Discorso sul volgarizzamento del Saggio Francese sull' Economia de' grain, Naples, 1765; 9. Meditazioni Filosofiche sulla Religione e sulla Morale, ibid. 1766; 10. Della Filosofia del giusto e dell' onesto, 1766–1776, 3 vols.; 11. Universæ Christianæ Theologiæ elementa dogmatica, historica, critica, a posthumous work, Venice, 1771, 2 vols. 4to.

GENTIAH, a small district of Hindustan, situated on the north-east of Bengal, bounded on the south by Sylhet, and on the north by the Garrow Mountains. The inhabitants are Hindus of the Brahminical persuasion, and are governed by their own rajah, who is tributary to the Anglo-Indian government.

GENTIAH, the capital of the above district, lies without the pale of the Company's territories, being situated in long. 91. 54. E. and lat. 25. 10. N.

GENTILE, in matters of religion, a pagan, or worshipper of false gods. The origin of this word is deduced from the Jews, who called all those who were not of their name כויים *gojïm,* or *gentes,* which in the Greek translations of the Old Testament is rendered τα εθνα; and in this sense it frequently occurs in the New Testament. The Latin church also used *gentes* in the same sense as *gentiles,* especially in the New Testament. But the word *gentes* soon obtained another signification, and no longer meant all such as were not Jews, but those only who, being neither Jews nor Christians, followed the superstitions of the Greeks and Romans. In this sense it continued amongst the Christian writers, till their manner of speech, together with their religion, was publicly and by authority received in the empire; and then, in treatises and laws concerning religion, gentiles signified pagans, in opposition to Jews and Christians; and in civil affairs the word was used to signify all such as were not Romans.

GENTILE, in Roman law and history, a name which sometimes expresses what the Romans otherwise called *barbarians,* whether they were allies of Rome or not; but this word was used in a more particular sense to indicate all strangers and foreigners who were not subject to the Roman empire.

GENTILESCHI, HORATIO, an Italian painter, was born at Pisa in 1563. After having made himself famous at Florence, Rome, Genoa, and other parts of Italy, he removed to Savoy; whence he proceeded to France, and at last, upon the invitation of Charles I., came over to England. He was well received by that king, who appointed him lodgings in his court, together with a considerable salary, and employed him in his palace at Greenwich, and other public places. The most remarkable of his performances in England, were the ceilings of Greenwich, and York House. He also executed a Madona, a Magdalen, and Lot with his two daughters, for King Charles; all which he performed admirably well. He made several attempts in face painting, but with little success; his talent lying altogether in histories, with figures as big as the life. After twelve years continuance in England, he died at eighty-four years of age, and was buried in the Queen's Chapel, at Somerset House.

GENTILIS, ALBERICUS, a laborious jurisconsult of the sixteenth century, with more erudition than taste or judgment, was born in 1551 at Castello-di-San-Genesio, in the march of Ancona, and studied at Perugia, where he took the degree of doctor in civil law at the age of twenty-one. Soon afterwards he obtained the situation of judge in the city of Ascoli; but not having it in his power to profess there in security the Protestant religion, of which he was an ardent follower, he went to seek an asylum in Carniola, and ultimately in England. During his stay at London, where he continued for several years, he lived entirely on the bounty of some generous friends of the sciences. At length the Earl of Leicester, his protector, procured him, in 1587, the chair of law in the university of Oxford, of which he was chancellor. This place, with the appointment which Gentilis soon afterwards received of perpetual advocate of the subjects of the king of Spain, in all causes which they might have in England, enabled him to spend the remainder of his days in comfort. He died at the commencement of the year 1611. The labours of Albericus Gentilis in jurisprudence give him but small claims to our esteem. His views are often erroneous, and the sound doctrines which may be found in his works are buried in a mass of citations without end, from the philoophers, fathers, poets, historians, and jurisconsults. This normous erudition betrayed him into inconsistencies in natters of importance; and hence has Bayle reproached im with having indirectly sanctioned Catholic opinions n some controverted points, although he was otherwise a ealous Protestant. But his treatises on the law of na- ons have rendered his name worthy of a place in the his- ory of jurisprudence. His book *De Jure Belli* contains xcellent views on a science which Aristotle and Cicero ave not even touched on; and if the author has not suf- ciently fathomed his subject, and too frequently decided y the precepts of religion and morality questions which e purely political, he has at least the merit of having fur- shed abundant materials to Grotius, who knew better how use them. An exact list of his works may be found in e *Mémoires* of Niceron (tomes xv. and xx.); but it may sufficient here to indicate the following: 1. Liber Condi- onum, Wittemberg, 1580, 8vo; 2. De Juris Interpreti- s dialogi sex, London, 4to; 3. De injustitia bellica Ro- anorum actio, Oxford, 1590, 8vo; 4. De Jure Belli li- i tres, Hanau, 1598, 8vo; 5. Disputationes duæ, prima actoribus et spectatoribus fabularum non notandis, se- nda de abusu mendacii, Hanau, 1599, 8vo; 6. Ad Joan- em Rainoldum de Ludis Scenicis epistolæ duæ, Middel- rg, 1699, 4to; 7. Disputationes tres, prima de libris ris Canonici, secunda de libris Juris Civilis, tertia de atinitate veteris Bibliorum versionis male accusata, Ha- u, 1604 and 1605, 8vo; 8. De Linguarum mixtura dis- tatio parergica, Hanau, 1604, 8vo. (A.)

GENTILIS, *Scipio*, brother to the preceding, and also a vilian of some note, left his native country that he might enly profess the Protestant religion. He obtained the ofessorship of Roman law at Altorf, through the influence Hugues Doneau, in which situation he soon distinguished mself by his success as a teacher, combining considerable arning with a brilliant imagination, and a ready elocu- on. He died of a dysentery, on the 6th of August 1616, aving several works, amongst which may be mentioned, De Donationibus inter virum et uxorem libri iv. Frank- rt, 1604, in 4to; 2. De Erroribus Testamentorum a estatoribus ipsis commissis, et de dividuis et individuis ligationibus, Strasburg, 1699, in 8vo.

GENTLEMAN. Under this denomination are com- ehended all above the rank of yeomen, and hence noble- en are truly called *gentlemen*.

The word is formed of the French *gentilhomme*, or ra- er of *gentil*, fine, fashionable, becoming, and the Saxon *n, honestus*, or *honesto loco natus*. The same significa- on belongs to the Italian *gentilhuomo*, and the Spanish *hi- lgo*, or *hijo dalgo*, that is, the son of somebody, or a per- n of note. If we go farther back, we shall find *gentleman* iginally derived from the Latin *gentilis homo;* which was ed amongst the Romans to signify a race of noble persons the same name, born of free or ingenuous parents, and ose ancestors had never been slaves or put to death by v. Hence Cicero in his *Topics* says, *Gentiles sunt, qui ter se eodem sunt nomine, ab ingenuis oriundi, quorum jorum nemo servitutem servivit, qui capite non sunt dimi- ti.* Some hold that it was formed from *gentile*, meaning gan; and that the ancient Franks, who conquered Gaul, en converted to Christianity, were called *gentiles* by the tives, as being yet heathens. Others state, that in the cline of the Roman empire, as recorded by Ammianus arcellinus, there were two companies of brave soldiers, the e called *gentiles*, and the other *scutarii;* and that hence derive the names *gentleman* and *esquire*. (See ESQUIRE.) is opinion is confirmed by Pasquire, who supposes the pellation *gentiles* and *ecuyers* to have been transmitted us from the Roman soldiery; especially as it was to the *ntiles* and *scutarii*, the bravest of the soldiery, that the incipal benefices and portions of land were assigned.

Genu-
flexion
||
Geoffroy.

GENTOOS. See HINDUSTAN.

GENUFLEXION (from *genu*, knee, and *flecto*, I bend), the act of bowing or bending the knee, or rather of kneeling down. The Jesuit Rosweyd, in his *Onomasticon*, shows that genufluxion, or kneeling, was a very ancient custom in the church, even under the Old Testament dispensation; and that this practice was observed throughout all the year, excepting on Sundays, and during the time from Easter to Whitsuntide, when kneeling was forbidden by the council of Nice. Others have shown, that the custom of not kneeling on Sunday had obtained from the time of the apostles, as appears from Irenæus and Tertullian; and the Ethiopian church, scrupulously attached to the ancient ceremonies, still retain that of not kneeling at divine service. The Russians esteem it an indecent posture to worship God upon the knees. Baronius is of opinion that genuflexion was not established in the year of Christ 58, founding on that passage in Acts (xx. 36) where St Paul is expressly mentioned as kneeling down at prayer; but Saurin shows that nothing can thence be concluded. The same author also remarks that the primitive Christians carried the practice of genuflexion so far, that some of them had worn cavities in the floor where they prayed; and St Jerome relates of St James, that he had contracted a hardness on his knees equal to that of camels.

GENUS, among metaphysicians and logicians, denotes a number of beings which agree in certain general properties common to them all, so that a genus is nothing else but an abstract idea, expressed by some general name or term.

GENUS, in *Rhetoric*. Authors distinguish the art of rhetoric, as also orations or discourses, into three *genera* or kinds, namely, demonstrative, deliberative, and judicial. To the demonstrative kind belong panegyrics, genethliacons, epithalamiums, and funeral harangues; to the deliberative, persuasions, dissuasions, and commendations; to the judicial, defences and accusations.

GENUS, in *Natural History*, a subdivision of any class or order of natural beings, whether of the animal, vegetable, or mineral kingdoms, which agree in certain common characters.

GENUS, in *Music*, by the ancients called *genus melodiæ*, is a certain manner of dividing and subdividing the principles of melody; that is, the consonant and dissonant intervals, into their concinnous parts. The moderns considering the octave as the most perfect of intervals, and that on which all the concords depend, in the present theory of music the division of that interval is considered as containing the true division of the whole scale. But the ancients went to work somewhat differently. The diatessaron, or fourth, was the least interval which they admitted as concord; and therefore they sought first how that might be most conveniently divided, and then constituted the diapente and diapason. The diatessaron being thus, as it were, the root and foundation of the scale, what they called the *genera*, or kinds, arose from its various divisions; and hence they defined the *genus modulandi* the manner of dividing the tetrachord, and disposing its four sounds as to succession. The genera of music were three; the enharmonic, the chromatic, and the diatonic. The first two were variously subdivided; and even with regard to the last, though it is commonly reckoned not to have any species, different authors have proposed different divisions, but without giving any particular names to the species, as was done in the two others.

GEOCENTRIC, in *Astronomy*, is applied to a planet, or its orbit, to denote that it is concentric with the earth, or has the earth as its centre or the same centre with the earth.

GEOFFROY OF MONMOUTH, Bishop of St Asaph, called by our ancient biographers *Gallofridus Monumentensis*. Leland conjectures that he was educated in a Benedictine convent at Monmouth, where he was born about the beginning of the twelfth century, and that he afterwards became a monk of that order. Bale, and after him Pits, call him archdeacon of Monmouth; and it is generally believed that he was created Bishop of St Asaph in the year 1151 or 1152, under the reign of King Stephen. Some time afterwards he repaired to the court of Henry II. who received him with distinction, and fixed him near his own person by the gift of a rich abbey. The canons of St Asaph having to no purpose urged Geoffroy to return to his diocese, profited by the decision of a synod held at London to make him a last offer either to resume the administration of that part of the church committed to his care, or to consent that a successor should be appointed in his charge. In 1175, Geoffroy divested himself of his bishopric; but he had soon reason to repent this step, since he lost the benefices which had been conferred upon him by Henry II. He is believed to have died about the year 1180. His history, which was probably completed after the year 1138, contains a fabulous account of British kings, from the Trojan Brutus to the reign of Cadwallader in the year 690. But Geoffroy, whatever may be thought of his credulity, was not the inventor of the stories which he relates. His history is a translation from a manuscript written in the British language, and brought to England from Armorica by his friend Gualterus, or Gauthier, archdeacon of Oxford. But the achievements of King Arthur, Merlin's prophecies, speeches, and letters, were chiefly his own addition. Geoffroy takes credit to himself for being the first who wrote the history of the times that preceded the establishment of Christianity in England; but as he admits that in every thing which concerns the kings of Saxon origin, he merely translated into Latin from the work which had been sent him by the archdeacon of Oxford, it does not appear that he has much cause to plume himself on this score, or that he can lay claim to the credit of originality, and at the same time escape the charge of invention. Wharton's excuse, that fabulous histories were then the fashion, and popular traditions a recommendation of a book, may be available to a romancer, but is ridiculous when alleged in behalf of an historian. In as far, however, as he merely translated, he is not to be held responsible for the legends which he published in a Latin version; and although his history as a whole is doubtless a tissue of counterfeit facts and fabulous anecdotes, yet there seems to be no sufficient ground for the reproaches which have been cast upon him by Twin and Wear, who have chosen to brand him as the father of lies. In an age of profound ignorance and boundless credulity, the wildest fictions were greedily swallowed, and the supernatural, the miraculous, or the impossible, easily amalgamated with the unquestioning faith of a superstition founded on the prostration of reason. Belief may be honest, though its object is falsehood. Besides, as Pits and Nicolson have observed, Geoffroy may be relied on, in the account he gives of events which either fell under his own observation, or in regard to which he had it in his power to procure accurate information. He was not an inventor of fables; and those which he retailed he derived from the source already indicated, namely, the Armorican manuscript brought to England by Gualterus. His works are, 1. Origo et gesta Regum et Principum Britanniæ, sive Historia Britonum ab Ænea et Bruto, Paris, Badius, 1517, in 4to, reprinted in the Britannicarum rerum Scriptores, Heidelberg, 1587, in folio; 2. Versio prophetiarum Ambrosii Merlini, Frankfort, 1603, in 4to; 3. Vita Merlini Caledonii; 4. Commentarius in prophetias Merlina utriusque; 5. Epistolæ ad Gualterum Oxoniensem archidiaconum; 6. De Exilio Ecclesiasticorum; 7. An abridgment of the History of Gildas; 8. Latin verses on different subjects. A treatise De corpore et sanguine Christi is also attributed to him; but Fabricius is of opinion that the author of this work is William, abbot of St Thierry at Reims.

GEOFFROY, Stephen Francis, a physician eminent for his chemical and botanical knowledge, was born at Paris on the 13th of February 1672, where his father kept an apothecary's shop, and had been several times in the magistracy. He received a liberal education; and, whilst prosecuting the study of medicine, he had conferences at his father's house with Cassini, Duverney, Homberg, and other men of distinguished eminence. At Montpellier he attended the lectures of the ablest professors of physic, and afterwards visited the south of France, carefully viewing every object deserving of his attention. He accompanied Count de Tallard to England in 1698, where he became acquainted with the leading men of science, and was admitted a member of the Royal Society. He next went into Holland, and in 1700 he accompanied the Abbé de Louvois in a tour to Italy. On his return, he became a licentiate in 1702, and, in two years after, he was created doctor of medicine. One of his theses was *A vermibus hominum ortus interitus?* which was translated into French under this title, *Si l'Homme a commencé par être vers?* for the sake of some ladies of high rank, by whom it was deemed interesting.

Geoffroy did not hastily commence the practice of medicine, continuing the prosecution of his studies in retirement for some years. He appeared nowise anxious to push himself forward, although his knowledge made him often be consulted by several gentlemen of the faculty; and he felt so concerned for the recovery of his patients, that it imparted to him an air of melancholy, which at first alarmed them, till they became acquainted with the cause. In 1709, he was appointed by the king professor of physic to the Royal College, vacant by the death of the celebrated Tournefort, and began with lectures on Materia Medica; but in 1712, Fagon resigned to him the chemical chair, and on both subjects Geoffroy lectured with unwearied assiduity. He was twice chosen as dean by the faculty of Paris, and from the year 1699 he filled a place in the Royal Academy of Sciences. Anxious to discharge his various functions with credit, his health at last sunk under fatigue, and he died upon the 5th of January 1731. He is known to the chemical world by his table of affinities, which is far superior to any that had appeared before his time. His greatest work was his *History of the Materia Medica*, which was published in an unfinished state, after his death, Paris, 1741, in 3 vols. 8vo. This learned and laborious author enriched the *Mémoires* of the Academy of Sciences with different articles, the principal of which were, 1. Table des Différents Rapports observés en Chimie entre différents Substances, and Eclaircissements sur cette Table, 1718 and 1720; 2. Observations sur le Vitriol et sur le Fer, 1713; 3. Sur les Dissolutions et sur les Fermentations que l'on peut appeler froides, parce qu'elles sont accompagnées du refroidissement des Liqueurs dans lesquelles elles se passent, 1700; 4. Examen des eaux de Vichy et de Bourbon l'Archambault, 1702; 5. Détail de la manière dont se fait l'Alun de roche en Italie et en Angleterre, 1702.

GEOGRAPHY.

INTRODUCTION.

The term Geography, derived from two Greek words, α, *the earth*, and γραφω, *I write*, signifies *a description of the earth.* The description to which this title is applied may be more or less general; either embracing such truths only as belong to the earth considered as one whole, or extending to particulars which belong to and distinguish the several countries spread over its surface. In whichsoever of these two aspects the subject be regarded, a vast field opens to the view of the observer. In order to give a full and accurate description of the earth, it would be requisite to consider it in reference to its motion, figure, and magnitude; in reference to its relation to the other bodies of the universe, and more especially to the planetary system of which it forms a part; in reference to its surface, as diversified by land and sea, mountains and valleys, lakes and rivers; in reference to the materials which compose its crust, and to its internal structure; in reference to the constitution of the atmosphere with which it is surrounded, and the effects arising from the variations in atmospherical pressure, temperature, and humidity. Nor would it be enough to consider the earth only as a mass of inert and unorganized matter; it would be necessary to regard it in its relations to vegetable and animal life; and to trace the phenomena which these, in their endless variety, present in its various divisions and provinces. It would still further be necessary to view it as the abode of man himself, and as modified by his existence; divided into states and kingdoms; adorned with cities, and all the noble monuments of civilized life.

Such is an outline of the picture which geography, in its most unlimited meaning of the term, should exhibit of the globe. To fill up this picture in all its parts, it would evidently be necessary to call in the aid of the whole circle of the sciences. But the description is usually of a less extended character, being confined chiefly to the more obvious and striking features of the various regions and countries of the earth.

In the wide range which the subject presents, several divisions and subdivisions are suggested by the different views in which the earth may be considered. The three following divisions are the most important:

1. *Mathematical Geography*, which illustrates, on astronomical principles, the figure, magnitude, and motion of the earth; teaches how to determine the positions of places on its surface; explains the construction of globes, with their application to the solution of problems; and shows how the whole or any portion of the earth's surface may, on the principles of projection, be delineated on a map or chart.

2. *Physical Geography*, which treats of the mutual relations of the diversified objects found on the surface of the earth, including the atmosphere by which it is surrounded; and explains the causes, whether of a chemical or mechanical description, that produce the modifications and changes which they continually undergo.

3. *Political* or *Historical Geography*, which describes the earth as divided into countries, occupied by various nations, and improved by human art and industry. It traces the circumstances and character of the different races and tribes of mankind, explaining their social institutions, and ascertaining the place which each occupies in the scale of civilization.

From this general arrangement of the subject, it is evident that geography depends for its rank as a science on its intimate connection with various branches of knowledge, which, taking their rise from investigations instituted in reference to the nature and mutual relations of the objects on the earth, or connected with it, furnish those accurate views which must be obtained before any thing like a precise description can be given of the globe we inhabit, or of any portion of it. With regard to what belongs to Physical Geography, we must refer the reader to the articles Physical Geography, Mineralogy, Meteorology, &c. in this work. What belongs to Political or Historical Geography will be found under the names of the respective countries. The following article will be limited to a view of the progress of Geographical Discovery, and to a brief explanation of the principles of Mathematical Geography.

I.—VIEW OF THE PROGRESS OF GEOGRAPHICAL DISCOVERY.

There are many circumstances in the condition of man which connect him so closely with the globe which he inhabits, as to render absolutely necessary to his existence a knowledge of at least the neighbourhood of the spot where his lot is cast. It is from the earth that he must derive the means of subsistence and accommodation, the materials on which his industry is to be exerted, and those objects in the exchange of which commerce consists. In every stage of his progress, therefore, from barbarism to civilization, he must employ some attention and observation, in order to discover in what respects the objects with which he is surrounded are qualified to contribute to the supply of his wants, and to his comfort and convenience. Even while he roams the forest in the savage state, he must make himself acquainted with many circumstances, a knowledge of which is necessary either to give him success in the chase, or to direct him in retracing his steps to the place where he has fixed his dwelling. But it is not until men have united in society, and that neighbouring communities have begun to hold mutual intercourse, that those feelings and passions are effectually aroused which stimulate to the arduous pursuits of geographical discovery. Commerce and war, with the spirit of adventure which usually accompany them, have without doubt been among the first causes of geographical research. In the train of these have followed the workings of avarice and the aims of ambition. As the human mind has advanced in its career of improvement, curiosity, with an enlargement of views and desires, have been called into action; and voyages have been undertaken for the express purpose of discovering new countries and exploring unknown seas.

In tracing the effects which these causes have produced in the gradual increase of geographical knowledge, it will contribute to distinctness to keep in view a threefold division, which the subject naturally assumes, namely, *ancient* geography, extending from the earliest period of history down to the time when, the Roman empire having been overrun by barbarous nations from several quarters, Europe was overwhelmed in the darkness which preceded the revival of learning; the geography *of the middle ages*, extending from the revival of letters to the fifteenth century, when the discoveries of the Portuguese began to lay a wider foundation for the science; and *modern* geography, which embraces the most recent discoveries, and is progressively improving by the accessions which it is receiving from the labours and science of modern travellers and navigators.

The Phœnicians are the earliest commercial people of whose discoveries we have any correct accounts. This people seem first to have explored the coasts of the Mediterranean. Their navigators at length extending their voyages through the Straits of Gades, now called the Straits of Gibraltar, entered the Atlantic Ocean, and visited the western coasts of Spain and Africa. In many places to which they resorted they planted colonies; and sought, by instructing the inhabitants, in some measure, in their arts and improvements, to open a wider sphere for their commerce. The learned Bochart, led by the analogy between the Phœnician tongue and the oriental languages, has endeavoured to follow the tracks of the Phœnicians, both along the shores of the Mediterranean and those of the Atlantic. These analogies are not always sure guides; but there seems no reason to doubt that Cadiz was originally a Phœnician colony, and it is not likely that this was the only one formed by that enterprising people.

The Arabian Gulf, or Red Sea, offered to the Phœnicians another field of naval and commercial exertion, to the improvement of which the distance of Tyre, the emporium of their trade, was the only obstacle. This induced them to make themselves masters of Rhinocrura or Rhinocolura, the port in the Mediterranean nearest to the Red Sea. Commodities purchased in Arabia, Ethiopia, and India were landed at Elah, the safest harbour in the Red Sea towards the north; thence they were conveyed over land to Rhinocolura; and being there reshipped, they were carried to Tyre, whence they were distributed over the world.

The wealth and power which accrued to the Phœnicians from their being in the sole possession of the lucrative trade of the East, incited the Jews, their neighbours, under the prosperous reigns of David and Solomon, to desire a participation in its advantages. Their conquest of Idumea, which stretches along the Red Sea, put it in the power of Solomon to fit out a fleet; while his alliance with Hiram, king of Tyre, enabled him to command the skill of the Phœnicians for the conducting of the voyage. Passing through the Straits of Babelmandel, they carried on commerce in the Indian Ocean; and so distant were the countries to which they traded, that the voyage occupied no less than three years. But though the Jews thus for a time engaged in the pursuits of trade, yet the tendency of their institutions, which were expressly designed to preserve them a separate people, was unfavourable to the development of the commercial spirit which their monarchs wished to foster among them. This, joined with the division of the kingdom on the death of Solomon, proved fatal to their rising greatness as a commercial people, and excluded them from ranking among the nations who have contributed to the advancement of geographical knowledge. It is perhaps impossible to fix with certainty the limits which bounded the geographical researches of the Phœnicians, on account of the difficulty there is of assigning the precise places marked out by the names then given to the countries to which they traded. The length of time occupied in the voyage, and the nature of the cargoes brought home, with a few other circumstances of the same vague kind, are the only particulars afforded to direct us in the determination. Thus the country of Ophir, to which the Phœnicians navigated the ships of Solomon, must be ascertained by the facts that the voyage thither and homeward occupied three years, and that the cargo consisted of "gold and silver, ivory, and apes, and peacocks." Among the various opinions which have been entertained respecting the position of this distant country, the most probable appears to be that it was situated on the eastern coast of Africa, as far south as Sofala. To this quarter every indication seems clearly to point; and whatever objections may appear to stand in the way, in consideration of the remoteness of the region, and the difficulties to be encountered, these admit of being answered by a reference to the length of time required for the voyage, and to the wealth, naval skill, and ample resources, at the command of the monarchs engaged in the traffic.[1]

The Carthaginians, a Phœnician colony, retained in full vigour the commercial spirit of the parent state. They did not, however, attempt to divide with Tyre the wealth and power which she derived from the monopoly of the trade carried on in the Arabian Gulf. They directed their efforts to the opposite quarter, and sailing through the Straits of Gades, pushed their researches far beyond the bounds which had been reached by the mother country in this part of the globe. They visited not only all the coast of Spain, but likewise that of Gaul, and penetrated at length as far as the south-western coast of Britain, where they obtained tin from the mines of Cornwall or in traffic with the natives. Nor was it only towards the northward that they directed their efforts; they explored also the regions southward of the straits, and sailing along the western coast of Africa almost as far as the northern tropic, they planted colonies, as the Phœnicians of Tyre had formerly done, with a view to prepare the natives for carrying on commercial intercourse. The Atlantic Ocean was destined to conceal for ages from the inhabitants of the old world the immense regions which lie beyond it. But the Carthaginians extended the boundary of navigation westward by the discovery of the Fortunate Islands, now known by the name of the Canaries.

The enlargement of views gradually generated by this spirit of commercial enterprise led at length to voyages of which discovery was the special object. The circumnavigation of Africa was one of the earliest attempts of this nd made by the ancients. The direction which the coast kes beyond the Mediterranean on the one hand, and the ed Sea on the other, suggested the idea of a peninsula hich it might be possible to sail round. This voyage was st undertaken by the Egyptians; a people exceedingly erse to engage in naval affairs, but who at this time were led over by Necho, a monarch whose active spirit prompt- him to engage some Phœnicians to descend the Arabian lf, and, coasting along Africa, to endeavour to return by Straits of Gades. Herodotus narrates in a few words result of this enterprise, which was undertaken about hundred and four years before the Christian era. He ys, "the Phœnicians, setting sail from the Red Sea, made ir way into the southern sea; and when autumn approached they drew their vessels to land, sowed a crop, d waited till it was grown; when they reaped it, and ain put to sea. Having spent two years in this manner, the third year they reached the pillars of Hercules, and urned to Egypt, reporting what does not find belief with , but may perhaps with some other person; for they d that in passing Africa they had the sun on their right nd. In this manner Lybia was first known."

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[1] The regions always spoken of in Scripture as the most remote with which the Hebrews and Phœnicians were acquainted are, Tarshish, Ophir, the Isles, Sheba, and Dedan, the River, Gog, Magog, and the North. Without entering into any discussion, we may give what appear to be the most probable conclusions with regard to the positions of the countries to which these names were applied. Tarshish is a country from which two voyages are spoken of in Scripture as being made; one by the Mediterranean, bringing iron, silver, lead, and tin, the produce of Spain and Britain; the other by the Red Sea, bringing gold, ivory, and other productions of tropical Africa. These two voyages, though at first sight they appear incongruous if supposed to be made to the same country, may be reconciled by supposing that Tarshish is fundamentally Carthage, which monopolized almost entirely the commerce of Spain and Britain, and was the medium through which the commodities of the west were distributed; and that the name of this great African metropolis was extended to the whole of the continent of Africa. The Isles are the whole southern coasts of Europe, consisting either of real islands or peninsular tracts. Sheba is the southern portion of that part of the coast of Arabia which borders on the Red Sea; while Dedan lies upon the opposite coast, that borders on the Persian Gulf. These countries rose to commercial importance in consequence of the valuable commodities which were imported into the former from the African coast, and into the latter from India. Thence arose the traffic carried on by "the companies of Sheba," or caravans, and by "the travelling companies of Dedanim." The River was the name always applied to the Euphrates. Gog, Magog, and the North, appear to be the high tableland in the interior and north of Asia Minor, Phrygia, Galatia, Cappadocia, and Paphlagonia, regions in which may be recognised the peculiarly rude and formidable aspect which belonged to the countries to which in ancient times the names in question were applied. (See *Encyclopædia of Geography*, by H. Murray, Esq.)

This passage has given rise to much controversy among learned. But the voyage here so briefly described es not seem to involve any impossibility, notwithstanding then infant state of navigation; and the circumstance ich the historian objects to as incredible is the very point ich, from its coincidence with what we know should have pened, renders the story more worthy of belief.

Xerxes king of Persia, according to Herodotus, gave a ilar commission, about four hundred and eighty years ore the Christian era, to one of his satraps, named Sapes, who, for a heinous offence, had been condemned to . If successful in the accomplishment of this voyage, taspes was to escape a cruel death; but the difficulties re too great to be surmounted by a navigator brought amidst the luxury and indulgence of the Persian court. ving procured from Egypt a vessel and crew, he passed ough the Straits of Gades, entered the Atlantic Ocean, l, bending his course towards the south, coasted the conent of Africa, until, after several months, he probably ched the coast of Sahara. The frightful and desolate ores along which he sailed, and the tempestuous ocean ich beat against them, combined to fill his mind with rm, and to shake his resolution. He retraced his course the straits; and hoping perhaps that the labours he had lergone in the partial accomplishment of the task imed on him would be accepted by his royal master as a ficient atonement for his offence, or that the offence itself ght in a great measure be forgotten, he returned home presented himself before Xerxes. The cause which he igned for the failure of the ultimate object of his misn was, that he had encountered a sea so full of herbage t his passage was completely obstructed. This reason e grounds of which have never been satisfactorily exined, though it *has* been alleged that obstacles of this cription occur in that part of the sea which lies between Cape Verd Islands, the Canaries, and the coast of Afriappeared so ridiculous to Xerxes, that he ordered the tence of death by crucifixion, which had been pronoun- upon Sataspes, to be immediately executed.

But the most celebrated voyage of antiquity undertaken the purpose of discovery was the expedition under Han- fitted out by the authority of the senate of Carthage, and the public expense, and that with the view of attempting omplete survey of the western coast of Africa. Of all voyages performed by the Phœnicians and Carthagins, this is the only one of which we have an authentic rative. Mercantile jealousy prevented these two great nmercial states from communicating to other nations the owledge which they acquired of the remote regions of the earth; and from this cause, when the maritime power of the former was annihilated by Alexander's conquest of Tyre, and the empire of the latter was overthrown by the Roman arms, all monuments of their great skill in naval affairs appear in a great measure to have perished. Even the account of the voyage of Hanno (*Periplus Hannonis*) has been considered by its learned editor Mr Dodwell as a spurious work. But the arguments of M. de Montesquieu and of M. de Bougainville appear fully to establish its authenticity, which the learned world now generally admit.

Hanno set sail with a fleet of sixty vessels, so constructed that, according to the mode of ancient navigation, he could keep close in with the coast. We are told that, in twelve days after leaving the Straits of Gades, he reached the island of Cerne; that proceeding thence, and following the direction of the coast, he arrived, in seventeen days, at a bay, which he called *The West Horn.* From this he advanced to another bay, which he named *The South Horn.* The objects which are described as having been seen by Hanno in his progress belong to tropical Africa. But in attempting to ascertain the places which he visited, or the utmost distance which he sailed southward, much difficulty and uncertainty are experienced. Bougainville supposes Hanno to have reached the Gulf of Benin, and contends that this limit, distant as it is, cannot be regarded as beyond what may be conceived to have been accomplished by the most skilful navigator of antiquity. Major Rennell shortens the distance considerably by conceiving the voyage to have been extended no further southward than Sherbro Sound, a little beyond Sierra Leone. He thus obtains the advantage of avoiding a difficulty involved in the hypothesis of M. de Bougainville; namely, the supposition of ancient ships having sailed upwards of seventy geographical miles in a day. At the same time, the arguments which support the one hypothesis are equally applicable to the other.

According to the views of M. Gosselin, however, the voyage must be confined to much narrower limits southward than even those assigned by Major Rennell. He supposes it to have terminated about the river Nun; an opinion which he supports by alleging that, in such a voyage, the progress must necessarily have been slow. The Carthaginian navigator had to encounter all the obstacles and dangers incident to a course held along a shore, and in a sea, which were equally unknown. He must have found himself impeded by the requisite examination of every part of the coast, as well as by the many precautions which the safety of the fleet under his command must have rendered constantly necessary. With regard to the circumstances given in the narrative which appear to point to tropical Africa, M. Gosselin supposes that the same aspect of life and nature may, at that distant period, have belonged to Morocco, then thinly peopled by the rude native tribes, which is now specially characteristic of more southern regions.

Amidst such diversity of opinion among the learned, it is not easy to decide in reference to a subject beset with so many difficulties. If we assume either of the more remote distances assigned for the termination of the voyage, Cerne must be identified with the isle of Arguin; and, on Major Rennell's hypothesis, the Gulfs of Bissago and Sherbro present those numerous islands described by Hanno, to which there are no islands corresponding on any other part of the coast. On the whole, however, the most limited distance seems preferable, if we admit that part of M. Gosselin's hypothesis which assigns to Morocco features of man and of nature that are usually held to be characteristic of tropical Africa.

The circumnavigation of Africa was an enterprise which in ancient times not only called forth the naval efforts of the most powerful maritime states, but which also awakened the ambition of private adventurers. Eudoxus, a native of Cyzicus, being sent on a mission to Alexandria, at that time the seat of naval enterprise and geographical knowledge, his ardent mind, naturally biassed to these pursuits, was aroused to action by the spirit which prevailed in that city. He began his career under the auspices of Ptolemy Euergetes, the reigning Egyptian monarch, who fitted out a fleet, and placed it under his command. According to the destination assigned him, Eudoxus descended the Arabian Gulf, and proceeded probably as far as the southern shore of Arabia. Thence he appears to have returned, after a prosperous voyage, with a valuable cargo of aromatics and precious stones. But of this wealth he appears to have been deprived by Euergetes. After the death of this monarch, which in a short time took place, his widow Cleopatra sent Eudoxus on another voyage, in the course of which he was driven by unfavourable winds on the coast of Ethiopia, where he was kindly received by the inhabitants, and carried on with them an advantageous traffic. After other vicissitudes of fortune, he was induced by circumstances which occurred in his adventurous life to leave the court of Egypt, and repair to the commercial city of Cadiz, in Spain, and there to fit out an expedition for the purpose of African discovery. At Massilia (Marseilles), and other maritime places through which he passed on his way to Cadiz, he took care to make known his views and hopes of success, and to invite all who were actuated by any spirit of enterprise to accompany him. He succeeded in fitting out a ship and two large boats; on board of which he carried not only goods and provisions, but artisans, medical men, and even players on musical instruments. This was no doubt proceeding on a magnificent scale. But his crew was ill calculated to second his bold undertaking. To avoid the danger of stranding, Eudoxus was anxious to keep the open sea. His companions, however, alarmed at the swell, forced him to adopt the usual mode then followed of sailing along the shore; a measure which led to the disaster which he had anticipated. With one vessel of a lighter construction, on board of which was put the more valuable part of the cargo, Eudoxus pursued his voyage until he reached a part of the coast inhabited by a race of people that appeared to him to speak the same language with those whom he had found on the opposite side of the continent. Judging from this circumstance that he had ascertained the main object of his voyage, he returned and endeavoured to obtain the assistance of Bocchus, king of Mauritania. Suspecting, however, treachery on the part of that monarch, he again had recourse to Spain. Here he was again successful in equipping another expedition, consisting of one large vessel fitted for the open sea, and another of smaller size for the examination of the coast. This was a judicious preparation for the accomplishment of the object in view; but with regard to the issue of the voyage no accounts of any authority have been preserved.

Such are the leading circumstances connected with the voyages of Eudoxus, which are narrated by Strabo; and, notwithstanding the scepticism and severe criticisms of that geographer, there is really nothing to which the candid reader can reasonably refuse his belief. Prejudices, founded, for the most part, on his own want of information, led Strabo to treat likewise as fabulous the relation of the only ancient voyage having Europe, and more particularly the British isles, for its object, of which we have any detailed account.

Pytheas, a Massilian navigator, undertook an expedition about three hundred and twenty years before the Christian era. He steered northward; and after examining the coasts of Spain and Gaul, he sailed round the island of Albion; and, stretching still farther to the north, he discovered an island, the *Ultima Thule* of the ancients. What island this was the learned are not agreed. It has been supposed to be the modern Iceland; but this implies too great an extent of open sea for an ancient navigator to traverse; and besides, six days, the period during which he is said to have navigated to the northward of Albion before he made his discovery, are too short a time to admit of his reaching Iceland. Others, amongst whom is Malte-Brun, have considered Jutland as Ultima Thule. But it should be kept in view that Pytheas uniformly regarded Thule as British, a character which he could scarcely conceive to belong to Jutland, seeing he could have reached that peninsula only by a long course along the coasts of Germany, which must have impressed on his mind the idea that he had left far behind him every thing belonging to Britain. On the whole, Shetland seems best entitled to be considered as the ancient Thule, and suits well with the appellation which Pytheas gives it, when he expressly calls it the "furthest of the Britains."

Strabo endeavours to throw discredit on the statements of Pytheas, by starting objections long known to be of the most groundless description; and it is an advantage which the traveller and navigator possess who describe faithfully the grand features of nature, that, however prejudice may dim their reputation for a time, yet will their accuracy as well as veracity at length, in the progress of knowledge, appear, and secure for them the respect and applause of mankind. At the same time, it must be admitted that, in describing what he saw beyond his Ultima Thule, the statement given by Pytheas, as reported by Strabo, assumes a somewhat fabulous character. He asserted, it seems, that beyond Thule there commenced what was neither earth, sea, nor air, but a confused blending of all the three. But even here some allowance is to be made for the workings of imagination under very peculiar circumstances, and a readiness, not unnatural, to believe reports which represented him to have reached the extremity of the habitable globe. If his language is not too literally interpreted, it will be found to convey a strongly figurative, but not altogether imperfect, description of the state of the sea and sky in these climes, which have been so little favoured by nature.

The conquests of Alexander the Great, by making known the East, enlarged the bounds of geographical knowledge. Though the course of his expedition was for the most part by land, his mind was equally intent on commerce and maritime discovery. Checked as he had so long been in the career of his victories by the opposition and efforts of the republic of Tyre, he had an opportunity afforded him of observing the vast resources of a maritime power, and at the same time of forming a judgment respecting the immense wealth to be derived from commerce, especially from that carried on with India, which he found to be wholly in the hands of the Tyrians. With a view to secure this commerce, as soon as he had completed the conquest of Egypt, he founded the city of Alexandria, and thus established for it a station preferable in many respects to Tyre. After his final victory over the Persians, his march in pursuit of Bessus, who had carried off Darius into Bactriana, often led him near to India, and among people accustomed to much intercourse with it, from whom he learned many things concerning the state of the country, that served so to confirm and inflame a desire which he had long cherished of extending his dominion over those regions, that he was induced to conduct his army from Bactria, for the purpose of invasion, across that ridge of mountains which form the northern barrier of India. After passing the Indus, Alexander directed his march to the Ganges, which, from the accounts he heard of it, and of the countries through which it flows, he was eager to reach. The route which he found it necessary to follow, in consequence of being successively engaged in hostilities with various native princes, led him through one of the richest and best peopled countries in India, now called Punjab. In his ultimate object, however, he failed.

His march being performed during the rainy season, his troops had already suffered so much, that notwithstanding the high degree in which he possessed all those qualities that secure an ascendency over the minds of soldiers, he was unable to persuade them to advance beyond the banks of the Hyphasis, the modern Beyah, which was accordingly the utmost limit of Alexander's progress in India.

By this expedition, Alexander first opened the knowledge of India to the people of Europe; and as he was accompanied, wherever he went, by skilful surveyors, Diognetes and Baeton, who measured the length and determined the direction of every route taken by the army, he furnished a survey of an extensive district of it, more accurate than could have been expected from the short time he remained in that country. The memoirs drawn up by his officers likewise afforded to Europeans their first authentic information respecting the climate, the soil, the productions, and the inhabitants of India.

Though Alexander did not penetrate to the Ganges, his expedition prepared the way to the knowledge of that magnificent stream. For soon after, Seleucus, one of his successors, sent Megasthenes as his ambassador to Palibothra, the capital of a powerful nation on the banks of the Ganges. The site of Palibothra was probably the same as that of the modern city of Allahabad, at the junction of the river Jumna with the Ganges. This embassy brought new and opulent provinces of India into view, an acquaintance with which served to raise still higher the idea generally entertained of the value and importance of the country.

The island *Taprobane*, so celebrated among the ancients, which appears, notwithstanding some great mistakes with respect both to extent and position, to be the modern Ceylon, seems not to have been known in Europe even by name before the age of Alexander. In consequence, however, of the enlightened and active curiosity with which he explored every country which he subdued or visited, some knowledge of it was at length obtained; and, after his time, it is mentioned by almost every ancient geographer.

Whilst Alexander was attempting to penetrate into India, a numerous fleet was assembled by officers whom he had left on the banks of the Hydaspes, the modern Behat or Chelum, with orders to build and collect as many ships as they could. The destination of this fleet was to sail down the Indus to the ocean, and from its mouth to proceed to the Persian Gulf, with a view of opening a communication between India and the centre of his dominions. When Alexander reached the banks of the Hydaspes on his return, he committed the conduct of this expedition to Nearchus. The voyage down the Indus derived splendour from the greatness and magnificence of the armament, which consisted of an army of a hundred and twenty thousand men, and two hundred elephants, and of a fleet of nearly two thousand vessels. Alexander himself accompanied Nearchus in his navigation down the river, with one third of the troops on board; whilst the remainder, in two divisions, one on the right and the other on the left of the river, accompanied them in their progress. Having reached the ocean after the lapse of nine months, Alexander left Nearchus and his crew to pursue their voyage, and conducted his army back by land to Persia. A coasting voyage of seven months brought Nearchus, with the fleet, in safety, up the Persian Gulf into the Euphrates. It was at the mouth of the Indus that the Greeks witnessed for the first time, and that with astonishment and terror, the ebb and flow of the sea; a phenomenon scarcely perceptible in the Mediterranean, to which their navigation had formerly been confined. In the progress of the voyage they were also struck with surprise on observing phenomena belonging to the midsummer of the tropics. At noon objects were observed to project no shadows, or to project small shadows declining to the south. Their attention was still further attracted by the new appearance of the sky. Stars which they had been accustomed to see high in the heavens were now seen near the horizon. Some stars to the north disappeared, while other stars formerly invisible were seen in the south.

The opening of a communication between the Red Sea and the Persian Gulf was with Alexander another great object of ambition. But though with this view he seems to have sent expeditions down both seas, he failed in his attempts to accomplish this project.

Among the Romans, navigation and commerce, the handmaids of geographical science, were never made objects of pursuit, except in so far as they were found to be necessary to forward their schemes of universal dominion. Their conquests opened indeed the west, as those of Alexander had made known the east; and it might be truly said of that great people, that as they were the conquerors, so they were the surveyors of the world. Every new war produced a new survey and itinerary of the countries which were the scenes of action; so that the materials of geography were accumulated by every additional conquest. Some fragments of the itineraries thus composed still remain. The most memorable is that which bears the name of Antoninus, and which may be described as a mere skeleton road-book, exhibiting nothing more than the names of places, and their distances from each other. The Jerusalem Itinerary, which details minutely the route from Bordeaux to that holy city, is of the same description.

A more remarkable monument, however, is the *Peutingerian Table*, which forms a map of the world, constructed on the most singular principles. The map is twenty feet long and only one foot broad, so that we can easily conceive how incorrectly the proportion of the different parts is exhibited. Along the high road which traverses the Roman empire in the general direction of east and west, objects are minutely and accurately represented; but of those objects which lie to the north and south of it, only some general notion is conveyed. The Peutingerian Table serves as a specimen of what were called *Itinera Picta*, the "painted roads" of the ancients, intended for the clearer direction of the march of their armies.

While the Romans by their surveys contributed much to increase the mass of materials out of which the structure of geographical science was to be reared, they never attempted themselves to combine these materials into one harmonious system. They imbibed in no degree the commercial spirit of the great maritime states of the ancient world, Carthage, Greece, and Egypt, which their valour and discipline obliged to submit to their dominion. But whilst the trade of the conquered countries continued to be carried on through nearly the former channels after they were reduced to the form of Roman provinces, the wealth accumulated in the capital of the world gave rise to a demand for luxuries of every description. This, combined with the comparative peace and security which for a long time prevailed after the complete establishment of the Roman dominion, gave new vigour to commercial enterprise. Alexandria continued the great centre of naval affairs. Obstacles which in the time of Alexander were deemed insurmountable, were completely overcome. Trade with India through Egypt acquired new energy, and was carried on to a greater extent. Continued intercourse with the shores of India at length made known to navigators the periodical winds which prevail in the Indian Ocean; and taking advantage of these, pilots were emboldened to abandon the slow and dangerous course along the coasts, and to make the open sea their highway. Their course was from Ocelis, at the mouth of the Arabian Gulf, to Nelkunda (Nelisuram), on the western shores of the Indian continent (the coast of Malabar), which seems to have been the utmost limit of the ancient navigation in that quarter of the globe. The extensive regions which stretch beyond this to the east were very imperfectly known by the reports obtained from a few adventurers who visited them by land.

If we now bring into one view the amount of information possessed by the ancients respecting the habitable globe, we shall find that it was extremely limited. It was at those places on the earth where the human mind displayed greatest activity and enterprise that this knowledge was naturally accumulated. Proceeding from these stations, the boundary which separated the known from the unknown part of the world was gradually enlarged; but the regions comprehended within it constituted still but a small portion of the whole. In Europe the extensive provinces in the eastern part of Germany were but little known, while the whole of that vast territory which now forms the countries of Denmark, Sweden, Prussia, Poland, and Russia, was buried in the deepest obscurity. The inhospitable and dreary climes within the arctic circle were yet unexplored. In Africa little was known beyond the countries stretching along the Mediterranean Sea, and those bordering on the western shore of the Arabian Gulf. In Asia the rich and fertile countries beyond the Ganges, whence the commerce of modern times has drawn the most valuable commodities for the comfort and embellishment of civilized society, were known, if known at all, only by the most vague and uncertain reports. The immense regions on the north occupied by the wandering tribes called in ancient times by the general names of Sarmatians or Scythians, and which are now inhabited by various tribes of Tartars, and by the Asiatic subjects of Russia, seem never to have been penetrated. Add to this, that the fertile and populous regions within the torrid zone were imagined to be uninhabitable; and we have ample proof that the geography of the ancients was very imperfect.

Having thus far given a succinct view of the progressive steps by which the earth's surface, considered merely as tracts of territory inhabited by men, gradually became known, it will be proper next to trace briefly the advances made towards arranging into a systematic form the materials accumulated. Science required that the relative positions of places, with their distances from each other, should be ascertained in such a manner as to furnish fixed principles on which the whole, or any portion, of the surface of the earth might be represented or delineated with due regard to its figure and dimensions.

The first rude attempt made by the early geographers to determine the position of places appears to have depended on the division of the earth into *climates*, distinguished by the species of animals and plants produced in each. Thus the appearance of the negro, the rhinoceros, and the elephant, suggested to them the line of division where the torrid zone began towards the north, and ended towards the south. But instead of this very vague method, another was soon adopted, which consisted in observing at places the length of the longest and shortest day. This was determined with some accuracy by means of a *gnomon*, a method of observation much used by the ancients. An upright pillar of a known height being erected on a level pavement, by observing the lengths of the meridian shadows, they were enabled to trace the progress of the sun from tropic to tropic. The most ancient observation with the gnomon which we meet with is that of Pytheas, in the days of Alexander the Great. Pytheas observed at the summer solstice at Marseilles, that the length of the meridian shadow was to the height of the gnomon as 213$\frac{1}{8}$ to 600; an observation which makes the meridian altitude of the sun at Marseilles on that day 70° 27′. The merit of the invention of the gnomon in Greece is ascribed to the astronomical school of Miletus, and particularly to Anaximander and Anaximenes. There is reason, however, to believe that this method of observation was originally invented by the Egyptians; and that Thales, who travelled into Egypt, carried thence the knowledge of it into Greece. It has even been conjectured that the Egyptian pyramids and obelisks were intended for the same purpose with the gnomon; and, though it would be extravagant to imagine that this was their sole use, this opinion appears to be countenanced by the fact of their being placed in the direction of the four cardinal points.

The determination of the length of the meridian shadow at the solstices for different parts of the earth, by observations made with the gnomon, is important as being the first step towards connecting geography with astronomy; and, when combined with just conceptions of the globular figure of the earth, leads, by a simple train of thought, to the notion of latitude by which the position of a place is fixed relatively to north and south. The position with regard to east and west is the only other element necessary for fixing the absolute situation of the place on the surface of the earth. It might have been supposed not to be more than a reflecting mind could easily accomplish, to reach the conception of both these elements, and to apply them to use. Yet so slow was the progress towards the apprehension of the principles on which an accurate system of geography might be founded, that from the days of Thales and his immediate successors, who flourished in the sixth century before the Christian era, there appears to have been little done for the improvement of geography, as a science, until the establishment of the famous astronomical school of Alexandria. Pythagoras had indeed maintained the true system of the world, by placing the sun in the centre, and giving the earth both a diurnal and annual revolution; but this doctrine was so much in advance of the age in which he promulgated it, that it was soon lost sight of.

Eratosthenes was the first who reduced geography to a regular system, and laid its foundations on clear and solid principles. Under the patronage of the Ptolemies, he had access to the materials collected by Alexander, his generals and successors, as well as to the immense mass of documents accumulated in the Alexandrian library. At an early period of the history of astronomical science, the vulgar opinion that the earth is a flat surface, with the heavens resting upon it as a canopy, was rejected; but it was not at once that distinct conceptions of its globular figure were acquired. It was only as astronomical observations increased that the doctrine of its sphericity was fully established. This point had been gained when Eratosthenes began his labours; and what he endeavoured to accomplish was to delineate, in strict conformity with this principle, the known parts of the earth's surface.

With this view, founding his system on the use of the gnomon, he supposed a line to be traced through certain places, in all of which the longest day was known to be exactly of the same length. This line would evidently be a parallel to the equator. But though his method was correct in principle, the want of accurate observations rendered it uncertain in practice. The line was supposed to comprise all the leading positions which lay near it, though they did not actually come within its range. Its western extremity was the Sacred Promontory of Iberia (Cape St Vincent); thence it passed through the Straits of Gades. Proceeding eastward, it passed through the Sicilian Sea, and near the southern extremity of the Peloponnesus, and was continued through the island of hodes, and the Bay of Issus; whence entering Cilicia, nd crossing the Euphrates and the Tigris, it was extended to the mountains of India, and terminated at the remote ty of Thinæ, situated on the Eastern Ocean. The pallel thus drawn was understood to pass through all those aces where the longest day was fourteen hours and a half. stretched the whole length of what was supposed to be e habitable world, and measured about 70,000 stadia; distance corresponding, according to the estimate of ratosthenes, to about 140 degrees, which is rather more an one third of the circuit of the globe.

This first parallel drawn through Rhodes was ever afrwards preferred as the basis of ancient maps; inasuch as it was traced through the middle of the Mediranean, along the coasts of which were situated the incipal nations of antiquity. Following out the same ppy thought which he had thus successfully made the oundwork of his system, Eratosthenes was induced not ly to trace other parallels at certain intervals from the st, as one through Alexandria, another through Syene, d a third through Meroe; but also to trace, at right gles to these, a *meridian*, passing through Rhodes and exandria southward to Syene and Meroe. As the progress hich he thus made towards the completion of what he d so skilfully conceived, naturally tended to enlarge s ideas concerning geographical science, he attempted at seemed a still more difficult undertaking, namely, determine the circumference of the globe by the actual asurement of a segment of one of its great circles. e method he pursued has already been pointed out in e article ASTRONOMY, page 730. There is a differce among ancient authors respecting the result obned by Eratosthenes. The great majority, however, te it to be 252,000 stadia, which give exactly 700 sta for a degree of the equator, and 555 stadia for the gree of longitude upon the parallel drawn through odes.

The knowledge of the circumference of the earth is a cessary element in the construction of maps; and hence e most eminent of the ancient astronomical geograers made repeated endeavours to determine it with acracy. Possidonius, by an astronomical observation, demined the arch of the meridian between Rhodes and exandria to be a forty-eighth part of the whole circumence. With regard to the distance between these two ces, 5000 stadia were the reputed distance; but Eratosnes had made it only 3750 stadia upwards of 170 years fore, and betwixt these two Possidonius had to make oice. The former number gives 240,000 stadia for the ole circumference, the latter 180,000 stadia. Of this t result, which gives 500 stadia for a degree of the equa, Possidonius is reported by Strabo to have approved. r want of the knowledge of the true length of the stam, it is now impossible to judge of the actual quantity igned either by Eratosthenes or Possidonius as the meae of the earth's circumference; but the great uncerty about the distance between the points of observa in the case of the determination of the latter astroner renders his conclusion of no value.

Notwithstanding the soundness of the principles which l now been laid down for the delineation of the globe, ch remained to be done, in the way of observation, be an accurate representation of the whole, or a portion the earth's surface, could be given. Both the latitudes l longitudes of the ancients are erroneous; more espelly the latter. This is what might be expected at that ly period. But in setting out from the Sacred Promony of Iberia, the meridian of which the ancients made ir first meridian, the errors in longitude accumulate, as advance eastward, with a regularity, as well as rapidity, ich is very surprising. The regularity of their increase induced M. Gosselin to conclude that they were to be attributed, not to the imperfection of independent observations, but to some general cause, which he endeavoured to assign by imagining that Eratosthenes had access to some early map, found probably by Alexander or his generals in some country in the East, where astronomy had been successfully cultivated; and that misapprehensions respecting the principle of delineation employed, which M. Gosselin supposes to have been that on which the plane chart is constructed, had led him into a regular system of errors. In the plane map the length of a degree of longitude is supposed to be the same at all distances from the equator. By taking for granted that Eratosthenes took his distances from a map of this kind, on which the parts of the globe had been accurately laid down, but that he divided the stadia expressing these distances, not by 700, the number of stadia in a degree at the equator, as he ought to have done, but by 555, the number corresponding to the parallel of Rhodes, M. Gosselin obtains results which have a wonderful coincidence with the positions actually given by Eratosthenes. These results, however, are deduced from a hypothesis which is unsupported by any evidence, except what may be supposed to arise from this coincidence. A more probable solution seems to be that Eratosthenes determined his longitudes from the itinerary measures, which he reduced to degrees at the rate of 700 stadia to a degree at the equator, and of 555 to a degree at the parallel of Rhodes; and that the errors are the consequences of the exaggerated accounts which merchants and travellers of that age gave of the distances over which they passed;—their exaggerations, of course, bearing some proportion to the length and hardships of the journeys undertaken.

The knowledge as yet possessed by geographers with regard to the outline of the habitable globe was far from being such as to enable them to delineate it with any degree of precision. This circumstance, combined with the unavoidable errors in latitude and longitude, produced very great distortions in the representations given of the countries on the surface of the globe. Under the guidance of sound principles of science, however, it was now certain that these imperfections would gradually disappear.

The improvements introduced into geography by Eratosthenes were perfected in principle by Hipparchus. This celebrated astronomer, who flourished between a hundred and sixty and a hundred and thirty-five years before the Christian era, was the first who undertook the arduous task of forming a catalogue of the stars, and fixing their relative positions. His object was to transmit to posterity a knowledge of the state of the heavens at the period of his observations. The extremities of the imaginary axis round which the heavens perform their diurnal revolution suggest two fixed points by which the position of the great circle of the celestial sphere called the equator is determined. If a great circle be supposed to pass through these points and any star, the position of the star will be ascertained if we measure in degrees and parts of a degree the arch of the meridian circle intercepted between the star and the equator, and also the arch of the equator intercepted between a given point in it, and the meridian circle passing through the star. Upon this principle did Hipparchus arrange the stars according to their places in the heavens, a work in which he appears, however, to have been in some measure anticipated by Timocharis and Aristillus, who began to observe about two hundred and ninety-five years before the Christian era. The great improvement which he introduced into geography consisted in this, that he applied to the determining of the position of any point on the surface of the earth the same artifice which he had already so happily introduced in the arrangement of the constellations; and thus furnished the means of ascertaining the relative situations of places with a precision which no itinerary measurements could possibly attain. If we suppose the earth to be a globe concentric with the celestial sphere, and intersected by the planes of the celestial equator and meridian, the principle on which the application of this artifice to the terrestrial sphere depends becomes at once obvious. Hipparchus made a considerable number of observations of latitude, and pointed out how longitudes might be determined by observing the eclipses of the sun and moon. Great as this improvement was, its importance seems not to have been duly estimated until the days of Ptolemy; for none of the intermediate authors, such as Strabo, Vetruvius, and Pliny, have given the least hint of the latitude and longitude of any one place in degrees and minutes, though all of them have given minutely the geographical position of places according to the length and shadows of the gnomon. Strabo, indeed, even justifies his neglect of the astronomical principles introduced by Hipparchus. "A geographer," says he, "is to pay no attention to what is out of the earth; nor will men engaged in conducting the affairs of that part of the earth which is inhabited, deem the distinction and divisions of Hipparchus worthy of notice."

The true principles of geography being pointed out by the application of latitude and longitude to places on the earth, the way was opened for the improvement of maps, which, with the single exception of the map drawn by Eratosthenes, had hitherto been little more than rude outlines and topographical sketches of the different countries.

No maps more ancient than those formed to illustrate Ptolemy's geography have reached modern times; but the earliest of which there is any account are those of Sesostris, of whom it is said, that having traversed great part of the earth, he caused his marches to be recorded in maps; and that he gave copies of these maps not only to the Egyptians, but to the Scythians, whose astonishment he thus greatly excited.

Some have imagined that the Jews made a map of the Holy Land when they gave the different portions to the nine tribes at Shiloh. For on that occasion, as we are informed by the sacred historian, men were sent "to walk through the land, and to describe it:" and when they had accomplished the object of their mission, by describing "it by cities into seven parts, in a book," they returned unto Joshua. What is here said, however, does not fully determine whether their mensuration of the land was only recorded in numbers, or regularly projected and digested into the form of a map.

The first Grecian map on record is that of Anaximander, mentioned by Strabo, which some have conjectured to have been a general map of the then known world. It has further been imagined to be the same with that referred to by Hipparchus under the designation of *The Ancient Map*, and which in some few particulars he preferred to that of Eratosthenes.

But some idea of the nature of the maps of those early days will be best obtained from the map of Aristagoras, king of Miletus, which is minutely described by Herodotus. The historian tells us that this map, which was traced on brass or copper, Aristagoras showed to Cleomenes, king of Sparta, in order to induce him to attack the king of Persia, even in his palace at Susa, for the purpose of restoring the Ionians to their ancient freedom. It contained the intermediate countries to be traversed in that march. We must not interpret, however, the words of Herodotus too literally, when he describes it as containing "the whole circumference of the earth, the whole sea or ocean, and all the rivers." Keeping in view the state of geography at that period, it may justly be concluded, that notwithstanding this pompous form of expression, *the sea* meant only the Mediterranean, and therefore *the earth* or land the coasts of that sea, and more particularly Asia Minor, extended towards the middle of Persia: by *the rivers* must be meant the Halys, the Euphrates, and the Tigris, which Herodotus mentions as necessary to be crossed in the expedition in question. The map contained one straight line, called the *royal highway*, embracing all the stations or places of encampment between Sardis and Susa, so that it was properly an itinerary.

The principle on which Eratosthenes constructed his map we have already considered. With regard to its extent, it seems to have contained little more than the states of Greece, and the dominions of the successors of Alexander, digested from the surveys of the marches of that great general. He had some faint idea respecting the western parts of Europe, which he had acquired from the voyage of Pytheas; but not such a conception as to enable him to delineate their outline on a chart. According to the report of Strabo, he was quite unacquainted with Spain, Gaul, Germany, and Britain, he was equally ignorant of Italy, the coasts of the Adriatic, Pontus, and of all the countries toward the north. His errors with regard to the distances of places were in some instances enormous. The distance of Carthage from Alexandria he represents at 15,000 stadia, instead of 9000.

It was not until Ptolemy commenced his labours that the improvements pointed out by Hipparchus were effectually applied to perfect the system which Eratosthenes had so happily begun. Ptolemy composed his system of geography, which escaped amidst the general wreck which has consumed so many other ancient books of science, in the reign of Antoninus Pius, about 150 years after the opening of the Christian era. At this period the Roman empire had reached its utmost extent, and all the provinces had been surveyed, and were well known. The materials then in existence, and in the possession of Ptolemy for completing his great work, were the proportions of the height of the gnomon and its shadow, at the time of the equinoxes and solstices, taken by different astronomers; calculations founded on the length of the longest days; the measures or computed distances of the principal roads contained in the surveys and itineraries; and the various reports of travellers and navigators, whose determinations of the distances of places often rested, however, on no better foundation than hearsay and conjecture. Among these various particulars, there evidently existed considerable differences in point of authority. But Ptolemy undertook the difficult and laborious task of comparing, and reducing into one system, which should possess the order and beauty of science, this apparently incongruous mass. He converted and translated the whole into a new mathematical language, expressing in degrees and minutes the latitude and longitude of each place, according to the principles laid down by Hipparchus, but which had been allowed by geographers to lie useless for upwards of two hundred and fifty years. It is in Ptolemy's work, which consists of eight books, that we find for the first time the mathematical principles of the construction of maps, both general and particular, as well as of several projections of the sphere.

Notwithstanding that the light of accurate science thus directed the steps of the first geographer of antiquity, he was far from reaching the precision at which he aimed. This arose from the imperfection of the original materials upon which his work is based in reference to its details. With regard to the remoter boundaries of the then known world, in all its quarters, a wonderful advancement in knowledge had been made since the days of Eratosthenes and of Strabo. But still that additional information was not fitted to make up for the want of astronomical observations, by which alone accuracy could be secured. Besides, in relation to places situated beyond the limits of the Roman empire, and therefore out of the range alike of astronomers and surveyors, it was almost impossible for Ptolemy not to commit mistakes. Thus his errors arose from the ignorance of the age; and are of such a character as to admit of being removed only as opportunities are afforded of obtaining the requisite data by the strict application of the principles derived from mathematical and astronomical science.

Ptolemy adopted the measure of a degree at 500 stadia, according to the standard of Possidonius, instead of following the measurement of Eratosthenes, which gives 700 stadia to a degree. But M. Gosselin has accused him of an error of a more serious kind; because, if really committed, it would have indicated a strange neglect of what a geographer should make his first care. This error consists in assuming one measure for the degree of latitude (the measure of Eratosthenes, 700 stadia) and another for the degree of longitude at the equator. Such a hypothesis would evidently be inconsistent with the globular figure of the earth. It may reasonably be doubted, however, whether M. Gosselin's accusation is well founded; for, though it seems supported by the fact, that while Ptolemy has changed materially all the longitudes of Eratosthenes, the latitudes along the great line remain the same, and are in general correct, this circumstance may be accounted for sufficiently from other causes. Rhodes, and several other points of this great line, were fixed with regard to latitude by observations approximating to the truth, while the elements for determining the longitudes were derived entirely from the itineraries. To the north and south of the great central line, which alone was fixed upon sound data, errors in latitude accumulate as rapidly as those in longitude are found to do in proceeding eastward.

One of the most remarkable errors in the geographical work of Ptolemy is the great length assigned to the Mediterranean. Reckoning from the Straits of Gades to the bottom of the Bay of Issus, where Alexandretta, or Sanderoon, now stands, he makes the difference of longitude no less than sixty-two degrees, which is upwards of twenty and a half degrees above the truth. This amazing error, which affected all our maps more or less until the beginning of the last century, was produced in consequence of his having put too much confidence in the supposed surveys of different persons of reputation recorded by Strabo, and who appeared to confirm the accuracy of each other's computation. According to their united testimony, the whole length of the Mediterranean was about 2500 stadia, which, being converted into degrees of longitude according to the method of Ptolemy, of allowing 4 stadia to a degree of longitude on the parallel of Rhodes, give about 66° 15′. This is 4° 15′ more than what are given by Marinus, whom in this particular Ptolemy strictly follows.

Pliny quotes from Agrippa a computation of the length of the Mediterranean, which makes it 3440 Roman miles; but in quoting it he adds a suspicion that there is an error in the numbers. When converted into degrees of longitude, the result of this computation gives 58° 20′. As, however, the length given by Strabo amounted, as we have seen, to 66° 15′, Ptolemy seems to have chosen a middle path between these two erroneous computations, and to have adopted 62° for the difference of longitude in question. But there is another ancient computation quoted also by Pliny from Polybius, according to which the length of the Mediterranean is stated to be 2440 Roman miles. Had Ptolemy followed this estimate, he would have obtained for a result 41° 4′, which is not far from the truth.

Thus we see that the circumstances under which Ptolemy wrote rendered it impossible for him to avoid mistakes, and that he might be misled even when more accurate results were within his reach.

The great obstacle with which the ancients had to contend was the finding of the longitude with accuracy, a problem for the solution of which it was long before there was discovered any method sufficiently exact. This accounts for the erroneous longitudes of Ptolemy, and more especially for the length of time, even many centuries, during which the remarkable error with regard to the length of the Mediterranean remained undiscovered and uncorrected.

We have now traced the history of geography from the earliest period of which we have any information, to the time when it assumes a scientific character. We shall conclude our account of ancient geography by shortly noticing the principal geographers of antiquity, some of whom have not yet been mentioned, while others have only been quoted in tracing the rise and progress of the science.

The intimate connection between geography and the sciences of geometry and astronomy, rendered the former an object of attention to many who anciently cultivated the latter. We have already mentioned Anaximander and Anaximenes, of the school of Miletus. Democritus, Eudoxus of Cnidus, and Parmenides, are also reported to have improved geography; and to the last is attributed the division of the earth into zones. These were followed by Eratosthenes, who lived about two hundred and forty years before the Christian era; by Hipparchus about eighty years afterwards; by Polybius, Geminus, and Possidonius. Eratosthenes wrote three books on geography, some passages of which Strabo criticises, though he frequently defends him against Hipparchus, who appears to oppose his opinions with some degree of affectation. Polybius also wrote on geography; as did likewise Geminus and Possidonius, who are frequently quoted by Strabo. Polybius, according to Geminus, argued with considerable acuteness for the possibility of the torrid zone being inhabited; and he even adduced plausible arguments to prove that the countries under the equator enjoy a more temperate climate than the countries do that are situated near the tropics.

We must not here omit a geographer and geometer who lived about the time of Alexander the Great. This was Dicearchus of Messina, a disciple of Theophrastus, who wrote a description of Greece in iambic verses, of which some fragments yet remain. But what chiefly renders him remarkable is, that he measured geometrically several mountains, to which an excessive height had been before assigned.

With Dicearchus we may notice another geometer, Xenagoras, a disciple of Aristotle, mentioned by Plutarch in his life of Paulus Æmilius, who occupied himself in the measurement of mountains. He found the height of Mount Olympus to be fifteen stadia.

In some of the latter periods which preceded the Christian era there were several writers on geography, as Artemidorus of Ephesus, who wrote a geographical work of eleven books, of which nothing remains; Scymnus of Chio, author of a description of the earth in iambic verses, which remain in a very mutilated state; Isidorus of Charax, who gave a description of the Parthian empire; and Scylax of Caryades, author of a voyage round the Mediterranean, which is still extant.

The works of all these geographers are, however, but small in comparison with the Geography of Strabo; a work in seventeen books, which has come down to us entire. This is one of the most valuable works of antiquity, both from the spirit of discussion which runs through it, and the number of curious particulars which the author has collected from different geographers and navigators who preceded him, and of whose works nothing remains except these extracts. Strabo lived in the reigns of Augustus and Tiberius, and was nearly contemporary with Pomponius Mela. This latter geographer wrote a work *De Situ*

Orbis, which, though little more than a bare summary, is valuable as it gives us a sketch of what was known in his time respecting the state of the habitable globe. Besides Mela, Rome produced in the most flourishing era of its literature another eminent geographer, Pliny. He devoted two books of his extensive work on natural history to a system of geography. His intimate connection with the imperial family, and with many of the most eminent commanders of the time, appears to have given him access to all the military measurements, as well as to the general survey of the Roman empire. Thus furnished with a greater store of authentic materials than any former writer, he has introduced a great number of itinerary details, which are for the most part accurate and valuable. Julius Solenus has also treated of geography in his *Polyhistor*, a compilation sufficiently valuable from the number of curious particulars which are there collected. Marinus of Tyre was another geographer who appears to have been distinguished, though his works have perished. Even under the Roman empire Tyre continued to be the seat of an extensive commerce; indeed the commercial relations of her citizens appear to have extended over a wider portion of the earth's surface than ever. The enlarged materials furnished by the lengthened journeys of his countrymen, which brought them even to the confines of China, Marinus collected, and sought to apply to them the astronomical principles of Hipparchus, so that he might give to geography a new and more accurate form. Ptolemy, whom Marinus preceded by a short time, employs a great part of his first book in discussing the means employed by the Tyrian geographer for fixing the relative position of places; and from the references and extracts it appears that the system of Marinus partook largely of the imperfections of a first effort.

The enlarged and scientific views of Ptolemy we have already considered. Some time after Ptolemy lived Dionysius, commonly called the *Periegetic*, from the title of a work in verse composed by him, namely, his *Periegesis*, or Survey of the World. This work was translated into Latin verse by Priscianus, and afterwards by Avienus. There is, besides, a description by Avienus, of the maritime coasts, in iambic verses, of which there remain about seven hundred.

The difficulty of procuring the small and scattered pieces of most of these authors, with those of a few others not here enumerated, induced the learned Hudson to collect them into one work, consisting of four volumes octavo, which were published in the years 1698, 1702, 1712, under the title of *Geographiæ veteris Scriptores Græci minores.* The originals are accompanied with Latin translations, and notes and dissertations on each by Dodwell. This is a very valuable collection.

We now proceed to consider the progress of geography during the middle ages. From the days of Ptolemy to the revival of letters in Europe, little was done for its solid improvement. The calamities that ere long overwhelmed the Roman empire, involved in the general progress of the intellectual darkness which settled on the world even the imperfect knowledge possessed by the ancient geographers. While barbarous nations poured in from several quarters, art and science ceased to be cultivated. The union by which the Roman power had bound together mankind being now dissolved, Europe was divided into small and independent, and for the most part hostile communities, which had but vague conceptions respecting the situation of each other, while no intercourse subsisted between their members. With regard to remote regions all knowledge was lost; their situations, their commodities, and almost their names, were unknown.

Amidst this ignorance there were but few channels open through which knowledge could be obtained. One circumstance, however, prevented commercial intercourse with foreign nations from being altogether suspended. The opulence and luxury of imperial Rome had long given life and energy to commercial enterprise: that stimulus was now withdrawn; but Constantinople still remained, the last refuge of ancient arts, and taste, and elegance, when the rest of Europe was overspread with barbarism. Fortunately that city had escaped the destructive rage of the fierce invaders; and there, under the cherishing influence of a demand for foreign productions and luxuries, commerce continued to flourish. Alexandria continued to be the emporium whence they imported the commodities of the East Indies, until Egypt, falling under the power of the Arabians, ceased to be a province of the Roman empire. After this event the industry of the Greeks succeeded in discovering a new channel by which Constantinople might still be supplied with the productions of India. These were first conveyed up the Indus as far as that river is navigable, thence by land-carriage they were brought to the Oxus, and were carried down that river to the Caspian Sea. Entering there the Volga, they were conveyed up it, and thence were again transported by land until they reached the Tanais, down which they were conveyed to the Euxine Sea, where vessels from Constantinople awaited their arrival. By this circuitous route was a channel of intercourse kept open with the most distant countries of the East; and an extensive knowledge of remote regions was still preserved in the capital of the Greek empire, while the rest of Europe was sunk in the grossest ignorance.

The missions sent for the conversion of the northern pagans to Christianity served somewhat to illustrate the geography of Europe; though there is sufficient proof that the monks employed were, in many instances, themselves grossly ignorant, some not even knowing the capital of their own country, or the cities nearest to their own. Something was also done by the great sovereigns of Europe towards dispelling the prevailing ignorance of the age on matters connected with geography. Nor did the piratical exploits of the Danes and Norwegians under their great sea-kings fail to make them acquainted with the seas and maritime coasts where they carried on their devastations. But it was in the East that a gleam of light and knowledge began to appear, which seemed to be the harbinger of the noon-day splendour of science, that should dispel the darkness of ignorance which had so long oppressed the human mind. Under the influence of a fanaticism which prompted them to own no law but the koran and the sword, the followers of Mahomet had rushed from the heart of Arabia, and had carried their conquests over half the world. At length, however, under a race of humane and polished princes, having contracted a relish for the sciences of the people whose empire they had contributed to overturn, they stood for some time distinguished as the most learned of nations. They translated into their own language the books of several of the Greek philosophers. The valuable work of Ptolemy was one of the first; and hence the study of geography became an early object of their attention. But the advancement which the science made in their hands towards precision was slow; for they copied and retailed all Ptolemy's principal errors. Still, in all the countries that were under Mahommedan dominion numerous observations were made, which, though not always strictly correct, were entitled to be considered as a step beyond the calculations made merely from the itineraries by the Alexandrian geographers. In the beginning of the ninth century, under their caliph Almamon, who may rank among the most distinguished patrons of science that ever filled a throne, they measured a degree of latitude on the plains of Sinjar, or Shinar, near Babylon, with a view to determine the cirumference of the earth. The tables of Abulfeda and lug Beg, and of Nazir Eddin, edited by Grævius, and published by Hudson, furnish materials that are still of se in the construction of the maps of the interior of Asia.

The progress and success of the Moslem arms removed e obscurity in which many countries had until then been ncealed, as well as the barbarism in which they had been nk. And even beyond the limits of the Mahommedan orld they pushed their researches, by sending missions oth to the east and to the west, which they explored their remotest limits. At that time Europe remained norant of the improvements made by the Arabians, ough she was destined in subsequent ages to perfect eir discoveries.

At length the long period of barbarism which accomnied and followed the fall of the Roman empire, dung which the traces of whatever had embellished soety, or contributed to the comfort and convenience of e, were almost entirely effaced, drew to a close. Inustry began again to shed its blessings on mankind, d Italy was the country where its benign influences ere first perceptible. Having from the operation of vaous causes again obtained liberty and independence, the alians soon began to feel the impulse of those passions hich serve most powerfully to arouse men to activity and terprise. The reviving demand for the comforts and xuries of life led to the revival of foreign commerce. he valuable commodities of the East were at first obined at Constantinople. But the exorbitant price dended at that mart, in consequence of the circuitous ute by which they were conveyed thither, induced the alians to resort to other ports, as Aleppo and Tripoli, the Syrian coast, and at length to Egypt itself. After e Soldans had revived the commerce with India in its cient channel by the Arabian Gulf, Venice, Genoa, sa, rose from inconsiderable towns to wealthy and polous cities. Their trade extended to all the ports in e Mediterranean, and even beyond the straits to the wns on the coasts of Spain, France, the Low Countries, d England; and from these points they diffused through rope a taste for the luxuries and enjoyments of civied life, which they at the same time furnished the eans of gratifying.

It was not long ere an event occurred, the most extralinary perhaps in the history of human society, which ve a new impulse to the European mind, and forcibly ected its view eastward to the regions of Asia. Under influence of a high-wrought enthusiasm, the martial rit of the Europeans was aroused, and vast armies, mposed of all the nations of Christendom, marched tords Asia on the wild enterprise of delivering the Holy nd from the dominion of Infidels. The crusades, hower blind the zeal from which they took their rise, had a y favourable influence on the intellectual state of Eupe, and prepared it for receiving the light of science ich was soon to dawn upon it. Interesting regions, own hitherto only by the scanty reports of ignorant and dulous pilgrims, were now made the object of atten and research. Not only was the way opened for the ropean nations acquiring a correct knowledge of the ly Land, with the kingdoms of Jerusalem and Edessa, nded by the victorious crusaders; but the extensive ions over which the Saracens and the Turks had exded their empire began to be explored. Search was w made in the writings of the ancient geographers; nor t improbable that some light was derived even from Arabian writers. Religious zeal, the hope of gain, mbined with motives of mere curiosity, induced seve persons to travel by land into remote regions of the st, far beyond the countries to which the operations of crusaders extended. Prompted by superstitious veneration for the law of Moses, and by a desire of visiting his countrymen in the East, whom he hoped to find possessed of wealth and power, Benjamin, a Jew of Tudela, in the kingdom of Navarre, set out from Spain in the year 1160, and travelling by land to Constantinople, proceeded through the countries to the north of the Euxine and Caspian Seas. He then journeyed towards the south, and traversed various provinces of the further India, until, having reached the Indian Ocean, he embarked and visited several of its islands; and at length, after thirteen years, returned by the way of Egypt to Europe. In his progress he had acquired much information respecting a large portion of the globe, then altogether unknown to Europeans.

Various missions were sent by the pope and by Christian princes, for purposes which led them to traverse the remote provinces of Asia. Father John de Plano Carpini, at the head of a mission of Franciscan monks, and Father Ascolino, at the head of another mission of Dominicans, were in the year 1246 sent by Innocent IV. to enjoin Kayuk Khan, the grandson of Zengis, who was then at the head of the Tartar empire, to embrace Christianity, and to cease from desolating the world by his arms. In fulfilling the commands laid upon them by the head of the Christian church, the mendicants had an opportunity of visiting a great part of Asia. Carpini, having taken his route through Poland and Russia, travelled through the northern provinces as far as the extremities of Thibet; whilst Ascolino, who appears to have landed somewhere in Syria, advanced through the southern provinces into the interior parts of Persia.

Father William de Rubruquis, a Franciscan monk, having been sent in the year 1253 on a mission by St Louis of France, in search of an imaginary personage, a powerful khan of the Tartars, who was reported to have embraced the Christian faith, made a circuit through the interior parts of Asia more extensive than that of any European who had hitherto explored them. He had the merit of being the first modern traveller that gave a true account of the Caspian, which had been correctly described by the early Greeks as an inland separate sea; but a notion afterwards prevailed that it was connected with the Northern Ocean. Rubruquis ascertained that it had no connection with the ocean or any other sea. The account of his journey was so little read, however, that the old error was repeated in books of geography long after his time.

While the republics of Italy, and, above all, the state of Venice, were engaged in distributing the jewels, the spices, and the fine cloths of India over the western world, it was impossible that motives of curiosity, as well as a desire of commercial advantage, should not be awakened to such a degree as to impel some to brave all the obstacles and dangers to be encountered in visiting those remote countries where these precious and profitable commodities were produced. A considerable number accordingly are recorded as having penetrated a greater or less depth into the interior of Asia. But of all the old travellers the fame is eclipsed by that of Marco Polo, who has always ranked among the greatest discoverers of any age. This extraordinary man was a noble Venetian, whose family, according to the custom of his country, engaged in extensive commerce. Nicolo Polo, and Maffeo Polo, the father and uncle of Marco, were merchants, who, in partnership, traded chiefly with the East; and in pursuit of their mercantile speculations had already visited Tartary. The recital of their travels on their return fired the youthful imagination of Marco, then between seventeen and eighteen years old. Having, when in the East, gained the confidence of Kublai Khan, the great conqueror of China, at whose court they had resided for a long time, he had sent them back to Italy, accompanied by an officer of his court, that they might repair to Rome as his ambassadors to the pope, of whom, and the potentates of the western world, they had given him an ample account. After many delays they were now, about the year 1265, to set out on their return to the court of Kublai, bearing the papal letters and benediction; and it was resolved that young Marco should accompany them. After a journey that occupied no less than three and a half years, and in the progress of which they passed through the chief cities in the more cultivated parts of Asia, they reached Yen-king, near the spot where Pekin now stands, where they were honourably and graciously received by the grand khan. Struck with the appearance of young Marco, the khan condescended to take him under his protection, and caused him immediately to be enrolled among his attendants of honour. By prudence and fidelity Marco gained so high a place in the esteem and confidence of his protector, that for seventeen years, during which he remained in his service, he was employed in confidential missions to every part of the empire and its dependencies. He made more than one voyage on the Indian Ocean, and traded with many of the islands. Besides what he learned from his own observation, he collected from others many things concerning countries which he did not visit. Considering the very favourable circumstances in which he was placed for geographical research, as well as his passion for travelling, which seems to have increased with his opportunities of gratifying it, it is not surprising that, after the long period of his wanderings in Asia, he should have returned to Europe possessed of the knowledge of many particulars, until his time unknown, respecting the eastern parts of the world. Marco, being afterwards made a prisoner by the Genoese, was induced, with a view to beguile the tediousness of his confinement, to dictate a narrative of his travels. His information was so far in advance of the age, that his veracity was exposed to the most injurious suspicions. But, if we make allowance for some tincture of credulity, characteristic of the times in which he lived, his narrative is supported in all its essential points by modern information.

While great accessions were thus made to the stock of knowledge possessed by the nations of Europe respecting the habitable globe, their ideas were at the same time gradually enlarged; and an adventurous spirit was generated, which prepared them for attempting further discoveries. Still their efforts were limited by certain bounds, in consequence of the imperfect state of navigation. Whatever conceptions a daring mind might venture to form respecting the existence of unknown regions, separated from the known continents by the mighty expanse of the Atlantic Ocean, mankind had not yet so obtained the dominion of the sea as to be able to bring such conceptions to the test of experiment. It was not until the fortunate discovery of the polarity of the magnetic needle, and the consequent construction of the mariner's compass, that man was enabled to visit every part of the globe which he inhabits. This important discovery was made by Flavio Gioia, a citizen of Amalfi, a town of considerable trade in the kingdom of Naples, about the year 1302. Encouraged by the possession of this sure guide, by which at all times and in all places he could with certainty steer his course, the navigator gradually abandoned the timid and slow method of sailing along the shore, and boldly committed his bark to the open sea. At the commencement of the fifteenth century, however, navigation appears to have advanced very little beyond the state which it had reached before the downfall of the Roman empire. But it was now destined to make rapid progress. The growing spirit of enterprise, combined with the increasing light of science, had prepared the states of Europe for entering upon that great career of discovery, of which the details constitute the materials for the history of modern geography.

Portugal took the lead in this new and brilliant path. Her first attempt was to discover the unknown countries situated along the western coast of Africa. Notwithstanding the vicinity of that great continent, and the strong inducement afforded, in the fertility of the countries already known in it, to its further exploration, Cape Non had hitherto limited the researches of the Portuguese, and had been regarded as an impassable barrier. In the year 1412, however, ships sent out for discovery doubled this formidable promontory, and reached Cape Bojador, a hundred and sixty miles to the southward, which became in its turn the boundary of Portuguese navigation; and it continued to be so for upwards of twenty years. Under the coasting system, which still continued to be practised, it was not likely that the obstacles presented by its rocky cliffs, which stretch a considerable way into the Atlantic, would soon have been overcome. But a sudden squall of wind having driven out to sea the vessel next dispatched, this event fortunately led to the discovery of Porto Santo; whence in a little time Madeira was discovered, being first mistaken for a small black cloud in the horizon; and at length, when the Portuguese by their voyages thither had gradually become accustomed to a bolder navigation, Cape Bojador was doubled. Thus, by repeated efforts, the Portuguese navigators gradually approached the northern boundary of the torrid zone. Here their progress was for some time arrested, not by any physical difficulties, but in consequence of the influence which the opinion of the ancient mathematicians and geographers, whom they had hitherto followed as their guides, that excessive heat rendered the middle regions of the earth uninhabitable, had upon their minds. Experience, however, at length enabled them to triumph over ignorance and prejudice. A powerful fleet, fitted out in 1484, after discovering the kingdoms of Benin and Congo, advanced above fifteen hundred miles beyond the equator. Their intercourse with the natives enabled them to obtain information concerning those parts of the country which they had not visited. Not only had they detected the error of the ancients in reference to the torrid zone, but they found also that the direction of the coast was very different from what the description given by Ptolemy had led them to expect. They saw reason to conclude that the continent gradually became narrower as they proceeded southward; so that there was room to believe that the ancient accounts respecting the circumnavigation of Africa were really founded in truth. New and more extensive prospects were thus opened to them; and the finding of a passage to India by sailing round the southern extremity of Africa became a favourite project. In the year 1488 the lofty promontory which terminates that continent was descried by Bartholomew Diaz; but it was not until about ten years after that it was doubled, and the coast of Malabar reached, by Vasco de Gama.

Meanwhile, the Cape de Verd Islands, which are said to have been known to the ancients, but afterwards lost sight of, had been discovered in 1446; and soon after the Azores Isles. When we consider the distances at which these two groups of islands lie from the land, the former being upwards of 300 miles from the coast of Africa, and the latter distant 900 miles from any continent, it may be concluded that the Portuguese, when they entered so boldly into the open seas, had made no inconsiderable progress in the art of navigation.

But brilliant as is the lustre which these discoveries shed around the Portuguese name, their glory would have been still more dazzling had they seconded the profound views of Columbus, which led him to the discovery of the New World. That illustrious man and skilful navigator, by revolving in his mind the principles on which the Portuguese had founded their schemes of discovery, and carried them into execution, was led to conceive that he could improve on their plan, and accomplish discoveries which they had hitherto attempted in vain. From the time that they had doubled Cape Verd, the great object at which the Portuguese aimed was to find a passage by sea to the East Indies. The direction in which their efforts were made implied necessarily a long and hazardous voyage, should they even be successful in accomplishing their design. But as the Atlantic Ocean stretched westward to an unknown distance, was it not possible that it might reach the shores of those very countries to which it was thought so desirable to find a naval route? This supposition was perfectly consistent with the known globular figure of the earth; and it was evident, on the same principle, that the further India stretched to the east, the nearer it must approach to the western shores of Europe and Africa. Such was the idea suggested to the mind of Columbus, by the knowledge which he possessed of navigation and geography, both in theory and practice. While he found his views confirmed by a careful comparison of the observations of modern pilots with the hints and conjectures of ancient authors, he became thoroughly convinced that the navigator who should have the boldness to cross the Atlantic Ocean, would have his toils rewarded by the most important discoveries.

These ideas had presented themselves to the mind of Columbus as early as the year 1474; but it was not until the year 1492, after several years of fruitless solicitation, and of discouragements and disappointments of the most vexatious kind, that he obtained the patronage of Ferdinand and Isabella, who then governed the united kingdoms of Castile and Arragon, and was by them put in possession of the means of carrying his schemes of discovery into execution. With no more suitable an armament for his great enterprise than three small vessels, having ninety men, mostly sailors, on board, and victualled for twelve months, he sailed from the port of Palos in Andalusia on the third day of August, and steered for the Canaries. Taking then his departure from Gomera, one of the most westerly of these islands, he stretched into unknown seas; and holding his course due west, reached Guanahani, one of the Bahama Islands, on the 12th day of October. After employing some time in making further discoveries, he returned to Spain to announce the success of his undertaking, the fame of which soon spread over Europe, and excited general attention. It was no easy matter to determine what relation the newly-discovered countries bore to the regions formerly known. Columbus's own views on the subject were in strict conformity with the idea which had taken so firm a hold of his mind, namely, that India might be reached by sailing towards the west. He imagined that the islands he had visited were some of those which were said to lie contiguous to the remote shores of Asia. In this opinion he was confirmed by the coincidence which he thought he could trace between certain names given to places by the natives, and the appellations known to belong to countries situated in India. He thought he could recognise, in the answer given to his inquiries after the situation of the mines which yielded gold, the name *Cipango*, by which Marco Polo and other travellers in the East designated the island Japan. Ignorant of their language, and unaccustomed to their pronunciation, he even supposed that they spoke of the great khan; and hence concluded that the kingdom of Cathay or China, described by Marco Polo, was not far off. The same erroneous opinion was still further riveted in his mind, by what he supposed an identity between the animal and vegetable productions of the East Indies and those of the countries which he had discovered.

His second voyage led to the discovery of several more of the group of islands now called the West Indies, a name given them in conformity with the original notions of the discoverer. It was on his third voyage that he discovered the vast continent of America. Having unexpectedly found the island of Trinidad, with the neighbouring land, he encountered, before he was aware of danger, the adverse currents and tumultuous waves occasioned by the resistance which the waters of the Orinoco oppose to the tides in the ocean. His attention was thus forcibly called to the immense body of water which is here poured into the Atlantic. This he was convinced was vastly too great to be supplied by any island; and hence he concluded that he had now reached the continent which he had sought through so many dangers.

The tenacity with which an ingenious and enterprising mind adheres to a scheme which it has once proposed to itself as an object of pursuit, was strikingly evinced by Columbus, whose thoughts still dwelt with eagerness on his original and favourite plan of opening a new passage to India. It was not enough that he had astonished mankind by finding a new continent; he conceived the idea that beyond it there might lie a sea extending to the coasts of Asia, and that by diligent search some strait might be found which would conduct him into this sea, or some narrow neck of land, by crossing which it might be reached. To determine this important point, though hitherto his services had met with the most unworthy returns, though years crept upon him, though worn out by fatigue and broken with infirmities, he still undertook with alacrity another voyage. By a lucky conjecture he directed his efforts towards the east of the Gulf of Darien; but he searched in vain for a strait; and though he frequently went on shore and advanced into the country, he never penetrated so far as to enable him to descry the great Southern Ocean.

After the first steps had been taken, the progress of discovery over the globe was astonishingly rapid. No expense or danger deterred even private adventurers from fitting out fleets, crossing oceans, and encountering the rage of savage nations in the most distant parts of the earth. Before Columbus had reached the continent at the mouth of the Orinoco, Newfoundland had been discovered by Cabot, a Venetian by descent, but sailing under the auspices of England. He had also coasted along the present territory of the United States, perhaps as far as Virginia. In the next two or three years, the Cortereals, a daring family of Portuguese navigators, began the long and unavailing search of a passage round the northern extremity of America. They sailed along the coast of Labrador, and entered the spacious inlet of Hudson's Bay. Two of them unfortunately perished in this enterprise. In the year 1501 Alvarez Cabral, a Portuguese navigator, destined for India, having stood out to sea in order to avoid the variable breezes and frequent calms which he was sure to meet with on the African coast, to his surprise, came upon the shores of an unknown country, the coast of Brazil, which he claimed for Portugal. Amerigo Vespucci, a Florentine gentleman, who had already sailed along a great part of Terra Firma and Guyana, now made two extensive voyages along the Brazilian coast. Soon after his return he drew up and transmitted to one of his countrymen an account of his adventures and discoveries, in which he insinuated that to him belonged the honour of having first discovered the continent in the New World. His performance, which was the first description published of the newly-discovered countries, circulated rapidly, was read with admiration, and became the means of procuring for its author the high honour of giving his name to the whole continent. Not many years elapsed before the conjecture of Columbus respecting the existence of an ocean beyond the continent which he had discovered was found to be true; and his favourite project of opening a passage to India by steering westward was actually accomplished. By crossing the narrow isthmus of Panama, Nuñez Balboa reached the Pacific Ocean in the year 1513; and in 1521 Magellan discovered and sailed through the famous straits which bear his name. After twenty days occupied in navigating this dangerous channel, he beheld spread out before him the boundless expanse of the great Southern Ocean. Directing his course to the north-west, he continued his voyage for nearly four months without discovering land. From want of provisions, and from sickness, he and his crew suffered dreadful distress. But when about to sink under their sufferings, they fell in with the Ladrone Islands, where they found refreshments in abundance. From these isles he proceeded on his voyage, and was not long of discovering the Philippines. Here, in an unfortunate quarrel with the natives, he was slain, with several of his principal officers. But his surviving companions, pursuing their voyage, and returning to Europe by the Cape of Good Hope, solved the great problem of the circumnavigation of the earth.

After the discovery of the Pacific Ocean by Balboa, the investigation of the western coasts of America went speedily forward. Expeditions were soon sent out both northward and southward; so that nearly a full view was obtained of the immense range of coast which the American continent presents to the Pacific Ocean, and at the same time of its great interior breadth.

On the other hand, discovery in the eastern world was no less rapid. Within twenty years from the time that Gama reached India by the way of the Cape of Good Hope, all the coasts of Hindustan, those of Eastern Africa, of Arabia, and Persia, had been explored. Navigators had penetrated to Malacca and the Spice Islands. They had learned the existence of Siam and Pegu; and it was only the characteristic jealousy of the rulers of the Celestial Empire that prevented them from entering the ports of China.

The scientific geographer had now abundance of materials to arrange and digest into one systematic whole. He was now called upon to give such a delineation of the earth's surface, as should connect together the ranges of eastern and western discovery, and should exhibit the true outline and relative positions of countries, as these had been demonstrated by the astronomer and navigator. The ancient system of geography, to which the Arabs seem closely to have adhered, was founded on the idea of the whole earth being surrounded by an ocean as by a great zone. This the Arabians characterized as the "Sea of Darkness," an appellation most usually given to the Atlantic; while the northern sea of Europe and Asia, as inspiring still more gloomy and mysterious ideas, was styled the "Sea of Pitchy Darkness." Such notions could not now keep possession of the human mind, though it was only by degrees that mankind could be expected to be enlightened by doctrines which were not only new, but seemed likewise to be contradicted by the evidence of sense. The fundamental principles of a systematic arrangement had, as we have already seen, been known from the time of Hipparchus, and had been reduced to practice by Ptolemy. But the want of astronomical observations, or even of accurate surveys, which navigators seldom furnished, and for which science had not indeed yet provided suitable instruments, placed it still beyond the resources of modern geography to give any thing like a just representation of the two hemispheres. The Venetian geographers were the first who attempted a systematic arrangement of the immense regions recently discovered, adjusting them to each other, and to the mass of information previously possessed. But a series of Venetian maps, preserved in the king's library, show how much their skill was counteracted by the difficulties with which they had to contend. Instead of exhibiting the vast ocean which separates the east coast of Asia from the west coast of America, the two continents are represented either as meeting, or as separated only by a narrow strait. The voyage of Magellan across the Southern Ocean had not shown with sufficient distinctness the presentation of the opposite coasts, to enable the geographers of the time to avoid this error. When maps of different dates are compared, we find, as we descend towards modern times, a gradual progress towards accuracy in the representations given of the earth's surface. This is what might be expected; for all maps should be considered as unfinished works, in which there will always be something to be corrected, or something new to be inserted.

At the period of the revival of letters in Europe, the latitudes and longitudes, as given by Ptolemy, were universally received with implicit confidence. When checked, however, by actual observation, they were found to differ materially from the truth. The latitudes in many instances were found very erroneous; that of Byzantium, for example, exceeded the truth by two degrees. As nearly the same excess was found to exist in some other cases, many geographers, unwilling to renounce the authority of Ptolemy, concluded that this difference had arisen from a change having taken place in the position of the earth's axis, in consequence of which the latitudes of all the places in Europe were increased. The progress of observation showed that this opinion was untenable, and that before geography could rest on a sure basis, a general revision of ancient graduation was indispensably necessary. The only observations employed by the ancients for determining longitudes were those of the eclipses of the moon; but it was found that the results derived from this source could not be depended on. In the year 1610, Galileo, having discovered three of Jupiter's satellites, pointed out the use which might be made of their eclipses for finding longitudes. But this method, which gives the greatest degree of accuracy, was turned to little account, until 1668, when Cassini published his tables of the revolutions and eclipses of these satellites. Three years afterwards, by means of simultaneous observations made by him and Picard at Paris, and in the observatories of Tycho Brahe at Copenhagen, the difference of longitude of these two important points, which had been long a matter of dispute, was finally determined. Since that time, other accurate methods of finding the longitude have been discovered; and the instruments employed in observation have been brought to a high degree of perfection. The refinements and improvements of modern science have been brought to bear upon the great problem of determining the figure of the earth, which, though nearly, is not exactly spherical. (See FIGURE OF THE EARTH.) The labours of scientific men to obtain accurate results on this subject have contributed much to the improvement of geography. The expeditions sent out under Maupertuis to the arctic circle, and under Condamine to the equator, afforded an opportunity of making various observations of latitude and longitude in regions of which no delineation resting upon proper data had hitherto been given. Within the last thirty years, trigonometrical surveys of France and England have been executed, which have nearly completed the delineation of these countries.

Much advantage has accrued to geographical science, in point of accuracy and precision, from the application in modern times of a sound and judicious criticism to the immense mass of materials which had been accumulating for ages. The labours of M. d'Anville, in the eighteenth century, were employed with great success in this department. He undertook the revision of the whole system on which the delineation of the world, and of the countries into which it is divided, had hitherto been made; and by unhesitatingly rejecting every particular that did not rest on positive authority, he removed many false or uncertain features, and clearly distinguished the known from the unknown parts of the globe. Major Rennell has skilfully arranged and illustrated the important materials collected respecting India. Various authors have in moern times cultivated another interesting field of inquiry, the comparison between ancient and modern geography, and the tracing of the rise and progress of early discovery. These researches were diligently pursued by Vossius, Bochart, and other learned men of the seventeenth century, and with still more success by Rennell, Vincent, and Mannert, who appear to have pushed them as far as they admit, though much darkness still rests on some parts of the inquiry. Gosselin, notwithstanding that he has applied to the subject a great extent of investigation, as well as much skill and force of criticism, has failed, on account of the peculiar views in which he indulged, to make any solid addition to the science.

The discoveries made by the Spaniards and Portuguese had greatly increased the stock of geographical information. Still much remained to be done. The desire of finding a short and convenient route to India still continued to supply a stimulus to exertion in the way of discovery. The English and Dutch made extraordinary efforts, and encountered fearful dangers and disasters, with the expectation of effecting a passage by the north-east, along the northern shores of Asia. A coast beset with the ices of the Polar Seas presented, however, obstacles too formidable to be overcome; though recent researches appear to show that no barrier of land intervenes. But there was still another quarter where an attempt might be made; and to this point the commercial nations of Europe failed not to direct their efforts. The jealousy of Spain long prevented the other European states from visiting the north-western coast of America, so that they remained ignorant of the vast breadth to which the continent spreads out as it advances towards the north. They adopted, indeed, the opinion that, like the southern extremity, the northern terminated in a point or cape. This left room to hope for a north-western passage into the Pacific Ocean, by sailing round the imaginary cape. The English took the most decided lead in the exploratory voyages to which these views gave rise. In the reign of Queen Elizabeth, Frobisher and Davis were sent out on three successive voyages, which led to the discovery of the entrance into Hudson's Bay by the former navigator, and of the entrance into Baffin's Bay by the latter. These two capacious basins were afterwards discovered by the intrepid navigators whose names they bear. In sailing round the great sea which he had discovered, Baffin mistook the great opening into Lancaster Sound for a mere gulf; a misapprehension which checked for a time any further attempts in that quarter, as navigators were led to expect success only through the channel of Hudson's Bay. In 1631, Fox explored a part of that great opening on the north of Hudson's Bay, called Sir Thomas Roe's Welcome, which seemed now to hold out almost the only hope of accomplishing the object sought. The assertion of Middleton, an officer in the service of the Hudson's Bay Company, that he had discovered the head of the Welcome to be completely enclosed, and the circumstance of two other navigators, who were sent out the following year, failing to effect any thing, produced an impression on the public mind that the passage so long sought had no existence.

The discoveries of Cook in the North Pacific Ocean, where he found the American coast stretching away in a north-westerly direction, joined to the circumstance that, when he penetrated through the strait discovered early in the last century by Behring and Tchirikof, which separates America from Asia, the coast appeared there to extend indefinitely to the north, seemed not only to confirm the conclusion that no passage into the North Pacific Ocean was here to be expected; but also that the American continent extended northward in one unbroken mass, perhaps even to the pole. The groundlessness of these views became apparent when, in the year 1771, Mr Hearne, who had been dispatched by the Hudson's Bay Company to explore the limits of the coast in this direction, sailed down the Copper-Mine River, and discovered its entrance into the sea; and again, when, in 1780, Sir Alexander Mackenzie traced also to the sea another river about twenty degrees farther to the west. Thus were there furnished strong grounds to believe that the pole was surrounded by an ocean which separated the northern coasts of Asia and America, making these two continents altogether distinct from each other; and that through this ocean lay the long-sought course which would certainly conduct the navigator who should succeed in forcing his way through the ice and storms of the polar regions, from the Atlantic into the North Pacific Ocean.

The determination of this great geographical question, so long agitated, has recently called forth the utmost efforts of the British government. In 1818 an expedition was sent out to Baffin's Bay under the command of Captain Ross, without leading to any important result, as he was led to conclude that no opening existed. Lancaster Sound had, however, forcibly attracted the attention of Lieutenant Parry, second in command; and on returning with a new expedition under his immediate command, he succeeded in penetrating through Lancaster Sound, which he found gradually to widen till it opened into the Polar Sea. He found a chain of large islands to lie parallel to the American coast; and among these he continued his navigation until the accumulation of ice in the straits and channels through which he had to pass stopped his further progress. This circumstance induced him to make his next attempt through Hudson's Bay, by the channel of the Welcome, which had as yet been but imperfectly explored. Here he succeeded in reaching a point considerably beyond that at which Middleton had represented the bay as terminating. He found at length a narrow strait communicating with the Polar Sea, but so encumbered with ice as to preclude the hope of its ever affording an open passage. He was therefore again sent out to renew his efforts in the first direction, where he had already obtained partial success. But the obstacles which he had formerly been unable to overcome still continued, and prevented him from making any material addition to his former discoveries. Whilst these skilfully-conducted voyages were in progress, Captain Franklin was sent out at the head of two successive expeditions by land, and, by actual survey, ascertained three fourths of the boundary coast; his operations terminating at a point beyond the 149th degree of west longitude. On the other hand, an expedition under Captain Beechy, sent to meet Captain Franklin on his second toilsome journey, passed the Icy Cape of Cook, and penetrated nearly as far as the 156th degree of west longitude, leaving only seven degrees, or 160 miles, between the farthest point thus reached and the utmost limit reached by Captain Franklin. The results of this investigation appeared to prove that the whole of the northern coast of America extends in a line not varying much from the parallel of the seventieth degree of latitude. But Captain Ross, in the late expedition fitted out by himself, has found a large peninsula stretching as far north as seventy-four degrees of latitude. The existence of a naval passage farther to the north, in the line of Captain Parry's first voyage, is, however, still probable.

The discovery of a new continent greatly enlarged, as we have seen, the views of mankind respecting the constitution of the globe. But imagination, no longer limited in its range by the notion of a circumambient ocean that could not be passed, soon gave rise to the belief of a southern continent, which was supposed necessary to balance the land in the northern regions of the earth. The immense body of water that was found to occupy so large a portion of the known regions of the southern hemisphere gave ample room for supposing this unknown continent to be of vast dimensions. It was imagined that it might equal in extent as well as in wealth the American continent. Nor was it considered necessary to exclude it from the map of the world till its existence should be proved. It appears in all the early maps as an immense mass of land surrounding the south pole, and presenting to the ocean one unbroken coast. The discovery of certain great insular tracts in the South Seas, which, from ignorance of their true nature, navigators might mistake for continental promontories or portions of coast, no doubt at first gave some countenance to the belief of the existence of antarctic land. But the delusion was gradually dispelled before the light afforded by further discovery. The Portuguese, in less than twenty years after their passage of the Cape of Good Hope, pushed their researches to the most remote islands in the Indian Ocean, including Java and the Moluccas. They appear also to have observed some part of the coast of New Guinea. The Spaniards during their early and adventurous career put forth strenuous exertions to explore the Southern Ocean, and several of the groups of islands scattered over its surface were discovered by their navigators. In 1607, the Dutch having wrested from the Portuguese Java and the Spice Islands, established in them the centre of their Indian dominion. A great maritime power being thus placed so near to the northern shores of the largest portion of land on the globe that is regarded as an island, it became almost impossible that New Holland could long remain unknown. It was discovered early in the seventeenth century, and was long supposed to form a part of the great southern continent. Van Diemen, the Dutch governor of India, sent out several vessels successively to explore its coasts. Hertog, Carpenter, Nuytz, and Ulaming, made very extensive observations on the northern and western shores, but found them so dreary and uninviting that no settlement was attempted. In the year 1644 the eastern coasts were visited by Tasman, who, proceeding beyond his predecessors, reached the southern extremity of Van Diemen's Land, to which he gave its name; but he failed to discover that it is a separate island. Pursuing his course eastward, he surveyed next the western coast of New Zealand, and returned home by the Friendly Islands. He thus proved that New Holland was no part of the southern continent, even should such a continent exist. Cook, by ranging along the borders of the southern pole, where he found only isles and firm fields of ice, showed that the hypothesis of an austral continent had no foundation. The eastern side of New Holland was discovered by Captain Cook in the year 1770, who by his extensive operations in that quarter left little to be done towards completing the full circuit of it. The same great navigator likewise secured glory to his country and to himself by completing the survey of the Great Pacific Ocean. Some of the interesting groups of islands scattered over its vast surface had already been made known by the previous voyages of Byron, Wallis, and Carteret. Cook fully traced the great chain of the Society Islands and the Friendly Islands. He determined also the form and relations of New Zealand, New Caledonia, and other great lands and islands in that region of the globe.

The extensive island of New Holland has recently become doubly interesting from the important relations which now subsist between it and Europe. In the year 1788 the establishment of a British colony on the east coast paved the way for a more complete survey. By the different expeditions undertaken from 1795 to 1799, chiefly under the direction of Bass and Flinders, the east coast, together with Van Diemen's Land and Bass's Strait, which separates that island from New Holland, were accurately explored. In 1801 an expedition was sent out by the British government under the command of Captain Flinders, for the purpose of surveying a large portion of the coast. These surveys were prosecuted with unremitting ardour and perseverance. At the same time that Captain Flinders was carrying on his survey, the French captain Baudin was employed on the same service, and in some parts the discoveries of these navigators intermingle. Some additional observations have more recently been made; and by these various expeditions the whole coast of New Holland and Van Diemen's Land has been accurately surveyed, the position of every point has been ascertained, and every inlet and bay has been traced to its termination.

In tracing the history of geographical discovery, it cannot fail to be observed, that while discovery by sea has been pursued with great advantage, on account of the rapidity of its progress and the extent of its range, the slower and more confined operations of the discoverer by land are no less necessary to make known the interior features and circumstances of the different countries.

The British dominion in India has led to much additional information respecting the interior of Asia; information which is, however, in many respects, only the revival of ancient knowledge. The great mountainous chain which forms the northern boundary of India has been traced and found in many places to tower to such heights as to exceed the Andes, long supposed to be the highest mountains in the world. The source of the Ganges, and that of the Indus, with the early courses of these great rivers, have been found to be situated quite differently from what had been supposed to be their position by modern geographers. The mountainous territories of Cabul and Cashmere, the high interior table-land of Thibet, and the vast sandy plains of Meckran, have all been more or less explored. Information of an authentic character has also been recently obtained respecting the formerly celebrated capitals, Bochara and Samarkand. But a wide field still remains for future research.

The continent of Africa, however, is the quarter of the globe which, more than any other, has baffled the efforts of those who would explore its interior. The vast sandy deserts, high mountains, and impenetrable forests which occur on its surface, joined with the unremitting wars carried on between the petty tribes, and the deeply-rooted antipathy of the African Mahommedans towards the Franks, have presented obstacles of the most formidable kind. The ancients, whose knowledge of the African coasts was very imperfect, except where they border on the Mediterranean and the Red Sea, were accustomed to penetrate into the inland provinces, and are said to have been acquainted with many parts of it which are now altogether unknown. At an early period of modern history reports that Prester John, the Christian prince, who had been sought for in vain in the East, was to be found in the interior of Africa, induced the Portuguese to explore Abyssinia; but the accounts which they gave of the extent of that country were greatly exaggerated. From the western coast they dispatched embassies into the interior in quest of the object of their search; and on one occasion they appear to have reached the city of Tombuctoo, and to have obtained at Benin some information concerning the great interior kingdom of Ghana. Tombuctoo has been for many centuries the grand emporium of the central trade of Africa; and on this account an eager desire has been felt in Europe, ever since the rise of discovery and commercial enterprise, to visit it and establish an intercourse with it. All attempts, however, to reach it made by European merchants and travellers have until recently been entirely baffled. Its actual condition, and even magnitude, are still involved in very considerable uncertainty. Major Laing resided there a considerable time, and made the most diligent inquiries; but the fatal catastrophe which terminated his career prevented the result from ever reaching Europe.

But the grand object connected with the interior of Africa, by which the attention of Europeans has been from the first chiefly excited, is its great central river, the Niger. The interest with which this stream has been regarded has arisen from the remarkable nature of the regions through which it flows, and still more from our ignorance, combined with the various and contradictory rumours which were so long abroad respecting its course and termination. Herodotus is the earliest author who affords any ideas applicable to this subject. He mentions an expedition into the interior of Africa, undertaken by some Nasamonian youths, who, being taken prisoners, were carried to a great city inhabited by negroes, and situated on the banks of a river which flowed from west to east. This stream he conjectures to be the remote source of the Nile; but the particulars given appear to leave little doubt that it was the Niger. A similar hypothesis was adopted by Strabo, Mela, and Pliny, identifying the waters of these two great rivers. But Ptolemy, whose residence in Alexandria afforded him ample means of information, rejects altogether the idea of any communication between them. He describes the Niger as terminated on the west by Mount Mandrus (Mandingo), and as giving rise to several extensive lakes as it proceeds in its course. His statements do not, however, involve any thing positive as to the direction in which it flows. The Saracens or Arabians are the next great source of information; for in the course of the dissensions which took place among their dynasties in Northern Africa, large bodies crossed the desert, and founded kingdoms on the eastern part of the shore of the Niger, of which the kingdom of Ghana was the most splendid. According to their testimony, the Niger flows from east to west, and discharges itself into the sea, by which they understood the Atlantic, or great circumambient ocean. With regard to its source, they generally regarded it as the same with that of the Egyptian Nile, identifying the two rivers in the early part of their course. Some were of opinion that the waters of the Niger did not reach the sea; so that they must have supposed them to be discharged into a lake. The system adopted by modern Europeans was derived from Leo Africanus, who retained the delineation of the Niger as flowing from east to west, and falling into the ocean, but instead of deriving it from the Nile, supposed it to rise from the lake of Bornou, lying deep in the interior of Africa. Following this hypothesis, all the early European navigators, when they saw the two broad estuaries of the Senegal and Gambia, concluded that one or both gave egress to the waters of the Niger. In the beginning of the seventeenth century, the French and English having each formed a settlement, the one on the Senegal and the other on the Gambia, were induced by the hope of gain to seek a route up these rivers to the city of Tombuctoo; and in this enterprise they proved the falsity of the opinion which had been so long held. The streams were traced so near to their source as to become little more than rivulets; whilst the explorers were still far from the great central emporium of Africa, and from the great plain through which the Niger was understood to flow. This result led the two great French geographers Delisle and D'Anville to construct maps in which the Niger, after the lapse of so many ages, was again represented as flowing to the eastward. Instead of a single stream pursuing a course across the whole breadth of Africa, and falling into the Atlantic, D'Anville distinguished three rivers; the Senegal flowing westward, the Niger flowing eastward into a lake in Wangara, and another river still farther east, and flowing in the opposite direction. The data on which this scheme rests were never fully made public.

Still new doubt was thrown around this subject by the reports collected by Mr Lucas, who travelled under the auspices of the African Association, and who was assured at Tripoli, by a native merchant, that the river flowed with rapidity in a westerly direction. The time, however, at last arrived when these conflicting opinions were to be silenced, and new light thrown on the subject, by the labours of our illustrious modern traveller Mr Park. In his first expedition, on reaching Sego, he beheld "the long-sought majestic Niger, glittering in the morning sun, as broad as the Thames at Windsor, and flowing slowly to the eastward," and directing its course into the depths of interior Africa. Here, then, was a new point from which theory and conjecture might start in endeavouring to ascertain the termination of the Niger. By the persevering exertions of the British government, an expedition has, however, at length actually made its way into the unknown interior of Africa, and has finally led to the solution of the grand problem which had so long puzzled geographers, as well as exercised their ingenuity. Without entering further into details, it will be sufficient to observe, that instead of only one river being found flowing through the great African plain in one direction, there were several rivers discovered flowing in different directions; all of which, it appears, have been considered at different times, and under different circumstances, the Niger. Hence had arisen the various statements which for ages involved the subject in such deep mystery. The great central stream of Africa has now been very completely traced, whilst much light has been obtained respecting the regions through which it flows. It was reserved for Lander finally to trace the course of the Niger to the Gulf of Benin, where its waters are discharged through a succession of estuaries, extending along the coast a space of about 300 miles. Thus, by means of this river and its numerous tributaries, the prospect is now opened to British commerce of being able to penetrate into the most inland and finest regions of the African continent.

In all parts of the habitable globe the spirit of research, which has already done so much, is still active; nor is it directed only to the determining of the outlines of continents and countries, or to the marking of the leading features of mountains, rivers, and cities, with their relative positions and distances. These are regarded by the geographical inquirer merely as affording a proper basis on which to rest the description of the earth considered as the habitation of man, and as affording him amply the means of improvement and happiness. The picture can be completed only by the continued labours of the scientific observer, who makes the earth, with its various productions, whether natural or artificial, the treasures hid in its bosom, the animals found upon its surface, and, above all, the human beings who people its different regions (and these in all their mutual bearings and relations), the objects of attentive examination and study.

II.—MATHEMATICAL GEOGRAPHY.

CHAP. I.—PRINCIPLES AND DEFINITIONS: OF THE TERRESTRIAL SPHERE.

We have already stated that mathematical geography treats of the figure, magnitude, and motion of the earth; its relations to the other bodies of the system to which it belongs; the relative positions of places on its surface and the methods of delineating the whole or any part of its surface. Several of these topics belong as much to astronomy as to geography; for the former science regards the earth, on the one hand, as the grand observatory whence the phenomena of the heavens are contemplated by man; and, on the other hand, as itself constituting a portion of the planetary system, the laws of which it is the object of the astronomer to investigate and explain. It is only, indeed, by celestial observation that the position of a point on the surface of the earth can be accurately determined; so that the first principles of geographical science must necessarily be drawn from astronomy.

We take for granted, then, the doctrine of the celestial sphere; the globular form, the magnitude, and motion of the earth, with the phenomena arising out of and depending upon its motion. These points are fully discussed in the article Astronomy, part ii. It will be necessary, however, for the sake of distinctness, to state briefly such of the results derived from the reasoning there employed as belong specially to the subject of this article.

The doctrine of the earth's rotundity is that with which the student of geography must first make his mind familiar. To the eye the earth appears a circular plane, at the centre of which the spectator imagines himself placed; whilst the heavens, spread over his head like a magnificent canopy, seem to meet the earth all round in a circle which bounds the view. The space comprehended within this circle is found to present often a very irregular surface, rising into mountains, or sinking into cavities, so as apparently to exclude the idea of its bearing any resemblance to a portion of a globe or sphere. This is, however, nearly its true figure. Were we placed at such a distance from the earth that the eye would be able to take in at one glance the vast mass in its full dimensions, it would present the appearance of a circular disk, of greater or less diameter according to our distance. If viewed on all sides, its circular form would remain unchanged; a property characteristic of no other body but a globe or sphere. The highest mountains would be found to bear so little proportion to the whole bulk, as to cause no perceptible deviation from the globular form; and the same thing may be said of the difference which exists between the polar and equatorial diameters, though that quantity amounts to about twenty-eight miles.

The portion of the earth, then, seen from any point above its surface, is to be regarded as the segment of a sphere, which increases in extent according as the eye is more elevated. Knowing the semidiameter of the earth, and the height of the eye above the surface, it is easy to find the diameter of the circle which bounds our view on the earth; supposing, as is the case at sea, that no object should intervene to obstruct our vision. Thus, let AB (Plate CCLIX. fig. 1) be the height of a mountain on the earth's surface. From A draw the line AD, a tangent to the surface in any direction; D will be the most distant point seen by a spectator whose eye is placed at A, the summit of the mountain. If the line AD be supposed to be carried round the point A, while it at the same time continues to be a tangent to the surface, until, having passed through every possible position, it returns to that from which it set out, the point D will trace the circumference of the circle which bounds the terrestrial view, and of which the radius will not differ much from AD. Now AD being a tangent to the arch BD, we have $AD^2 = (2BC + AB) \times AB = 2BC \times AB$ nearly, since AB must always be very small compared with 2BC, the diameter of the earth. Assuming the diameter equal to 7912 English miles, we have $AD^2 = 7912 \times AB$; or, if AB is expressed in feet, $AD^2 = \frac{7912}{5280} \times AB$. Hence, extracting the square root of the numerical part, we obtain

$$AD = 1{\cdot}224126\sqrt{AB}.$$

The result obtained from this formula will deviate from the truth in consequence of the effect of refraction. The error arising from this cause is found to vary from $\frac{1}{4}$ to $\frac{1}{25}$ of the whole distance. At a medium, refraction may be considered as increasing the distance by about $\frac{1}{14}$, or ·0714 of the whole. Applying this correction to the above formula, it becomes

$$AD = 1{\cdot}3115\sqrt{AB}.$$

For example, if the Peak of Teneriffe is 12,358 English feet in height, then $AD = 1{\cdot}3115\sqrt{12358} = 145{\cdot}8$ miles is the radius of the circle which bounds the view from that elevation.

The circle bounding terrestrial vision, which we have now been considering, does not, except when the eye is close to the surface of the earth, coincide with the sensible horizon as determined by a plane passing through the eye along the line HO, and perpendicular to the vertical line CZ. (See Astronomy, p. 754.) The angle contained between the visual ray AD and the horizontal plane, is called the *dip* of the horizon. For ordinary purposes, however, it is sufficiently accurate to say that the *sensible horizon* is the circle which bounds the view, where the heavens and the earth appear to meet. To this circle the *rational horizon* is parallel, being determined by a plane passing through the centre of the earth perpendicular to the vertical line CZ, and continued in every direction to the sphere of the heavens. Let NESQ (Plate CCLIX. fig. 2) be the terrestrial sphere, of which C is the centre; HO is the rational horizon of the point M.

The rotatory motion of the earth determines the position of the line NS (Plate CCLIX. fig. 2), on which it revolves, and which is called its *axis*. The two points N, S, in which the axis meets the surface, are called the *poles of the earth*. The circle EQ upon the earth, the plane of which passes through C the centre, and is perpendicular to NS the axis, is called the *equator* or *equinoctial line*. This circle is equidistant from the poles of rotation, and its plane coincides with the plane of the celestial equator. The rational horizon and equator being two great circles of the terrestrial sphere, that is, the plane of each passing through the centre, they are mutually bisected. This is a property which belongs to all great circles. Any great circle NPS passing through the two poles is called a *meridian*. Any given point P may have a meridian passing through it; and the plane of that circle will coincide with the plane of the celestial meridian which passes through the zenith of that point. Every meridian cuts the equator at right angles.

The horizon HO corresponding to any point M upon the globe, is divided into four equal parts by the equator and the meridian passing through that point. The points of division are called the four *cardinal points*. Those through which the meridian passes are called the *north* and *south* points of the horizon. Those points, again, through which the equator passes are called the *east* and *west* points.

The earth is divided by the horizon into two hemispheres, called the *upper*, and *lower* or *under hemispheres*; by the equator it is divided into the *northern* and *southern hemispheres*; and by the meridian, into the *eastern* and *western hemispheres*.

The position of any point P on the surface of the earth is determined by referring it to the co-ordinate circles, the equator and meridian. The distance PA of the place P from the equator, measured in degrees and parts of a degree on the meridian passing through the place, is called its *latitude*, which is said to be north or south, according as the place is situated in the northern or southern hemisphere. The arch EA of the equator, intercepted between the meridian passing through the place P and some particular meridian NMS, called the *first meridian*, as being that fixed on from which the reckoning is to commence, is called the *longitude* of the place in question; and is east or west, according as the place is situated in the eastern or western hemisphere in reference to the first meridian. The difference of longitude between two places

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the arch of the equator intercepted between their meri-ians; and is found by subtracting or adding the longitudes, cording as the places are on the same or on opposite sides the first meridian. The ancients assumed for their first eridian that of the Fortunate Islands, which they conceivl to be the western limit of the habitable world. In latr times, the meridian passing through Ferro, one of the anary Islands, and nearly coinciding with that of the anents, was used as the first meridian by the geographers many countries. But in modern systems of geography e first meridian is that which passes through the capil of that country, or through an observatory, if there is e in or near the capital, from which the position of her meridians is determined. By British geographers e meridian of the observatory at Greenwich is reckoned e first meridian. It is usual to call the semicircle NPS, ssing through the two poles and a given place, the melian of that place; and the other semicircle NRS passing rough the opposite point on the globe, the opposite melian. All places lying under the same meridian have e same longitude, and at all of them noon or any other ur occurs at the same instant of absolute time. With gard to places that lie towards the east and west of the eridians of each other, this is not the case. The sun in s apparent diurnal revolution moves over fifteen degrees an hour; so that at a place in fifteen degrees east longude, noon occurs an hour earlier than at places under e first meridian, and at a place in fifteen degrees west gitude, an hour later; and each fifteen degrees by ich the longitude east or west is increased, makes an ditional hour of difference in the time at which noon curs. Hence longitude, and difference of longitude, y be estimated in time, allowing fifteen degrees to an ur, or one degree to four minutes.

If a small circle MPK, or *mpk*, be drawn parallel to the equator at any distance from it, all the places through which that small circle passes will have the same latitude. Such small circles are accordingly called *parallels of latitude.* The difference of latitude between two places is the arch of the meridian intercepted between their parallels of latitude, and is found by subtracting or adding the latitudes, according as the places lie on the same or on opposite sides of the equator.

On the hypothesis of the earth being a perfect sphere, the degree of latitude must be assumed as everywhere of the same length. Actual observation shows that this is not exactly the case, but that the length of the degree increases slightly as we proceed from the equator towards either pole (see FIGURE OF THE EARTH), so as to indicate a flattening of the surface in the latter regions, or that the earth is of a spheroidal figure. This, however, we do not at present take into view. With regard to the degree of longitude, it is at the equator of the same length with the degree of latitude. But on both sides of the equator it decreases gradually on account of the meridians approaching each other until they intersect at the poles. At the equator a degree of longitude is the 360th part of the circumference of a great circle of the terrestrial sphere; at every point to the north or south of the equator it is the 360th part of the circumference of a small circle, of which the radius is equal to the cosine of the latitude. Now, since similar portions of the circumferences of circles are to one another as their radii, if we put L for the length of the degree of longitude at the equator, and L′ for its length in a latitude denoted by l, we have rad. : cos. l : : L : L′. Hence, radius being unity, we obtain

$$L' = L \times \cos. l.$$

From this formula the following table is calculated; the length of the degree of longitude at the equator being assumed equal to 69·06 English miles.

ble showing the Length of a Degree of Longitude for every Degree of Latitude, in Geographical and in English Miles.

Lat.	Geo. Miles.	Eng. Miles.	Lat.	Geo. Miles.	Eng. Miles.	Lat.	Geo. Miles.	Eng. Miles.
1	59·99	69·05	31	51·43	59·20	61	29·09	33·48
2	59·96	69·02	32	50·88	58·57	62	28·17	32·42
3	59·92	68·96	33	50·32	57·92	63	27·24	31·35
4	59·85	68·89	34	49·74	57·25	64	26·30	30·27
5	59·77	68·80	35	49·15	56·57	65	25·36	29·19
6	59·67	68·68	36	48·54	55·87	66	24·40	28·09
7	59·55	68·55	37	47·92	55·15	67	23·44	26·98
8	59·42	68·39	38	47·28	54·42	68	22·48	25·87
9	59·26	68·21	39	46·63	53·67	69	21·50	24·75
10	59·09	68·01	40	45·96	52·90	70	20·52	23·62
11	58·90	67·79	41	45·28	52·12	71	19·53	22·48
12	58·69	67·55	42	44·59	51·32	72	18·54	21·34
13	58·46	67·29	43	43·88	50·51	73	17·54	20·19
14	58·22	67·01	44	43·16	49·68	74	16·54	19·04
15	57·96	66·71	45	42·43	48·83	75	15·53	17·87
16	57·68	66·38	46	41·68	47·97	76	14·52	16·71
17	57·38	66·04	47	40·92	47·10	77	13·50	15·54
18	57·06	65·68	48	40·15	46·21	78	12·47	14·36
19	56·73	65·30	49	39·36	45·31	79	11·45	13·18
20	56·38	64·90	50	38·57	44·39	80	10·42	11·99
21	56·01	64·47	51	37·76	43·46	81	9·39	10·80
22	55·63	64·03	52	36·94	42·52	82	8·35	9·61
23	55·23	63·60	53	36·11	41·56	83	7·31	8·42
24	54·81	62·09	54	35·27	40·59	84	6·27	7·22
25	54·38	62·59	55	34·41	39·61	85	5·23	6·02
26	53·93	62·07	56	33·55	38·62	86	4·19	4·83
27	53·46	61·53	57	32·68	37·61	87	3·14	3·61
28	52·98	60·98	58	31·79	36·60	88	2·09	2·41
29	52·48	60·40	59	30·90	35·57	89	1·05	1·21
30	51·96	59·81	60	30·00	34·53	90	0·00	0·00

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If a great circle B*d* be supposed to be drawn on the terrestrial sphere, cutting the equator obliquely at an angle of about twenty-three and a half degrees, this circle will mark out the course of the sun through the year, and is called the *ecliptic.* It corresponds with the celestial ecliptic, and is divided in the same manner into signs and degrees. The parallel of latitude which passes through the point of the ecliptic in which the sun is placed on any particular day, shows to what points of the earth's surface the sun is vertical on that day. The two parallels BLD, *bld,* which touch the ecliptic at the points where it recedes farthest from the equator to the north and south, are called the *tropics;* the one, BLD, the northern tropic, or the tropic of cancer; and the other, *bld,* the southern tropic, or the tropic of capricorn; because they touch the ecliptic in the first points of these signs. These circles lie in the planes of the corresponding circles in the celestial sphere.

Of the two poles, that which lies in the northern hemisphere is called the *north* or *arctic pole;* and the opposite, lying in the southern hemisphere, is called the *south* or *antarctic pole.* The two parallels of latitude FG, *fg,* which encircle these poles respectively at an angular distance equal to the obliquity of the ecliptic, are called the *polar circles,* the one the north or arctic, and the other the south or antarctic.

Suppose a great circle to be drawn on the terrestrial sphere everywhere equally distant from that point on the surface to which the sun is vertical at any given time; this circle is called the *circle of illumination,* because it separates the enlightened from the dark hemisphere of the earth. It is upon the position of the circle of illumination that the equal or unequal lengths of the days and nights throughout the year depend over the face of the earth. At every season of the year this circle bisects the equator, so that under the equator the days and nights are always equal. When the sun is over either of the equinoctial points E, Q (Plate CCLIX. fig. 6), the circle of illumination bisects not only the equator, but likewise all the parallels to the equator, in consequence of cutting them at right angles; and hence, as the parallel of latitude passing through any point on the earth's surface may be regarded as the path along which that point is carried by the diurnal motion of the earth, at that season of the year the days and nights are equal over all the earth. When the sun is over any other point of the ecliptic, the parallels of latitude are cut obliquely by the circle of illumination, so that they are divided by it into two unequal parts (Plate CCLIX. fig. 7, 8); and hence the days and nights are unequal all over the earth, except at the equator. If the sun is in north declination (fig. 7) at all places to the north of the equator, the days are longer than the nights; but at all places to the south of the equator the nights are longer than the days; because with regard to places to the north, the larger portion of the parallel of latitude lies within the enlightened hemisphere, while with regard to places to the south the larger portion lies within the dark hemisphere. The reverse has place when the sun is in south declination (fig. 8). When the sun is over the northern tropic BD (fig. 7), or over the southern tropic *bd* (fig. 8), the day is then the longest or shortest of the year; and the adjacent polar circle is wholly in the light, and the opposite one wholly in darkness. Thus, within the arctic and antarctic circles the inhabitants have their light and darkness extended to a great length; the sun sometimes skirting round a little above the horizon for many days together, and at another season never rising above the horizon at all, but making continual night for a considerable length of time.

Such are the circles supposed to be drawn on the terrestrial sphere. Though these circles are altogether imaginary, and have really nothing corresponding to them on the earth's surface, yet as the positions of the corresponding circles in the heavens can be accurately determined by observation on the celestial bodies, they become actually as effective for fixing the relative positions of places on the globe of the earth, and for other purposes of geography, as if that globe were reduced to such a magnitude as to admit of its being grasped by the hand of man, and surveyed by a single glance of his eye.

The height NO of the pole (Plate CCLIX. fig. 2) adjacent to any place M above HO the horizon of that place, is equal to the latitude of the place; for the arches MO and EN are equal, each being a quadrant; and taking away from each the common arch MN, the remaining arch NO, the elevation of the pole N, is equal to the remaining arch ME, the latitude of the place M.

Hence there are, with regard to the horizon, three positions of the terrestrial sphere, as there are of the celestial, depending on the latitude of the place. If an observer were placed on the pole, the latitude being 90°, his horizon would coincide with the equator, and all the parallels of latitude would be parallel to the horizon. This is the parallel position of the sphere, which is represented in Plate CCLIX. fig. 3. Again, if an observer were placed on any point of the equator, the latitude being 0, the poles of the earth must be in the horizon; and from the properties of the sphere, the equator, and all the small circles parallel to the equator, must be at right angles to the horizon. This is the right position of the sphere which is represented in fig. 4. With regard to an observer placed at any point between the equator and either pole, the axis of the earth lies obliquely to the plain of his horizon, which is therefore cut obliquely by the equator and all the small circles parallel to the equator: this is the oblique position of the sphere, and is that represented in fig. 2.

The method of determining the latitude of a place, and the difference of longitude between two points on the earth's surface, is given in the article ASTRONOMY, part iv. chap. i. prob. ix. and x. The latitudes and longitudes of two points on the surface of the earth being given, the angular distance may be found; and hence the length of a degree on the earth's surface being known, the distance between the points may be expressed in miles. Thus, let A and B be two points on the earth's surface (Plate CCLIX. fig. 5); let P be the adjacent pole, and PA, PB the meridians passing through A and B: then PA and PB will be the complements of the latitudes, and therefore given; and the spherical angle APB will be the difference of the longitudes, and therefore also given. In the spherical triangle PAB, the base AB of which is the distance required, we have therefore two sides and the included angle, so that the base AB can be found. Put D and D′ for the complements of the given latitudes, and P for the difference of the given longitudes; then, by spherical trigonometry, we have

$$\text{Cos. AB} = \text{cos. D cos. D}' + \text{sin. D sin. D}' \text{cos. P.}$$

By assuming $\tan.\varphi = \tan.\text{D}\cos.\text{P}$, this formula may be reduced to the more convenient form

$$\text{Cos. AB} = \frac{\text{cos. D cos.}(\text{D}' - \varphi)}{\cos.\varphi}.$$

From the above expression the number of degrees and parts of a degree contained in the arch intercepted between the points A and B are to be found; and allowing for each degree 69·06 English miles, the distance will be obtained, expressed in English miles, which will necessarily differ a little from the truth, in consequence of the earth not being truly spherical. To determine the distance between two points on the earth's surface with precision, requires the application of some of the most refined improvements in modern mathematics. See FIGURE OF THE EARTH.

As an example of the above formula, let it be required to find the distance between Edinburgh and Constantinople.

Colat. of Edinburgh ……$34° \ 3' = D$: its long. $3° \ 12'$ W.
Colat. of Constantinople $48° \ 59' = D'$: its long. $28° \ 55'$ E.
Difference of longitude…… $= 32° \ 7' = P$.

$$\text{Tan. } D = \text{tan. } 34° \ 3' = 9{\cdot}829805$$
$$\text{Cos. } P = \text{cos. } 32° \ 7' = \underline{9{\cdot}927867}$$
$$\text{Tan. } \varphi, \ 29° \ 47' \ldots\ldots\ldots\ldots 9{\cdot}757672$$
$$D' = \underline{48° \ 59'}$$
$$D' - \varphi = 19° \ 12' \ldots\ldots\ldots\ldots \text{Its cosine} = 9{\cdot}975145$$
$$\text{Cos. } D = 9{\cdot}918318$$
$$\text{Arith. compl. cosine } \varphi = \underline{0{\cdot}061525}$$
$$\text{Cos. } AB, \ 25° \ 38' \ldots = 9{\cdot}954988.$$

Hence the arch of a great circle of the sphere intercepted between Edinburgh and Constantinople is 25° 38′, or 1770 English miles nearly.

Each of the four quadrants into which the horizon is divided by the equator and the meridian is supposed to be divided into eight equal parts; so that the whole circumference is divided into thirty-two equal parts, which are called *points of the compass;* and to each point of division a name is given indicating its position with regard to the four cardinal points.

The position of one place with regard to another, as estimated by the points of the compass, is called the *bearing* of the former from the latter. Thus, when a place is said to bear N.E. (north-east), N.N.E. (north-north-east), &c. the meaning is, that it lies in the direction of those points in the horizon from the present position of the observer. If a series of points be assumed on the earth's surface, so situated that all of them, when taken in regular succession, lie towards any the same point of the compass, except either of the four cardinal points, the assumed points lie, not in the circumference of a circle of the sphere, but in a sort of spiral line, the characteristic property of which is, that it cuts all the meridians at the same angle. This line is called a *rhumb line;* and, whilst it continually approaches the pole, it can never arrive at it, except after an infinite number of revolutions. In passing, therefore, from one point of the surface of the globe to another, by pursuing the direction in which the latter lies from the former, we do not take the shortest way, which is an arch of a great circle, but move over a portion of a rhumb line, passing through the two points. This is the line described by a ship, whilst her course is continually directed towards one and the same point of the compass.

CHAP. II.—OF THE SURFACE OF THE EARTH, AND ITS GENERAL DIVISIONS: DEFINITIONS.

The surface of the earth contains about 196,663,400 square miles. By much the larger portion of this space is water, which is, indeed, more than twice the extent of the land. The surface of the land is exceedingly diversified, almost everywhere rising into hills and mountains, or sinking into valleys, and sometimes stretching out into plains of great extent. Amongst the most extensive plains are the sandy deserts of Arabia and Africa, the internal part of European Russia, and a tract of considerable extent in Prussian Poland But the most remarkable extent of level ground is the vast table-plain of Thibet in Asia, which is the most elevated tract of level ground on the globe. The principal mountain ridges are the Alps and Pyrenees in Europe, the Altai and Himalaya Mountains in Asia, the mountains of Atlas in Africa, and the Andes or Cordilleras in South America. The greatest concavities of the globe are those which are occupied by the waters of the ocean; and of these by far the largest forms the bed of the Pacific Ocean, which, stretching from the eastern shores of Asia and of New Holland to the western coast of America, covers nearly half the globe. The concavity next in extent is that which forms the bed of the Atlantic Ocean, extending between the new and the old worlds; and a third concavity is occupied by the Indian Ocean. The Arctic and Antarctic Oceans fill up the remaining concavities.

Smaller collections of water which communicate freely with the oceans are called *seas* (Plate CCLIX. fig. 9, 1); and of these, the principal are the Mediterranean, the Baltic, the Euxine or Black Sea, and the White Sea. Seas sometimes take their names from the countries near which they flow; as the Irish Sea, the German Ocean. Some large collections of water, though they have no immediate connection with the great body of waters, being on all sides surrounded by land, are yet called seas; as the Caspian Sea.

A part of the sea running up into the land, so as to form a large hollow, is called a *bay* or *gulf* (fig. 9, 2), as the Bay of Biscay, the Gulf of Mexico; but if the hollow be small, it is called a *creek*, a *road*, a *haven.*

When two large bodies of water communicate by a narrow pass between two adjacent lands, the pass is called a *strait* or *straits* (fig. 9, 3), as the Straits of Gibraltar, the Straits of Dover, the Straits of Babelmandel. A channel is a wider kind of strait. The water usually flows through a strait with considerable force and velocity, forming what is called a *current;* and frequently this current, as in the case of the Straits of Gibraltar, flows continually in the same direction.

A body of fresh water entirely surrounded by land is called a *lake* (fig. 9, 4), as the Lake of Geneva, Lake Champlain.

A considerable stream of water rising inland, and draining a portion of country more or less extensive, discharging its waters into the sea, is called a *river.* A smaller stream of the same kind is called a *rivulet*, or *brook* (fig. 9, 5).

The great extent of land which forms the rest of the surface of the globe is divided into innumerable portions; two of vast extent, but the rest of comparatively small dimensions. The portions of the land which are of great extent are called *continents*, the one the eastern continent, or the old world, comprehending Europe, Asia, and Africa; the other the western continent, or new world, comprehending North and South America. New Holland is a third portion of land, however, which has by some been also reckoned a continent on account of its great extent.

A portion of land entirely surrounded by water is called an *island* (fig. 9, *a*), as Britain, Ireland, Jamaica, Madagascar. According to the strict meaning of this definition, the largest portions of land on the surface of the globe may be said to be islands; for there is every probability that each of the continents is everywhere bounded by the sea. But this is an extent of signification in which the term *island* is not employed; and New Holland is the largest portion of land which is called an island. When a number of smaller islands lie near each other they are said to form a *group* of islands (fig. 9, *b*).

A portion of land which is almost entirely surrounded by water is called a *peninsula* (fig. 9, *c*), as the peninsula of Malacca, the Morea or Grecian Peloponnesus, &c. The term peninsula is often applied to a large extent of country. Thus we speak of Spain as a peninsula. Indeed Africa itself may be considered as a vast peninsula, being connected with Asia only by the narrow isthmus of Suez.

The narrow neck of land which joins a peninsula to the main land, or which connects two tracts of country together, is called an *isthmus* (fig. 9, *d*). The most remarkable isthmuses in the world are, the Isthmus of Suez, which joins Africa and Asia, and the Isthmus of Darien, which connects the continents of North and South America.

A narrow tract of land stretching out into the sea, and appearing to terminate in a point, is called a *cape* (fig. 9, *e*). The most remarkable capes are, the Cape of Good Hope, at the southern extremity of Africa; Cape Horn, at the southern extremity of South America; and the North Cape, at the northern extremity of Europe. A large portion of land jutting out into the sea is called a *promontory* (fig. 9, *f*).

It may assist the memory to keep in view the analogy which subsists between the denominations of land and those of water. The large portions of land called *continents* correspond to the extensive tracts of water called *oceans;* islands are analogous to lakes; peninsulas to seas or gulfs; isthmuses to straits; capes to creeks; and so with the others.

Until of late, in systems of geography, the earth used to be considered as divided into four quarters; Europe, Asia, Africa, and America. A classification in which the whole world is arranged under seven divisions has now however been very generally adopted: These divisions are, Europe, Asia, Africa, North America, South America, Australasia, and Polynesia. With regard to the last two, the one, Australasia, or South Asia, comprehends certain of the great islands, particularly New Holland, which are usually considered as belonging to Asia; and the other, Polynesia, signifying many islands, comprehends all the smaller islands which are scattered over the great expanse of the Pacific Ocean.

This arrangement and classification of the parts of the earth's surface are founded on the most obvious points of distinction. We shall now explain two divisions employed by the ancients, which are founded upon different principles; that into zones, and that into climates.

The division into zones is suggested by the different degrees of temperature which prevail in different regions of the earth. The temperature of a country depends on a variety of circumstances (see PHYSICAL GEOGRAPHY); but of these, one of the most obvious is the position of the sun with regard to the zenith. The more nearly his rays are received vertically, the higher will be the temperature; and, on the contrary, the more obliquely they fall, the less effect will they produce in raising the temperature. Now to every point of the earth's surface between the tropics the sun is vertical twice in the year. It is in this region, then, that the highest temperature will prevail. Again, within the polar circles the sun's rays at all times fall very obliquely; and for a length of time they do not reach these two regions of the globe at all. Here, then, the temperature must be lower than any where else, as all other places enjoy more of the sun's genial influence. In the two regions between the tropics and the polar circles, a medium temperature is found, increasing as we approach the former, and diminishing as we approach the latter. Thus is the earth's surface divided, by the two tropics and two polar circles, into five *zones*, distinguished from one another by the prevailing temperature in each. That between the tropics is called the *torrid zone*, because there the heat is understood to be extreme. This region, which has the equator passing through the middle of it, the ancients, indeed, considered as uninhabitable. The two regions comprehended within the arctic and antarctic polar circles are called the northern and southern *frigid zones*, on account of the severity of the cold which there prevails. The two regions situated between the tropics and the polar circles, the one in the northern hemisphere, bounded by the tropic of cancer and the arctic circle, the other in the southern hemisphere, bounded by the tropic of capricorn and the antarctic circle, are called the northern and southern *temperate zones*, because there neither the heat nor cold is excessive; but the heat reaches the highest temperature of summer, and the cold sinks to the lowest temperature of winter, without either becoming extreme.

As each tropic lies about 23½° from the equator, the breadth of the torrid zone is about 47°, or nearly 3240 English miles. The breadth of each of the frigid zones, that is, from the circumference of the polar circle to the pole, is 23½°, or nearly 1620 miles; so that there remains for the breadth of each of the temperate zones about 43°, or nearly 2970 miles. The superficial content of each zone is easily calculated by the ordinary rules of mensuration. Let s be the surface of a segment of the sphere, d the diameter of the sphere, and h the height of the segment; then

$$s = 3{\cdot}1416\, dh.$$

To apply this formula; let NESQ (Plate CCLIX. fig. 3) be the sphere divided into five zones. It is evident that, for the torrid zone, h must be equal to Ll, or to twice the sine of BE to the radius EC; that for each of the temperate zones h must be equal to LR or lr, the difference of the sines FE and BE to the same radius CE; and that for the space comprehended within each polar circle, h must be equal to NR, the excess of the radius NC above CR, the sine of FE corresponding to the radius. Hence, if we put m for twice the natural sine of the arch BE; for the difference of the natural sines of the arches BE and FE; and for the excess of radius above the natural sine of FE, successively;—since in the case of the terrestrial sphere CE or CN is equal to 3956 miles, we have $h = 3956\, m$. Putting, therefore, instead of d, its value, 7912, and giving the above formula a logarithmic form, we obtain

$$\text{Log.}\, s = \log.\, m + 7{\cdot}9926935.$$

Now, for the torrid zone, $m = 2$ nat. sin. 23° 30′ = ·7975. Hence,

$$\begin{array}{lr} & \text{Log.}\, m = \bar{1}{\cdot}9017307 \\ & 7{\cdot}9926935 \\ \hline s = 78419520 \ldots\ldots\ldots\ldots\ldots & \log. = 7{\cdot}8944242. \end{array}$$

The torrid zone contains, therefore, about 78,419,500 square miles.

Again, for each of the temperate zones, we have m = nat. sin. 66° 30′ — nat. sin. 23° 30′ = ·51831. Hence,

$$\begin{array}{lr} & \text{Log.}\, m = \bar{1}{\cdot}7145896 \\ & 7{\cdot}9926935 \\ \hline s = 50966300 \ldots\ldots\ldots\ldots\ldots & \log. = 7{\cdot}7072831. \end{array}$$

So that each of the temperate zones contains about 50,966,300 English square miles.

Lastly, for the space contained within each of the polar circles we have m = rad. — sin. 66° 30′ = 1 — 0·91706 = ·08294: Hence,

$$\begin{array}{lr} & \text{Log.}\, m = \bar{2}{\cdot}9187640 \\ & 7{\cdot}9926935 \\ \hline s = 8155630 \ldots\ldots\ldots\ldots\ldots & \log. = 6{\cdot}9114575. \end{array}$$

The portion of the surface of the globe comprehended within each polar circle is therefore nearly equal to 8,155,600 square miles.

It is evident that the superficial content of any other zone of the terrestrial sphere may be found by the above formula, by putting m equal to the difference of the natural sines corresponding to the latitudes of the parallels by which the zone is bounded.

If it is required to find the area of a segment of a zone bounded at both extremities by meridians, it is only necessary to find first the area of the whole zone, and then to multiply the result by the number of degrees and parts of a degree in the length of the segment, and to divide by 360. Thus, the number of square miles contained in the portion of the torrid zone terminated by two meridians which are separated from each other by 8° 45′ is equal to $78419520 \times 8\frac{3}{4} \div 360$, which gives 272,290 square miles. By dividg any particular country or district into segments of zones by means of parallels of latitude, its area can easily be calculated.

The division of the earth's surface into climates was employed by the ancients for ascertaining the situation of places. They supposed the northern and southern hemispheres to be each divided into small zones, to which they gave the name of *climates*, the extent and situation of each zone being determined in the following manner. At the equator the day is always equal to the night, and consists therefore of twelve hours. Here the first climate began, and extended to that parallel where the longest day was 12½ hours, which corresponds to 8° 34′ of latitude. Commencing at this same parallel at which the first terminated, the second climate extended to latitude 16° 43′, where the longest day is thirteen hours. Here the third climate began, and was extended in like manner to that parallel where the longest day is 13½ hours. By proceeding in this manner, the space between the equator and each polar circle was divided into twenty-four climates, each of such a breadth as to make half an hour of difference in the length of the longest day at the two parallels of latitude by which the climate was bounded. Having reached the polar circles northward and southward, where the longest day is twenty-four hours, they divided the space within each polar circle in such a manner as to make the difference in the length of the longest day at the beginning and termination of each climate one month. Hence, as the poles are alternately illuminated for six months, there were just six climates within each polar circle.

Table of Climates.

	Climates.	Latitude of the Higher Parallel.		Breadth of the Climate.		Longest Day under the Higher Parallel.	
		Deg.	Min.	Deg.	Min.	Hours.	Min.
Between the equator and either polar circle.	I.	8	34	8	34	12	30
	II.	16	43	8	9	13	0
	III.	24	10	7	27	13	30
	IV.	30	46	6	36	14	0
	V.	36	28	5	42	14	30
	VI.	41	21	4	53	15	0
	VII.	45	29	4	8	15	30
	VIII.	48	59	3	30	16	0
	IX.	51	57	2	58	16	30
	X.	54	28	2	31	17	0
	XI.	56	36	2	8	17	30
	XII.	58	25	1	49	18	0
	XIII.	59	57	1	32	18	30
	XIV.	61	16	1	19	19	0
	XV.	62	24	1	8	19	30
	XVI.	63	20	0	56	20	0
	XVII.	64	8	0	48	20	30
	XVIII.	64	48	0	40	21	0
	XIX.	65	20	0	32	21	30
	XX.	65	46	0	26	22	0
	XXI.	66	6	0	20	22	30
	XXII.	66	20	0	14	23	0
	XXIII.	66	28	0	8	23	30
	XXIV.	66	32	0	4	24	0
Between the polar circle and the pole.						Months.	
	I.	67	23	0	51	1	
	II.	69	50	2	27	2	
	III.	73	39	3	49	3	
	IV.	78	31	4	52	4	
	V.	84	5	5	34	5	
	VI.	90	0	5	55	6	

Besides dividing the surface of the globe into zones and climates, the ancients likewise distinguished the inhabitants of the different regions of the earth by the particular direction in which the shadows of bodies are projected in each region, and by some other circumstances depending on the position of the sun relatively to the zenith or to the meridian. The inhabitants of the torrid zone have their shadows at noon projected, sometimes towards the south and sometimes towards the north, according to the position of the sun in the ecliptic. They were therefore called by the ancients *Amphiscii*, a term derived from αμφι, *about*, and σκια, *a shadow*. In the temperate zones, the sun is at noon always on the same side of the zenith. Hence the shadows of objects at noon always fall in the same direction; in the northern temperate zone towards the north, and in the southern temperate zone towards the south. The inhabitants of these regions were accordingly called *Heteroscii*, from ἑτερος, *different*, and σκια. Within the polar circles the sun does not always rise and set every twenty-four hours, as in the other zones; but for a certain number of days in our summer he never sets to places within the arctic polar circle, nor rises to places within the antarctic; and the contrary takes place for a certain number of days during our winter. The number of days during which the sun is present or absent increases as we advance from the polar circle towards the pole. When the sun continues above the horizon for twenty-four hours or upwards, the shadows will make a complete circuit round the objects from which they are projected; hence the inhabitants of the frigid zones were called *Periscii*, from περι, *about*, and σκια.

Again, the inhabitants of two places which lie under the same meridian, and have the same latitude, but are situated on opposite sides of the equator, were called, relatively to each other, *Antœcii*, from αντι, *opposite to*, and οικια, *a habitation*. At such places the hours of the day will always correspond, but the seasons of the year will be opposite. The inhabitants of two places which have the same latitude, and are situated on the same side of the equator, but under opposite meridians, were called *Periœcii*, from περι, *about*, and οικια. They have always the same season of the year at the same time; but any hour of the day at the one place corresponds to the same hour of the night at the other. The inhabitants of two places which have the same latitude, but are situated on opposite sides of the equator, and under opposite meridians, are called *Antipodes* to each other, from αντι, *opposite to*, and πους, *a foot*. They have always opposite seasons and opposite hours.

CHAP. III.—DESCRIPTION AND USE OF THE GLOBES.

When geographers became familiar with the doctrine of the sphericity and motion of the earth, it was an obvious step to have recourse to an artificial sphere for illustrating that doctrine. From a very early period, accordingly, the instruments called the *terrestrial* and *celestial globes* have been employed for this purpose. A sphere made of metal, ivory, plaster, paper, pasteboard, or some other convenient substance, is suspended in a brass ring NES (Plate CCLX. fig. 1), of somewhat greater diameter, on two pins N, S, upon which it can be made to revolve. The sphere, thus suspended, is placed in a frame BMC, which may be in many respects variously constructed, according to the taste of the workman; but its upper part BC always consists of a broad ring made of metal or wood, and supported in a horizontal position. The inner circumference of this ring is equal to that of the brass circle in which the globe is suspended; and two notches in its inner edge, diametrically opposite to each other, receive the brass ring, which also rests in a groove below, in such a position that the plane of the horizontal ring bisects the sphere. By this arrangement the globe can be made to revolve on its axis, and the brass circle can be made to slide round in its own plane. On the surface of the globe are delineated the equator or equinoctial line, situated exactly in the middle between the two points on which the globe is suspended, and divided into 360 degrees; the ecliptic, divided into twelve signs, and each of these subdivided into thirty degrees; the two tropics; the two polar circles, with as many more parallels to the equator as are found convenient; and generally twenty-four meridians passing through the points of suspension, which represent the poles. The first meridian is usually made to pass through the intersections of the equator and ecliptic, the points of the vernal and autumnal equinoxes; and from the former of these points the reckoning of the degrees on the equator and ecliptic begins. The brass circle in which the globe hangs may be made to represent the meridian of any given point on the surface of the globe, by simply bringing the given point under it by turning the globe round on its axis. Hence the brass circle is called the *universal meridian.* It is divided, by the equator and two poles, into four quadrants, each of which is graduated; and on the semicircle NES (Plate CCLX. fig. 1) the degrees are reckoned from the equator towards either pole, while on the opposite semicircle they are reckoned from either pole towards the equator. On the broad horizontal circle of the frame in which the globe stands are drawn several concentric circles, the outer of which is divided into 365 equal parts, answering to the number of days in the year; whilst the other circles are graduated, the innermost (or rather another circle concentric with it, but larger) being, besides, divided into thirty-two equal parts corresponding to the points of the compass. The circle next the outer edge forms the calendar, and it has the names of the months arranged in order around it, whilst the divisions are distributed so as to mark the number of days in each. The adjacent circle contains the signs and degrees of the ecliptic, so arranged that against each day of the year is found the point of the ecliptic in which the sun is situated on that day. The innermost circle represents the horizon; and the two notches in which the brazen meridian rests pass through the north and south points. It is divided into four quadrants by the cardinal points; and the degrees of the two quadrants, which form the northern semicircle, are reckoned from the east and west points towards the north; while the degrees of the other two quadrants are reckoned from the east and west towards the south.

Such is a general view of the parts which belong alike to both globes, the terrestrial and the celestial. A more minute description seems unnecessary, as a careful inspection of the globes themselves, with their appendages, will convey a much more distinct conception of them than can be given either by description or by drawings. It will be necessary, however, to describe shortly the horary or hour-circle, the quadrant of altitude, and the compass.

The hour-circle is a small circle of brass, divided into twenty-four equal parts corresponding to the hours of the day, the divisions being reckoned in two twelves to suit the hours before and after noon. This circle is fixed on the axis of the globe, having its centre coinciding with the north pole. It can be adjusted with the hand to any meridian, but is at the same time tight enough to be moved along with the globe. Some globes have the hour circle fixed on the meridian, with an index that admits of being adjusted with the hand, but is carried round with the globe.

The quadrant of altitude is a thin flexible slip of brass, equal in length to one fourth part of the circumference of a great circle on the globe. It is graduated on one side, and is furnished with a nut and screw at one end, for the purpose of making it fast to the brazen meridian. Its use is to measure degrees on the surface of the globe in any direction.

The compass is simply a magnetic needle suspended over the centre of a circle, on the circumference of which are marked the thirty-two points of the compass. It is fixed to the under part of the frame in which the globe is suspended, and is used for the purpose of placing the meridian due north and south.

On the terrestrial globe the land and water which compose the surface of the earth are delineated, with the various divisions belonging to each. If we suppose the globe to be six or seven feet in diameter, the true height of the mountains on the earth's surface must be reduced, in order to be represented on the globe in due proportion to its bulk, in the ratio of 7912 miles to six or seven feet; that is, the height of the protuberance on the globe which shall represent any particular mountain must be somewhat about the six millionth part of the actual elevation of the mountain above the general surface of the earth. Apply this to the highest mountain in the world, which does not exceed five and a half miles in height; the elevation of the protuberance representing it on a globe of the supposed dimensions would be about one seventeenth part of an inch above the general surface. It is seldom, however, that globes are made of this size. One third of the supposed diameter is more near to the ordinary dimensions. Hence we see with what propriety the earth is represented by a globe having a smooth surface.

But in order to render the representation more complete, it may be supposed necessary that the terrestrial globe should be enclosed in a hollow sphere which would represent the heavens surrounding the earth on all sides. In conformity with this idea the *armillary sphere* was contrived, in which the several circles of the system of the world, put together in their natural order, are represented, with a small globe in the centre of the sphere to represent the earth. Fig. 3, Plate CCLX., represents a sphere of this description, which will be sufficiently understood by inspection. The ordinary way, however, of representing the heavens, proceeds on the supposition that the eye of the observer is placed, not in the centre of the celestial sphere, but beyond its bounds, so as to look down on a *convex* surface. Thus are the stars and constellations represented in their relative positions on the celestial globe (fig. 2), with which the concave surface of the visible heavens is easily compared.

Besides answering the general purposes of illustration, the globes furnish also the means of resolving with facility, and with a degree of accuracy sufficient for ordinary purposes, many problems in geography and practical astronomy. It is only requisite to consider the circumstances on which the solution of a problem depends, and to arrange on the globe these circumstances, according to their natural order and dependence, and the result is at once obtained. We proceed to give a few of the more useful problems, with their solutions by the globes.

I. *Solution of Problems by the Terrestrial Globe.*

Prob. 1. To find the latitude and longitude of a given place.

Bring the place under the graduated edge of the brazen meridian, then the degree of the meridian immediately over it is its latitude north or south, and the degree of the equator cut by the meridian is its longitude east or west.

Prob. 2. The latitude and longitude of a place being given, to find the place itself on the globe.

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Bring the point of the equator corresponding to the iven longitude to the brazen meridian; under the degree f latitude on the meridian the place is found.

Prob. 3. To find the distance between any two places n the globe.

Lay the quadrant of altitude over the two places, and ark the number of degrees between them. The degrees ay then be converted into English miles, if required, by ultiplying by 69·06.

Prob. 4. The hour at any one place being given, to find hat hour it is at any other place; or to find the differ- ce of longitude between the places in time.

Bring the place at which the hour is given to the bra- en meridian, and set the index, or the hour-circle, to at hour; then turn the globe till the other place comes der the meridian, and the index, or the hour-circle, ill show the hour required. The difference between the me found and the time given is the difference of the ngitudes of the places in time.

Prob. 5. To rectify the globe for a given place.

Elevate the pole that is adjacent to the place as many de- rees above the wooden horizon as are equal to the latitude.

Prob. 6. To find at what hour the sun rises and sets a given place, for any given day.

Rectify the globe for the latitude of the place; find om the wooden horizon the sun's place in the ecliptic r the given day, and bring it to the meridian. Set e index to XII., and turn the globe till the sun's place mes to the eastern edge of the horizon, the index will ow the hour of rising; then turn the globe till the sun's ace comes to the western edge of the horizon, and the dex will show the time of setting.

By doubling the hour of sunrise, we obtain the length the night; and by doubling the hour of sunset, we ob- in the length of the day. It is evident also that the me arrangement of the globe will give the point of the mpass on which the sun rises and sets, by simply ob- rving what point of the circle of rhumbs, on the wooden rizon, is cut by the sun's place in the ecliptic at the ne of rising and setting. Further, by observing when e sun is about eighteen degrees below the eastern and estern parts of the horizon, the time of the beginning the morning twilight, and of the ending of the evening ilight, is found.

Prob. 7. To find the sun's declination for a given day of given month, and to what places the sun will be vertical that day.

Find, on the wooden horizon, the sun's place in the liptic for the given day; bring that point of the ecliptic the meridian, the degree immediately over it on the eridian is the declination north or south. Turn round e globe till it has made a complete revolution; and to ery place which passes under that degree of the meri- an, the sun will be vertical on that day.

Prob. 8. The hour and day being given at a particular ace, to find where the sun is then vertical.

Find the sun's declination by the preceding problem; ing the given place under the meridian, and set the in- x to the given hour; then turn the globe till the index ints to XII. noon; and all the places under the meri- an will have noon at the given time; and that place hich is under the degree of the meridian that corre- onds with the sun's declination will have the sun in the nith.

Prob. 9. The hour and day being given at a particular ace, to find where the sun is then rising or setting, and ere it is noon or midnight.

Rectify the globe for the given place; and having pre- ously found by last problem the place to which the sun vertical at the given time, bring that place to the me- lian. Then, to all the places under the western edge of the horizon the sun is rising, and to those under the eastern he is setting; to those under the upper half of the meridian it is noon, and to those under the lower half it is midnight.

Prob. 10. A place in the torrid zone being given, to find on what two days of the year the sun will be vertical to that place.

Find the latitude of the place; turn round the globe, and note the two points of the ecliptic which pass below the degree of latitude on the meridian. Find in the calendar circle of the wooden horizon the days corresponding to these two points of the ecliptic, and these are the days required.

Prob. 11. To find the sun's meridian altitude at a given place on a given day.

Rectify the globe for the latitude of the place; bring the sun's place for the given day to the meridian; count the number of degrees between that place and the horizon for the altitude required.

Prob. 12. To find the altitude of the sun at any given place and hour.

Rectify the globe for the latitude; bring the sun's place to the meridian, and set the index to XII. noon; turn the globe till the index point at the given hour; fix the quadrant of altitude on the meridian at the degree of latitude, and lay it over the sun's place; count the number of degrees on the quadrant between that point and the horizon for the altitude required.

Prob. 13. To find all the places to which a lunar eclipse is visible at any instant.

Find the place to which the sun is vertical at the given time; rectify the globe for the latitude of that place, keeping the place under the meridian; set the index to XII. noon; then turn the globe till the index point to XII. midnight; the eclipse will be visible to all those places which are above the horizon.

Prob. 14. Any place in the north frigid zone being given, to find how long the sun shines there without setting, and how long he is totally absent.

Rectify the globe for the latitude of the place; bring the ascending signs of the ecliptic to the north point of the horizon, and note at what degree the ecliptic is intersected by that point; find on the wooden horizon the day and month corresponding to that degree; from that day the sun begins to shine continually. Next, bring the descending signs to the north point of the horizon, and by observing at what degree the ecliptic is now cut, and referring to the horizon, we find the time when the sun ceases to shine without setting, which is the termination of the longest day. By proceeding in the same manner with the southern point of the horizon, we will find the beginning and end of the longest night.

Prob. 15. Two places being given, to find the angle which a great circle passing through them makes with the meridian of each.

Rectify the globe for both places successively, bringing in each case the place for which the globe is rectified to the meridian; fix the quadrant of altitude in each operation on the meridian over the place for which the globe is rectified, and lay it over the other place; the two arches intercepted successively on the horizon between the quadrant and the meridian measure the angles required. It is evident, that if both places lie on the same meridian, the angle is 0; and that if both lie on the equator, the angles will be each 90°.

If a ship be supposed to sail from the one place to the other, on a great circle of the terrestrial sphere (which supposition implies that the ship's course is altered every instant), then the one angle found by this problem will be the course with which the ship left the one place, and the other angle the course with which she arrived at the other place. The arch of the great circle intercepted between the places would be the distance sailed.

PROB. 16. To construct a horizontal dial by the globe for a given latitude.

Rectify the globe for the latitude; bring the first meridian under the brazen meridian, and note the arches of the horizon intercepted between the southern point and the several meridians in the eastern and western hemispheres. If the number of meridians drawn on the globe be twenty-four, which is usually the case, the arches intercepted on the horizon will measure the angles which the hour-lines make with the meridian. To find the angles corresponding to half hours and quarters, turn the globe gradually from its position in which the first meridian was under the brazen meridian, noting for each arch of 3° 15′ of the equator that passes under the brazen meridian, the arch of the horizon intercepted between the southern point and the first meridian; the arches thus found give the positions of the lines corresponding to the half hours and quarters. The style of the dial represents the axis of the earth, and must therefore make with the plane of the horizon an angle equal to the latitude of the place.

A direct north or south dial for any latitude may be constructed in the same manner, by considering it as a horizontal dial for a latitude which is the complement of the given latitude.

II. *Solution of Problems by the Celestial Globe.*

PROB. 1. To find the latitude and longitude of any star.

Bring the pole of the ecliptic to the meridian. Then, having fixed the quadrant of altitude over the pole, place it over the given star; the number of degrees between the ecliptic and the given star is the latitude; and the number of degrees between the edge of the quadrant and the first point of Aries indicates the longitude.

PROB. 2. To find a star's place in the heavens, its latitude and longitude being given.

Place the extremity of the quadrant of altitude on the pole of the ecliptic, and make its graduated edge cut the ecliptic in the longitude of the star; then the star will be found under the degree of the quadrant that denotes its latitude.

PROB. 3. To find the right ascension and declination of the sun or of a star.

Bring the sun's place, or the star, to the meridian; the degree of the equator cut by the meridian gives the right ascension, and the degree of the meridian over the sun's place, or the star, shows the declination north or south.

PROB. 4. The latitude of a place, the day and hour being given, to arrange the celestial globe so as to exhibit the appearance of the heavens at that place and time.

Rectify the globe for the latitude of the place; bring the sun's place for the given day to the meridian; set the index to XII.; then turn the globe till the index point to the given hour. In this position, the globe will represent the actual appearance of the heavens.

PROB. 5. To find the time when any of the heavenly bodies rises, sets, or comes to the meridian, on a particular day at a given place.

Rectify the globe for the latitude of the place; bring the sun's place to the meridian, and set the index to XII.; then turn the globe till the star comes to the eastern edge of the horizon; the index will show the time of rising. Next, turn the globe till the given star comes to the western edge of the horizon; the index will show the time of setting. Lastly, bring it to the meridian, and the index will show the time of its culmination or southing.

PROB. 6. To find on what day of the year any given star comes to the meridian at a given hour.

Bring the given star to the meridian, and set the index to the given hour; turn the globe till the index points to XII. noon, and note the degree of the ecliptic cut by the meridian; the day of the month which corresponds to that degree is the day required.

PROB. 7. The latitude of a place, the altitude of a star, and the day of the month, being given; to find the hour of the night.

Rectify the globe for the latitude; bring the sun's place to the meridian, and set the index to XII.; fix the quadrant in the zenith, then move the globe and the quadrant till the star comes under the degree of the quadrant which denotes the given altitude, and the index will show the hour required.

PROB. 8. The year and day being given, to find the place of a planet.

Find the sun's place for the given day, and bring it to the meridian; set the index to XII.; then find in the Nautical Almanack the time when the planet passes the meridian on the given day, and turn the globe till the index points to the hour thus found; find in the almanack the declination of the planet for the same day, and under it on the globe is the place of the planet.

These are a few of the more important problems that can be resolved by the globes, and will be sufficient to illustrate the principle of solution. The solution of problems by the armillary sphere depends upon the very same principles.

CHAP. IV.—OF THE CONSTRUCTION AND USE OF MAPS.

In representing the geographical divisions of the earth's surface, two objects are to be kept in view; on the one hand, to exhibit accurately to the eye the relative position of the different countries; and, on the other hand, to give a delineation sufficiently minute to furnish a distinct knowledge of the necessary details. As the globe has very nearly the exact figure of the earth, the representation which it affords of the surface fulfils the first of these objects in the most perfect manner; but to attain the second it would be requisite to enlarge the globe beyond all convenient size. A globe of the ordinary dimensions serves almost no other purpose in this respect, but to convey a clear conception of the earth's surface as a whole; exhibiting the figure, extent, position, and general features of the great continents and islands, with the intervening oceans and seas. To obtain a detailed representation of any part of the earth's surface, geographers have therefore found it necessary to have recourse to *Maps,* in which countries are delineated on a plane, while the mutual proportions of the distances of places are preserved as nearly as possible the same as on the globe.

For the construction of maps different mathematical hypotheses have been adopted.

By one method of construction, that of *projection,* the boundaries of countries, and their more remarkable features, are represented according to the rules of perspective, on the supposition of the eye being placed on some point of the sphere, or at some given distance from it, which may be increased indefinitely. Wherever the eye is supposed to be situated, the representation thus obtained answers very well, provided the surface to be represented is of small extent, and the point of view, or *projecting point,* is nearly over the centre; but when the surface is of great extent, for example, a whole hemisphere, those places which are situated near the border of the projection are in all of them much distorted.

Another method, that of *development,* is founded on the supposition that the spherical surface to be represented is a portion of a cone, of which the vertex is situated some-were in the polar axis produced, and the conical surface is supposed either to touch the sphere in the middle parallel of the map, or to fall within the sphere at the middle parallel, and without it at the extreme parallels. The surface of the cone is then supposed to be spread out into a plane.

A third method, which depends on the development of a cylindrical surface, is that according to which maps are so delineated as to have the parallels of latitude and circles of longitude respectively represented by parallel straight lines. By this method marine charts are constructed. As the rhumb makes equal angles with every meridian, it necessarily, according to this method of delineation, becomes a straight line. Such a representation of the earth's surface is commonly called *Mercator's Chart*, although the invention is due to an English mathematician, Edward Wright.

These are the three principal methods employed to represent to the eye the several countries on the surface of the earth.

I. *Construction of Maps by Projection.*

The representation of any portion of the earth's surface obtained by projection, varies, of course, its character according to the several situations of the eye and of the plane of projection, in relation to the meridians, parallels, and various points or places so represented. It is usual to assume the plane of a great circle of the sphere as the plane of projection, and to suppose the eye situated at some point in a straight line perpendicular to this plane, and passing through the centre of the circle. If the distance of the eye from the plane of projection be supposed indefinitely great, the projection is called the *orthographic ;* if it is supposed to be upon the surface of the sphere, the projection is called the *stereographic ;* and if the eye is supposed to be in such a position, that the projections of the meridians and parallels of latitude are nearly equidistant, as the meridians and parallels themselves are upon the globe, the projection is called the *globular*. In order to apply these projections to the construction of maps, we must attend to the properties of each.

1. *Orthographic Projection of the Sphere.*

The fundamental principle in this projection is, that the representation of any point on the sphere is where a perpendicular from that point meets the plane of projection. Hence it follows that the projection of a line of any kind is determined by supposing perpendiculars to fall from every point in that line upon the plane of projection, and a line to pass through the points of intersection of these perpendiculars with that plane.

If the proposed line be a straight line, its orthographic projection will also be a straight line, being the intersection of the plane of projection with the plane perpendicular to it passing through the proposed line.

If the proposed line be the circumference of a circle parallel to the plane of projection, its orthographic projection will also be a circle of the same diameter ; since the circle and its projection are the equal and parallel extremities of the cylinder formed by the perpendiculars falling upon the plane of projection.

If the proposed line be the circumference of a circle, of which the plane is perpendicular to the plane of projection, its orthographic projection will be a straight line equal to its diameter.

If the proposed line be the circumference of a circle, of which the plane is neither parallel nor perpendicular to the plane of projection, its projection will be an ellipse, being the curve in which the plane of projection intersects the cylinder formed by the perpendiculars falling upon it from every point in the circumference of the circle.

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An accurate idea of the orthographic projection of any line or figure may be obtained by holding it up in the light of the sun, and observing the shadow formed on a plane perpendicular to the direction of the sun's rays. The rays which pass close to the figure are the perpendiculars to the plane of projection, and the shadow is the orthographic projection of the figure.

From the nature of this projection, the orthographic representation of half the surface of the globe shows nearly the true figure and proportions of countries about the middle of the map, that is, directly opposite to the supposed position of the eye ; but towards the extremities the true figure and position of the countries are imperfectly exhibited. For this reason this method of projection is seldom employed in geography, but in astronomy it is frequently used. We shall give, however, the orthographic projection of the sphere on the plane of the equator and on the plane of the meridian.

To project the Sphere orthographically on the Plane of the Equator. From any point C as a centre, with any radius CA (Plate CCLX. fig. 4), describe the circle ABD. Let this circle represent the equator, upon the plane of which it is required to project the sphere orthographically. It is evident that the centre C will be the projection of the poles of the equator, and that since the planes of the meridian circles are perpendicular to the plane of the equator, these circles will be projected into diameters, making with each other the same angles as do the planes of the meridians. Let A 90, B 180, be two perpendicular diameters ; they will represent two meridian circles at right angles to each other : divide the semicircle B 90 D into twelve equal parts at the points 15, 30, 45, &c., and let diameters be drawn through the points of division ; then the twenty-four radii CB, C 15, C 30, &c. will be the projections of the twenty-four meridians usually drawn upon the globe, any one of which, as BC, may be considered as the first meridian.

Next, it is evident that the parallels of latitude will be projected into circles, which have C for their common centre, and of each of which the radius will be equal to that of the corresponding parallel of latitude, or to the cosine of the latitude of the parallel. Let us suppose that a parallel is drawn on the globe for every tenth degree of latitude ; then divide the quadrant AB into nine equal parts, at the points 80, 70, 60, &c. ; from these points of division let fall perpendiculars upon BC, meeting it in the points 80, 70, 60, &c. ; the lines C 80, C 70, C 60, &c. are equal to the cosines of the arches B 80, B 70, B 60, &c. to the radius BC. From the centre C, therefore, describe circles with these lines as radii ; and these circles will be the projections of the parallels corresponding to the 80th, 70th, 60th, &c. degrees of latitude.

Lastly, the projections of the polar circles and of the tropics may be found by setting off from the point A towards B, and from the point B towards A, twenty-three and a half degrees, drawing perpendiculars to BC through the points of division, and describing circles from C as a centre through the points in which these perpendiculars cut BC.

Thus will the projection of the sphere upon the plane of the equator be completed. The representation given of the polar regions in a map of this description is tolerably correct, but the countries towards the equator are very much distorted.

To project the Sphere orthographically on the Plane of the Meridian. From any point C as a centre, with any distance CA (Plate CCLX. fig. 5), describe a circle PASB, to represent the meridian circle, on the plane of which it is required to project the sphere orthographically. Draw the diameters PS and AB at right angles to each other : then may PS be assumed as the projection of the meridian which is at right angles to the plane of projection; and AB will be the projection of the equator, since that circle cuts all the meridians at right angles. The other meridians cutting the projecting plane obliquely are projected into ellipses, having PS for their common transverse axis, and the cosines of their inclinations to the projecting plane for their several semiconjugate axes. Let the quadrant AS be therefore divided into six equal parts in the points 15, 30, &c. from which let 15*m*, 30*n*, &c. be drawn perpendicular to AC, and meeting it in *m*, *n*, &c. Describe the ellipses P*m*S, P*n*S, &c. having a common transverse axis PS, and C*m*, C*n*, &c. for their semiconjugate axes: these ellipses are the projections of the meridians passing through every fifteenth degree of the equator.

Again, to project the parallels of latitude: Divide either of the quadrants AP or BP into nine equal parts, in the points 10, 20, 30, &c. and draw through the points of division straight lines parallel to AB, the projection of the equator: these lines are the projections of the parallels on the one side of the equator to every tenth degree of latitude. The parallels on the other side of the equator are to be drawn in the same manner; as are also the tropics and polar circles, the former at 23½° on each side of the equator, and the latter at 23½° from the poles.

In this projection there is great distortion in the appearance of the regions about the poles, and of all the countries near the meridian PASB. It is as we approach the centre of the map that this distortion begins so far to disappear as to allow a projected portion of the earth's surface to acquire any considerable resemblance to its delineation on the globe.

2. *Stereographic Projection of the Sphere.*

In the stereographic projection of the sphere the eye is supposed to be situated at one of the points where the surface of the sphere is intersected by a straight line passing through the centre, and perpendicular to the plane on which the projection is to be made. This plane, as we have already remarked, is that of a great circle of the sphere; so that the point on the sphere at which the eye is supposed situated will be everywhere 90° distant from the circumference of that circle whose plane is assumed as the plane of projection. In order that the lines and circles on the sphere may be visible to the eye in this position, it will be necessary to suppose the sphere to be transparent. Let, then, ABEC (Plate CCLX. fig. 6) be a great circle drawn on a sphere of this description, and passing through the eye at E. Let FG be a plane passing through *a*, the centre of the sphere, in such a manner as to cut the plane of the circle ABEC at right angles in the diameter HK, and to make each of the arches EH, EK, equal to 90°: then FG will be the plane of projection. Draw EA the diameter of the sphere passing through the eye; also draw EB, EC, to B and C, any two points in the circumference of the circle ABEC; and let the lines EA, EB, EC, intersect the plane FG in the points *a*, *b*, *c*. By the fundamental principle of the stereographic projection, namely, that the representation of any point is where the straight line drawn from it to the eye intersects the plane of projection, the points *a*, *b*, *c* are the projections of the points A, B, C. It is evident also that the line *bc*, in which the planes EBC and FG intersect each other, is the projection of the line BC, or of the arch BAC; and that the lines *ab*, *ac*, are the projections of the arches AB, AC.

Since E*ab* is a right angle, *ab* is the tangent of the angle *a*E*b* to the radius E*a*. But the angle *a*E*b* is measured by half the arch AB: hence *ab* is the tangent of half the arch AB, or its semitangent. Thus it appears, that if a great circle pass through the projecting point E, any arch of it reckoned from the opposite point of the sphere is projected into a straight line passing through the centre, and equal to the semitangent of that arch.

Let BDC be any circle drawn on the sphere, and having BC for a diameter. Take D any point in the circumference of that circle, and draw ED intersecting the plane FG in the point *d*. If the point D be carried round the circumference BCD, the line ED will trace the surface of a cone of which BDC is the base; and the line *bdc*, (the intersection of the plane FG with the conical surface), which is traced by the point *d*, is the projection of the circle BCD.

Now, it can be demonstrated that the angles EBC, ECB, are equal to E*cb*, E*bc*, each to each; so that the cones EBC, E*bc* are similar. Hence the projection *bdc* is a circle, whose diameter *bc* is found by taking *ab* and *ac* equal to the semitangents of the arches AB, AC.

Thus it appears that every circle of the sphere is, according to the stereographic projection, represented by a circle; but a circle can be described when three points in the circumference are given, or when two points in the circumference and the radius are given. Hence this property renders the projection of the sphere by this method very easy.

Another very elegant and important geometrical property of this projection is, that any two straight lines touching the sphere at one and the same point are represented by two straight lines which make with each other on the plane of projection an angle equal to that contained by the touching lines themselves. Hence also the angle formed by any two circles of the sphere is equal to the angle formed by their projections.

When it is further considered that the stereographic projection gives a representation of a hemisphere, in which the parts about the extremity of the map are less distorted than in the representation obtained by the orthographic projection, it must be concluded that the former method is preferable to the latter.

To project the Sphere stereographically on the Plane of the Equator. Upon C as a centre (Plate CCLX. fig. 7) describe a circle ABGE to represent the equator, on the plane of which it is required to project the sphere; or rather that hemisphere which lies remote from the point of sight. As the eye must be supposed to be situated at the pole, it is evident that the centre C will be the projection of the opposite pole, and that the meridians will be projected into straight lines passing through C, and dividing the circumference of the circle ABGE into as many equal parts as there are meridians supposed to be drawn on the globe. If there are twenty-four meridians, then draw AG any diameter, and divide the semicircle AEG into twelve equal parts. Through the points of division draw diameters, as BCE, FCK, DCH, &c., and the radii thus found will be the projections of the meridians corresponding to every fifteenth degree of the equator, any one of which may be assumed for the first meridian.

Again, to project the parallels of latitude; let AG and BE be perpendicular diameters. Divide the quadrant AB into nine equal parts in the points 10, 20, 30, &c. From E to the several points of division draw straight lines intersecting AC in the points 10, 20, 30, &c. The lines C 10, C 20, C 30, &c. are the semitangents of the distances of the several parallels of latitude from the pole. Hence the points 10, 20, 30, &c. are the points of intersection of the projected parallels with the projected meridian AG. Upon C, then, as a centre, at the distances C 10, C 20, C 30, &c. describe concentric circles, and these will be the projections of the parallels corresponding to every tenth degree of latitude. The tropics and polar circles are found in the same manner.

To project the Sphere stereographically on the Plane of

Meridian. From the centre C (Plate CCLX. fig. 8), with any radius CA, describe the circle ASBP to represent the meridian on the plane of which it is required to project the sphere stereographically. As the eye, in this case, is supposed to be situated at a point in the equator, that circle will be projected into a straight line passing through the centre C: let it be represented by the diameter AB. Draw the diameter PS perpendicular to AB; then will PS represent the meridian passing through the eye, and P and S will be the poles. To project the other meridians, divide the quadrant AP into nine equal parts (supposing a meridian to pass through every tenth degree of the equator) at the points 10, 20, 30, &c., and from S draw straight lines to these points of division intersecting AC in the points 1, 2, 3, &c. The lines C 1, C 2, C 3, &c. are the semitangents of the arcs of the equator which measure the distances of the points in which the several meridians cut the equator from the point of the sphere opposite to the eye. Hence the points 1, 2, 3, &c. are the points in which the projected meridians will intersect the projected equator AB. But the projected meridians also pass through the points P and S. In each, therefore, there are three points given. If we describe, then, the arches P 1 S, P 2 S, P 3 S, &c. these arches will be the projections of the meridians on one side of that passing through the point opposite to the projecting point, and those on the other side are to be found in like manner.

Again, by dividing each of the quadrants PA, PB into nine equal parts, we find two points in each of the parallels of latitude. A third point in each will be found by drawing straight lines from B to each of the points of division 80, 70, 60, &c. so as to intersect PC in the points 8, 7, 6, &c.; for the lines C 8, C 7, C 6, &c. are the semitangents of the arcs intercepted upon that meridian of which PS is the projection between the several parallels and the point of the sphere opposite to the projecting point. Describe, then, the several arches through the three points found in each; and in this manner the parallels on one side of the equator are found. Proceed in the same manner with regard to the parallels on the other side of the equator, and with regard to the tropics and polar circles, and the projection will be completed. It is evident that the centres of all the projected meridians will lie in the line AB, or in that line produced; and from the construction it is easy to show that the distance of the centre of each projected meridian from the point C is equal to the tangent of the inclination of the meridian to the plane of projection; while the radius of the projected meridian is equal to the secant of the same angle.

Further, the centres of all the projected parallels of latitude lie in the line PS, or in PS produced; and the centre of each projected parallel is distant from C by the secant of the arch which measures the distance of the parallel from the pole; while the radius of the projected parallel is equal to the tangent of the same arch.

To project the Sphere stereographically on the Plane of the Horizon for a given Latitude. We must here suppose the eye to be situated at the point of the sphere opposite to the place of which the latitude is given. From the centre C (Plate CCLX. fig. 9), with any radius CN, describe a circle NWSE to represent the horizon upon which it is required to project the sphere. To avoid intricacy among the lines necessary to be drawn for the construction, let the subsidiary circle N′W′S′E′ (Plate CCLXI. fig. 1) be described with the same radius. Through C, the centre of each circle, draw two diameters WE, NS (Plate CCLX. fig. 9), and W′E′, N′S′ (Plate CCLXI. fig. 1), intersecting each other at right angles. Let the diameters NS, WE (Plate CCLX. fig. 9) be the projections of the meridian of the given place, and of a semicircle at right angles to that meridian, and passing also through the given place. It is evident that the points N, W, S, E are the four cardinal points of the horizon. On the circumference of the subsidiary circle N′W′S′E (Plate CCLXI. fig. 1) take N′P′ equal to the given latitude; and draw the straight line W′P′ intersecting CN′ in P: then will CP be the semitangent of the distance of the pole from the point on the sphere opposite to the projecting point. Make therefore CP (Plate CCLX. fig. 9) equal to CP (Plate CCLXI. fig. 1), and the point P is the projection of the pole. Draw the diameters P′*p*, FA′ (Plate CCLXI. fig. 1) at right angles to each other; then will E′A′ be equal to the latitude; and by drawing W′A′ to intersect CS′ in A, we obtain CA the semitangent of the distance of the point in which the equator intersects the meridian from the point of the sphere opposite to the projecting point. Make CA (Plate CCLX. fig. 9) equal to CA (Plate CCLXI. fig. 1); and through the three points W, A, E, describe an arch of a circle: the arch WAE will be the projection of the equator. Next, we shall show the manner of drawing the parallels of latitude, by taking as an example the two parallels which are twenty and forty degrees distant from the pole. In the subsidiary circle (Plate CCLXI. fig. 1) take P′ 20 and P′ 40, equal to 20° and 40° on each side of P′. Draw from W′ to the points thus found, straight lines intersecting CN′ and CS′ in the points *a*, *b*, and *c*, *d*. The lines *ab* and *cd* are the diameters of the projected parallels corresponding to 50° and 70° of latitude. Make C*a*, C*b*, C*c*, C*d* (Plate CCLX. fig. 9) equal to C*a*, C*b*, C*c*, C*d* (Plate CCLXI. fig. 1) respectively, and upon *ab* and *cd* as diameters describe circles; these circles are the projections of the parallels required. In the same manner are the other parallels of latitude, the tropics, and the polar circles to be drawn.

Again, to project the meridians; the straight lines NP, PS, are the projections of the opposite meridians which pass through the north and south points of the horizon. The meridian circle, which is at right angles to that represented by NS, passes through the east and west points of the horizon, so that three points in its projection are given, namely, the points W, P, E; its projection may therefore be drawn. But it may be more conveniently found by considering that the meridian in question makes with the plane of projection an angle equal to the given latitude: the centre of its projection, which is in CS produced, must therefore be distant from the point C by the tangent of the given latitude, and its radius will be equal to the secant of the same. From the point S′ (Plate CCLXI. fig. 1) draw S′D, touching the circle in S′, and meeting P′*p* produced in D; then DS′ and DC are the tangent and secant of the given latitude. In CS produced (Plate CCLX. fig. 9) take CB equal to DS′; and on B as a centre describe an arch through the point P, which will also pass through W and E. The arches PW, PE will represent the opposite meridians, which are at right angles to the meridian of the place for which the projection is made. With regard to the other meridians, it is not difficult to see that their centres will lie in a straight line GH (Plate CCLX. fig. 9) drawn through B at right angles to CB; and that the distance of the centre of each projection from the point B will be equal to the tangent of the inclination of the corresponding meridian circle to that meridian circle which passes through the east and west points; while the radius of the projection will be equal to the secant of the same inclination. Let us suppose, then, that the meridians are to make with each other angles each equal to 15°: at the point P make the angles BP 15, BP 30, &c. equal to 15°, 30°, &c. respectively, and let P 15, P 30, &c. meet the line GH in the points 15, 30, &c. Upon these points, as centres, describe through the point P the arches *m*P*m*′, *n*P*n*′, &c.; then will P*m*, P*n*, &c. P*m*′, P*n*′, &c. be the projected meridians required. In this manner the projection may be completed.

3. *Globular Projection of the Sphere.*

In the globular projection of the sphere, a point is assumed for the position of the eye, at a finite distance from the centre greater than the radius, and so situated that the degrees in the representation shall be nearly equal to each other, and the deviations from equality in the representations of equal portions of the spherical surface thus in some measure corrected. To determine the position of the point of view so as to answer these conditions, let ADBF (Plate CCLXI. fig. 2) be a section of the sphere made by a plane passing through C the centre, and through the point E which is assumed as the projecting point required. Through C draw EB, meeting the circumference ADBF in A and B, and draw the diameter DF at right angles to EB. Bisect the quadrant DB in I, and draw EI meeting DC in G; the point G will be the projection of the point I. But by hypothesis the projections of equal arches are nearly equal: let then DG be assumed equal to GC. Join DB, and draw CI meeting DB in H. Join GH, and draw IK parallel to DC, or at right angles to AB. Then it is evident that DH is equal to HB; and therefore DH : HB : : DG : GC. Hence the line GH is parallel to CB; and we have IH : HC : : (IG : GE : :) KC : CE. But IH is equal to BK, and HC to KC: therefore BK : KC : : KC : CE, and we have $BK \cdot CE = KC^2 = IK^2 = BK \cdot KA$. Hence CE is equal to KA; and taking away the common part AC, there remains EA equal to KC or to IK: that is, EA, the distance of the point of view above the surface, is equal to the sine of 45°. If the radius CA be divided into 100 equal parts, EA is therefore nearly equal to 71 of these parts.

This projection was first suggested by M. Delahire, and the approximation which it gives to equality in the projection of equal arches of a circle perpendicular to the plane of projection is considerable. The circles of the sphere are, according to this method of projection, represented by ellipses. An approximation to this method is, however, generally all that is aimed at. The circles of the sphere are represented by circles; and, without any regard to the distance of a projecting point, the degrees of longitude on the equator and of latitude on the meridian are made all equal to one another; the plane of the meridian being assumed as the projecting plane. The following is the construction by which such a representation of a hemisphere of the earth's surface is obtained.

From the centre C (Plate CCLXI. fig. 3), with any radius CA, describe a circle PASB to represent the meridian on which it is required to project the hemisphere. Draw the diameters AB, PS, at right angles to each other; and let PS represent the meridian of which the plane is at right angles to the plane of projection: then AB will be the projection of the equator, and the points P and S, the projections of the poles.

To project the parallels on the north side of the equator, divide each of the quadrants PA, PB, into nine equal parts: also divide the radius CP into the same number of equal parts. Let 80, 70, 60, &c. *d, e, f,* &c. be the points of division: the parallel corresponding to 80° of latitude will pass through the three points 80, *d*, 80; that corresponding to 70° of latitude through the three points 70, *e*, 70, and so on. Describe circles, accordingly, through these points, and the parallels on the north side of the equator will be drawn. In the same manner are the parallels on the south side of the equator to be projected, as are also the tropics and polar circles.

Again, to project the meridians, divide the radius AC into six equal parts in the points *a, b, c,* &c., and through the points P and S, and these points of division, describe circles P*a*S, P*b*S, &c. Proceed in the same manner on the other side of PS, and the circles thus described will represent the meridians passing through every fifteenth degree of the equator, any one of which may, in laying down places by their latitudes and longitudes, be assumed for the first meridian. Plate CCLXII. is a planisphere, or map of the world, projected in this manner.

II. *Construction of Maps by Development.*

The practical application of the three methods of projection which we have now explained, to the construction of maps, is usually confined to the representation of a hemisphere; whilst for the delineation of the geographical features of a single country, the method of development is commonly employed. The particular purpose for which a map is to be used may make it more or less important that it should exhibit, with all the precision that can be attained, some particular features of the country represented. The purposes of civil government require maps that give the true figure and dimensions of territory. For military affairs, maps that give correct distances are chiefly useful; whilst for the purposes of the navigator, the bearings of places, one from another, must be correctly, and, at the same time, simply exhibited. The first two objects are nearly gained in ordinary maps. But, for the attainment of the last, a map of a peculiar construction, called *Mercator's Chart,* has been invented; which, while it answers completely the purpose of the navigator, is not immediately applicable to any other.

It is an obvious property of a cone and of a cylinder, that the surface of each admits of being spread out on a plane. If a cone be laid with its slant side on a plane, the former will coincide with the latter along a line stretching from the point of contact in the base to the apex of the cone. Hence, if the cone is rolled round, whilst the apex continues at the same point, every point upon the surface of the cone will come in contact with a corresponding point in the plane surface; so that a sector of a circle will be described, with which the surface of the cone, if expanded, would exactly coincide. A cylinder admits of being rolled along a plane surface in a similar manner. But this is not the case with respect to a sphere. For, since a sphere touches a plane only in a point, if the former be rolled along the latter in one direction, the successive points of contact will mark out a straight line. A narrow zone of the sphere may, however, be supposed, without great error, to coincide with the surface of a cone or cylinder; and this hypothesis gives rise to a twofold construction by development, that by the development of a conical surface, and that by the development of a cylindrical surface.

1. *Development of the Curve Surface of a Cone.*

Let NAMB (Plate CCLXI. fig. 4) be a section of the sphere by the plane of the meridian. Let NM represent the axis; then AB drawn through the centre C, at right angles to NM, will represent the diameter of the equator. Take EF, any arch of the meridian, and bisect it in the point G. Through G draw LD a tangent to the circle NAMB, and meeting the axis MN produced in the point L. Let the plane figure LGMB be now supposed to revolve about the axis LM; then will the circle NAMB generate a sphere, and the line LD will generate a conical surface, which will touch the sphere. Further, the points E, G, F will describe circles, which will be parallels of latitude. If EF be an arch of not many degrees, the zone comprised between the parallel circles E*e*, F*f* will nearly coincide with the corresponding portion of the conical surface intercepted between the planes of the same circles. Take any point H in the circumference of the circle described by G, the middle point of the arch E , and join LH, HK, the point K being the centre of the circle GH*g*.

Let us now suppose the conical surface comprehended between the straight lines LG, LH, and the arch GH, to be spread out into a plane L′G′H′. Then it is evident that the arch GH on the middle parallel, of which the radius is HK, the cosine of the middle latitude, is changed into an arch G′H′ of which the radius is L′G′ = LG, the cotangent of the middle latitude. In the line L′G′, and in L′G′ produced, take G′F′, G′E′ equal to the arch EG or G . Then, on the point L′ as a centre, at the distances L′ , L′F′ describe the arches E′*r*, F′*s*, and the plane surface E′F′*sr* may be considered as nearly equal to the spherical surface comprehended between the meridians passing through G and H, and the arcs of the parallels E*e*, F*f* intercepted by these meridians. Hence, if any tract of country situated on the corresponding portion of the earth's surface be delineated on the plane E′F′*sr*, the representation of it thus obtained will bear a near resemblance to its delineation on the globe, the resemblance increasing according as the zone comprehended between the extreme parallels is diminished in breadth.

Such is the principle of the conical development. Let us now consider how the line L′G′and the angle G′L′H′ are to be determined, so as to suit the space E′F′*sr* to any given difference of longitude and given middle latitude; also in what manner the parallels of latitude and the meridians are to be drawn on that surface.

We have already seen, that L′G′ is equal to the cotangent of the middle latitude to the radius of the sphere. If the radius of the sphere be considered equal to unity, the trigonometrical tables will give the length of L′G′ in parts of the radius. But it will be more convenient to have it expressed in minutes of a degree. Now, since the semicircumference is to radius as 3·1416 is to 1, if we put R for radius, we have 3·1416 : 1 : : 180 × 60 : R = 3437·7, which is the radius expressed in minutes of a degree. Hence L′G′ expressed in the same manner will be equal to

3437·7 × cotan. middle latitude.

Again, since the arch GH is equal in length to the arch G′ by hypothesis, the angle GKH measured by the former, must be to G′L′H′ measured by the latter, as the radius L′G′ is to the radius GK; that is, if we put D for the difference of longitude, and φ for the angle G′L′H′, we will have D : φ : : (L′G′ : GK : : cot. mid. lat. : cos. mid. lat. :) rad. : sine mid. lat. Hence we obtain

$$\varphi = D \times \text{sine mid. lat.}$$

The angle L′ being thus determined, and the lines L′G′, G′ , G′F′ being known, and expressed in minutes of a degree, we can describe the figure E′F′*sr*, so that it shall be accommodated to any given middle latitude and given difference of longitude. Then having divided E′F′ into as many equal parts as there are minutes in the difference of latitude, or as there are some given number of minutes in it, the points must be ascertained through which the parallels intended to be drawn pass, and from L′ their common centre, these parallels are to be drawn accordingly. The parallels E′*r*, F′*s* are in like manner to be divided each into as many equal parts as there are minutes, or some given number of minutes, in the difference of longitude: and points being ascertained in each of these parallels through which the meridians proposed to be drawn pass, the straight lines joining the corresponding points are the meridians required. It is by this method that common maps of particular countries are constructed.

As an example, let it be required to construct a map of Great Britain and Ireland, which must extend from 50° of latitude to about 61° north, and from 2° east to about 11° west longitude.

To find L′G′, L′E′, L′F′.

61° 61°
50° 50°

2)111 2)11 = diff. of lat. = 660′

55° 30′ = mid. lat. 5° 30′ = 330′ = G′E′ or G′F′.

Log. cot. mid. lat. 55° 30′, 9·8371343
3437·7..........log. 3·5362680

L′G′ = 2362′·7........log. 3·3734023
G′E′ or G′F′ = 330′·0

L′E′ = 2692′·7
L′F′ = 2032′·7

To find the angle G′L′H′.

Log. sine mid. lat. 55° 30′..............9·9159937
Diff. of long. = 13° = 780′.......log. 2·8920946

Angle G′L′H′ = 643′ = 10° 43′.....log. 2·8080883

To find the chords of the arcs E′*r*, F′*s*.

$$\text{Chord of arc } E'r = \begin{cases} 2L'E' \ldots\ldots\ldots\ldots \text{log. } 3{\cdot}7312180 \\ \times\ \text{sin. } \tfrac{1}{2} L' \ldots\ldots\ldots\ldots 8{\cdot}9695999 \end{cases}$$

Chord of arc E′*r* = 502′·1 ....log. 2·7008179

$$\text{Chord of arc } F's = \begin{cases} 2\,L'F' \ldots\ldots\ldots\ldots\ldots \text{log. } 3{\cdot}6091033 \\ \times\ \text{sin. } \tfrac{1}{2} L' \ldots\ldots\ldots\ldots\ldots 8{\cdot}9695999 \end{cases}$$

Chord of arc F′*s* = 379′·1............log. 2·5787032

Having now determined the four sides of the trapezoid formed by the meridians E′F′ and *rs*, and the chords of the arches E′*r*, F′*s*, it is easy to describe that trapezoid, the length of the sides being measured on any convenient scale of equal parts, which is to be considered as a scale of minutes of a degree on the meridian. Let it be described accordingly (Plate CCLXI. fig. 5), and let the sides E′F′, *rs*, be produced to meet in a point, which will be the point L′. Then, from that point as a centre describe the arches E′*r*, F′*s*, and divide these arches each into thirteen equal parts, since the difference of longitude is 13°. Also, divide E′F′ and *rs* each into eleven equal parts corresponding to the given difference of latitude 11°. Having fixed upon the number of meridians and parallels of latitude that are to be drawn, describe from the point where the lines E′F′, *rs*, intersect when produced, as a centre, the parallels through the proper points of division in E′F′ or *rs*; and draw straight lines joining the proper corresponding points of division in E′*r*, F′*s* for the meridians: we shall here suppose the meridians and parallels to be drawn for every second degree. Number the degrees of latitude and longitude as in the figure, and the map is prepared for having traced upon it the outline of the coasts of the British isles, and places laid down according to their latitudes and longitudes.

It is evident that if the point in which E′F′ and *rs* intersect each other becomes very distant, it may be exceedingly troublesome, or practically impossible, to describe from it as a centre the parallels of latitude. An obvious remedy for this inconvenience is, to join together two rulers, as AB, AC (Plate CCLXI. fig. 6), at the point A, in such a manner as that they may contain an angle equal to the angle in the segment which has for its arch the parallel to be drawn. If the edges of the rulers be made, by means of two pins, to slide over the extremities D, E of the parallel, a pencil fixed at the angular point A will trace the parallel on the map. In the present instance the rulers must be placed so as to form an angle of $\left(\frac{360^\circ - 10^\circ\ 43'}{2} = \right)$ 174° 38′ 30″.

The conical development has been variously modified, so as to remove as much as possible its defects. Thus, one modification was given by the Rev. Patrick Murdoch in the *London Philosophical Transactions*, 1758. He supposed the cone to pass through points of the meridian between the middle latitude and the extremities of the arch to be projected, its side being parallel to the tangent at the middle latitude, while the points where the cone intersects the meridian are so situated as that the conic surface is exactly equal to the spherical surface which it represents. Let M denote the arch of the meridian to be represented in the map; then, according to this method of development, L′G′, the radius of the middle parallel on the map, is equal to

$$\frac{\text{chord of arch M}}{\text{arch M}} \times \text{cot. mid. lat.}$$

the cotangent being supposed to be expressed by the radius of the sphere. In other respects the construction is the same as in the ordinary conical projection.

But the simplest and most successful method of remedying the defects of the conical development is that known by the name of *Flamsteed's projection.* The English astronomer by whom this method was invented, and whose name it bears, made use of it in constructing his celestial atlas. He developed all the parallels of latitude on the sphere into straight lines, and also one of the meridians, namely, that which passes through the middle of the chart. To this meridian the lines representing the parallels are perpendicular, and the length of each is the same with that of the parallel on the sphere which it represents. Dividing the parallels in the projection into equal parts, in like manner as the parallels on the sphere are divided, he supposed curved lines to be drawn through the corresponding points of division, and these curve lines represent the meridians. Flamsteed employed this projection in representing the position of the stars; but it is also made use of in geography, particularly for the delineation of countries which extend on both sides of the equator.

To suit it more effectually to this purpose, it has undergone, however, a modification of very considerable importance, as it corrects in some measure the distortion in the figure of countries lying near the extremities of the map, which arises from the obliquity of the curve lines representing the meridians to the straight lines representing the parallels of latitude, which increases as the former recede from the centre of the map. On the globe the meridians cut all the parallels of latitude at right angles; and by employing concentric circles instead of straight lines, as in Flamsteed's projection, to represent the parallels of latitude, the curves representing the meridians on the map may be made more nearly to fulfil this condition. For this purpose the common centre of the circles, which is situated in a straight line drawn through the middle of the map as an axis, is so assumed that the radius of the middle parallel of latitude is equal to the cotangent of the middle latitude; an assumption which diminishes as much as possible the obliquity of the angles made at the intersections of the curves which represent the meridians, with the circles which represent the parallels. In the position of the common centre of the circles representing the parallels of latitude, this modified projection of Flamsteed coincides with the ordinary conical projection.

We shall exemplify this construction by showing how to describe, according to it, the parallels and meridians for a map of Europe.

Let the map be supposed to extend from 35° to 70° north latitude. Hence the middle latitude will be 52° 30′, and the radius of the middle parallel of the map (being equal to 3437′·7 × cot. 52° 30′) will be equal to 3637′·8. Draw, then, any line LE (Plate CCLXI. fig. 7) for the axis of the map; and assuming any point C for the point of intersection of the axis with the parallel of middle latitude, set off the length of the radius of that parallel from C to L, taken from any convenient scale of equal parts, which is to be considered as a scale of minutes of a degree. Thus the point L, the common centre of the circles representing the parallels, is determined.

Let us now suppose that a parallel is to be drawn through every tenth degree of latitude; that is, through 40°, 50°, 60°, 70°. As the middle latitude exceeds 50° by 150 minutes, take 150′ from the scale of equal parts, and set it off from C to 50. Again, take 600, which are equal to 10°, from the scale of equal parts, and set off that distance from 50 to 40, from 50 to 60, and from 60 to 70. The point E, corresponding to 35°, is found by setting off 300′ from the point 40. If we were to proceed according to Flamsteed's method, as originally employed by him, it would be necessary to draw straight lines through the points E, 40, 50, &c. perpendicular to DE, and therefore parallel to each other, and to make these lines equal respectively to the portions of the parallels on the sphere which they represent; then, dividing each line on both sides of the axis into as many equal parts as are indicated by the number of meridians intended to be drawn on each side of the axis, through the extremities and corresponding points of division to trace curve lines to represent the meridians. In this case the point L would not be required. But in the modification of the method which we are now exemplifying, from the point L as a centre an arch of a circle is to be described through each of the points E, 40, 50, &c. and each of these arches of longitude is to be made equal to the arch of the parallel on the sphere which it represents. Let us then fix upon some meridian of a given number of degrees of longitude to the eastward and westward of that represented by the line DE, which is to be so drawn as to fulfil this condition. Let AB and *ab* be the meridians assumed, the former 30° to the westward, and the latter 30° to the eastward, of DE.

The arch BE or *b*E is equal in length to an arch of 30° on the parallel of latitude 35°. Now, the latter arch may be determined in geographical miles or minutes of the meridian by means of the table (page 405), showing the length of a degree of longitude for every degree of latitude in geographical miles. Thus, 30° on the parallel of 35° latitude is found equal to 1474′·5. But the arch BE is of the same length. Therefore we have BE or *b*E = 1474′·5.

We might next find the angle which the arch BE subtends at the centre L, and thus determine the points B and *b*. But it is more convenient to find the chord of the arch, which may be easily done as follows:

Put a for any arch of a circle whose radius is r. Then

$$\sin. a = a - \frac{a^3}{6r^2} \text{ nearly, if the arch is not very great.}$$

In this expression put $\frac{1}{2}a$ instead of a, and it becomes

$$\sin. \tfrac{1}{2}a = \tfrac{1}{2}a - \frac{a^3}{48r^2} \text{ nearly.}$$

Doubling both sides of this equation, and observing that $2 \sin. \frac{1}{2}a = \text{chord of } a$, we obtain

$$\text{chord of } a = a - \frac{a^3}{24r^2} \text{ nearly.}$$

For arches not exceeding 30°, this formula will give the length of the chord with sufficient exactness. Let us apply it to find the chord of the arch BE.

Here $a = 1474'\cdot5$, and $r = \text{LE} = 3687'\cdot8$

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$$\begin{array}{rlrl}
\text{Log. } a = & 3{\cdot}168637 & \text{Log. } r = & 3{\cdot}566767 \\
 & 3 & & 2 \\
\hline
\text{Log. } a^3 = & 9{\cdot}505911 & \text{Log. } r^2 = & 7{\cdot}133534 \\
\text{Log. } 24\,r^2 = & 8{\cdot}513745 & \text{Log. } 24 = & 1{\cdot}380211 \\
\hline
\end{array}$$

$$\text{Dif. of arch and chord } 9{\cdot}8,\ 0{\cdot}992166 \quad \text{Log. } 24\,r^2 = 8{\cdot}513745$$

Hence the chord of the arch BE is 1464′·7 of the meridian. Taking this number from the scale of equal parts, and setting it off from E towards B and *b*, the points B and *b* are determined.

Proceeding in the same manner, we may find the arches of 30° of longitude, with their chords, on the other parallels of latitude; and thence determine the remaining points through which each of the projected meridians AB, *ab* passes. The curves drawn through these points will be the representations of the two meridians which have 30° of longitude to east and west of the meridian represented by DE.

The points in which the projections of the intermediate meridians intersect the projected parallels, may be found by dividing each parallel into thirty equal parts from the axis, both towards the right and left; then, by tracing curves through the proper corresponding points of division, as many meridians may be represented as are judged to be necessary. If the map is to extend farther than 30° on each side of its middle meridian, the division of the parallels may be extended to the necessary distance beyond the meridians AB and *ab*.

It is a consequence of the properties of this projection, that distances on the map may be readily and accurately measured by a scale of equal parts. This scale may be constructed as follows:

Draw a straight line AB (Plate CCLXI. fig. 8) equal to an assumed number of degrees of latitude. If we assume 35 degrees, AB will be equal to DE. From B draw an indefinite line BC, making with AB any angle. Then, since AB is equal to 35°, or to 2417 English miles nearly, take 2417 from any convenient scale of equal parts, and set that distance off from B towards C, making BD equal to 2417. From the same scale of equal parts take 100, or 200, &c. (in the present instance we shall take 500), according to the number of miles which each of the divisions of the scale is intended to represent; and with this distance in the compasses set off from B towards C the divisions B*m*, *mn*, *np*, *pq*; the remaining part *q*D, being only 417, will not again contain it. Join AD; and through the points of division *m*, *n*, *p*, *q*, draw straight lines parallel to AD, and intersecting AB. Each of the divisions of AB thus found will represent 500 miles, with the exception of that adjacent to A, which will correspond to 417 miles. The distance of two places of the map applied to this scale will give the distance in English miles.

Development of the Curve Surface of a Cylinder.

The principle of this development is analogous to that of the conical, and may be illustrated in a similar manner. Let the arch AB (Plate CCLXI. fig. 9) be a fourth part of a meridian, and draw the lines AC, BC to the centre; these lines will be at right angles to each other, so that if we suppose BC to represent the semiaxis of the sphere, then AC will be the radius of the equator. Let EF be any arch of the meridian, and let it be bisected in G. Through G draw DH perpendicular to AC, or parallel to BC. If the plane figure BDGAC be supposed to revolve round BC as an axis, the arch AB will describe one half the surface of the sphere, the line DH will describe the surface of a right cylinder, the point A will describe the equator, and the points E, F, G, will describe parallels of latitude. If EF be a small arch, the zone of the sphere which it describes will nearly coincide with the corresponding zone of the cylinder. Any tract of country delineated upon the former may, therefore, be nearly represented upon the latter; and the cylinder being developed, the meridians will be represented by parallel and equidistant straight lines, as will also the parallels of latitude; the lines representing the former being at the same time at right angles to the lines representing the latter. Let EF*fe* be a portion of the zone described by EF comprehended between two meridians of which the difference of longitude is equal to the difference of latitude of the parallels described by the points E and F. The breadth of the map representing this portion will be equal to the arch G*g* of the middle parallel of latitude. But since the difference of latitude and difference of longitude are supposed equal, the arch G*g* is the same part of the middle parallel that EF is of the meridian. Hence we have rad. : cos. mid. lat. : : EF : G*g*; so that G*g* may be found in minutes of the meridian. Upon this principle depends the construction of the plane chart, which is said to have been invented by Henry, son of John king of Portugal.

As an example, let it be required to construct a plane chart extending from 30° to 50° north latitude, and from 5° to 25° west longitude. Here the difference of latitude and difference of longitude are each equal to 20°, and the middle latitude is 40°. Hence we have EF, the length of the chart, equal to 1200′, and the breadth of it equal to 919′·25. Construct a parallelogram EF*fe* (Plate CCLXI. fig. 10), of which the sides EF, F*f* are respectively equal to 1200 and 919·25 taken from any the same scale of equal parts, which is to be considered as a scale of minutes of the meridian. Divide EF and F*f* each into four equal parts, and through the points of division draw straight lines parallel to F*f* and EF, and these lines will represent the parallels of latitude and meridians for every fifth degree of latitude and longitude. If it is required that the chart should extend to a greater number of degrees of longitude east or west, the parallels of latitude may be produced, and additional meridians drawn on the left of EF, or on the right of *ef*.

The plane chart has nothing to recommend it but its simplicity. The degree of longitude bears to the degree of latitude its proper proportion only at the middle parallel of latitude, where the sphere and the cylinder are supposed to intersect each other. Hence the rhumbs, as shown by this chart, are altogether erroneous, except when the places between which the rhumb is drawn are very near the equator.

The utter inadequacy of the plane chart to serve the purposes of navigation, induced ingenious men to turn their thoughts to the problem of constructing a chart in which the rhumbs should be straight, lines, and at the same time the bearings of places accurately represented. The first condition of the problem is satisfied in the cylindrical development which we have already explained, since in it the meridians are represented by parallel straight lines; so that the line that makes equal angles with them all must be a straight line. We are now to consider by what modification of this development the other condition may be satisfied. This can be accomplished in no other way than by preserving at every point on the map the ratio of the degree of longitude to the degree of latitude, the same as it is at the corresponding point of the globe. Let us suppose then that a cylinder is constituted on the equator as a base, and has its axis coincident with that of the globe. Let us suppose further that the globe, with its usual delineations upon it, is expanded as if it were inflated, so as to meet the cylinder, all its parts stretching in such a manner as that the meridians lengthen in the same proportion as the parallels do, until every part of its surface touches the concave surface of the cylinder; then will each parallel have the same diameter as the equator, and the meridians will

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be straight lines parallel to each other; but from the equator towards each pole they will be gradually increased in length at each point, so as to preserve the exact proportion between the degree of the meridian and the degree of longitude on the parallel which passes through that point.

If the cylinder be now spread out on a plane surface, it will present a chart having the important properties required; the rhumbs will be represented by straight lines, and the bearings of places will be accurately shown.

Such is the principle of *Wright's*, or, as it is usually called, *Mercator's chart*. A chart of this description was first published by Gerard Mercator in the year 1556. It is not known on what principle he proceeded in constructing it; but it is certain that the true principles of the construction were unknown to him, for these were first found by Edward Wright of Caius College, in Cambridge.

It remains to inquire how the lengthened meridians are to be determined so that the chart may be constructed. This problem can be accurately resolved only by the assistance of the fluxional calculus (see Fluxions). But we may approximate to the solution by reasoning as follows:

Let AB (Plate CCLXI. fig. 11) be a quadrant of the meridian; draw AC, BC, to the centre; and let BC represent the semi-axis; then AC will be the radius of the equator; and if any point D be taken in the quadrant AB, the arch AD will be the latitude of the point D. Draw AG, CG, the tangent and secant of the arch AD, and DE, DF, its sine and cosine. The increase which the arch AD acquires in being transferred from the sphere to the cylinder is made at every individual point of the arch, so that the whole augmentation is the sum of these indefinitely small increments. Let us suppose, then, that AD is divided into a number of small portions, for example, into minutes. Since similar arches of circles are to one another as their radii, and the radius of any parallel is the cosine of the latitude of that parallel to the radius of the sphere, if we put L for any latitude, we have rad. : cos. L : : 1′ of the meridian : 1′ on the parallel whose latitude is L. But from the similar triangles GAC, CED, it is evident that CD : CE : : CG : CA; that is, for any latitude L, rad. : cos. L : : sec. L : rad. Therefore we have, sec. L : rad. : : 1′ of the merid. : 1′ on the parallel whose latitude is L; and this applies alike to every minute of which the arch AD is made up. Let us now suppose a minute on any one parallel to become equal to a minute on the equator, or to a minute of the meridian, by the parallel being brought into coincidence with the surface of the cylinder, in consequence of the expansion of the spherical surface. The minute on the meridian undergoes a corresponding increase. Let d denote it in its lengthened state; then, taking for granted that the increase on each minute of the meridian depends entirely on that of the higher of the two parallels which pass through its extremities, we obtain

$$\text{sec. L : rad. : : } d \text{ : 1′ of equator, or 1′ of meridian;}$$

$$\text{hence } d = \frac{\text{sec. L} \times \text{1′ of mer.}}{\text{rad.}}.$$

Let 1′ of the meridian be now assumed as the radius; then $d =$ sec. L to the radius 1′ of the meridian; or, since secants to different radii are proportional to one another, and we only require proportional quantities, we have simply

$$d = \text{sec. L.}$$

Thus the increased minute on the chart for each successive minute of which the arch AD on the sphere is made up, is proportional to the secant of the latitude of the higher of the two parallels which pass through the extremities of that minute. Let m denote the number of minutes in the arch AD, and take L = 1′, 2′, 3′, &c.......m' successively; and we obtain for the lengthened meridian corresponding to AD,

$$\text{sec. 1′ + sec. 2′ + sec. 3′ +, \&c....... + sec. } m'.$$

If, instead of dividing AD into minutes, we had divided it into smaller portions, the approximation would have been so much the nearer to the truth. Upon this principle a table of the lengthened meridians corresponding to every degree and minute of latitude, called a table of *meridional parts*, is calculated; and by means of such a table Mercator's chart is easily constructed. The following table shows the length of the enlarged meridian for every fifth degree of latitude:

Lat.	Merid. Parts.	Lat.	Merid. Parts.	Lat.	Merid. Parts.	Lat.	Merid. Parts.
0°	0·00	25	1549·99	50	3474·47	75	6970·34
5	300·38	30	1888·38	55	3967·97	80	8375·20
10	603·07	35	2244·29	60	4527·37	85	10764·62
15	910·46	40	2622·69	65	5178·81	90	Infinite.
20	1225·14	45	3029·94	70	5965·92		

The approximate numbers obtained in the manner now pointed out are sufficiently correct for all nautical purposes, and indeed might be carried to any degree of accuracy. From the more rigorous investigation afforded by the fluxional calculus, it is found that the enlarged meridian is proportionally equal to the logarithmic tangent of an arch found by adding to 45° half the arch of latitude reckoned from the equator. Thus, the meridional parts corresponding to 40° of latitude are equal to the logarithmic tangent of (45° + 20°) = log. tan. 65° = 33133; and the meridional parts corresponding to 50° are equal to log. tan. (45° + 25°) = log. tan. 70° = 43389. These two numbers will be found to be nearly proportional to the numbers set down in the above table as denoting the meridional parts corresponding to 40° and 50°.

To construct Mercator's chart: Draw two straight lines WE, NS (Plate CCLXI. fig. 12), cutting each other at right angles in the point C. Of these lines, WE is to represent the equator, and NS the meridian passing through the middle of the chart. From any convenient scale of equal parts set off equal parts on the equator both ways from C. These divisions are to represent degrees of longitude; and if the size of the chart will admit, each should be subdivided into minutes. Assuming the equator as a scale of minutes, set off from C towards the north and south on the middle meridian the number of minutes in the enlarged meridian, corresponding to each degree of latitude, as shown by a table of meridional parts. Draw straight lines through every fifth or every tenth degree of the equator and divided meridian, and at right angles to them. The lines at right angles to the equator will be the meridians; and those at right angles to the divided meridian, and therefore parallel to the equator, will be parallels of latitude. Any one of the meridians may be assumed as the first meridian.

To find the bearing of any one place from another, it is only necessary to draw a straight line from the one to the other, and to observe the angle which that line makes with the meridians: that angle is the bearing required, or the *course* on which a ship must be steered in sailing from ne one place to the other. Thus, if L be the Lizard oint on the chart, and M the east end of the island of adeira, draw LK parallel to NS, and the angle KLM ill be the course to be steered from the Lizard to reach adeira. The distance of the places may be found by onsidering that it is the hypotenuse of a right-angled tri-ngle of which the *proper* difference of latitude (not the eridional difference) is one side, and the course the ad-cent angle.

Plate CCLXIII. is a chart of the world according to Mer-ator's projection. The great elongation of the degrees of titude as we advance northward and southward, ren-ers this projection very defective, in as far as the figure nd the relative magnitudes of places are concerned. But his is a purpose which it was not intended to serve. It oes answer perfectly the purposes for which it was ori-inally constructed, and has supplied what before its in-ention was a desideratum in geography.

To complete a map after the circles of latitude and ngitude on the globe have been projected on the plane rface by any one of the foregoing methods which is ound most convenient, in any particular case, the various bjects within the range of the map are to be delineated n it in such a manner as to present to the eye as instruc-ve a view as possible of the tract of country represented. he methods employed to give distinctness and extent to e information conveyed, will be best learned from the ctual examination of good maps, both general and parti-ular. Various problems might be proposed to be resolved y maps; but these the intelligent student of geography ill find no difficulty, either in proposing to himself or re-olving.

Descriptive Geography being a branch of knowledge hich is continually changing by the progress of discovery nd political revolution, the latest works on the subject ill of course supersede those which have gone before. ence it has happened that the geographical works of chard, Gordon, Salmon, and Guthrie are now of little value, unless for showing, by comparison with later works, the changes which have taken place. Amongst modern works we may mention Playfair, Pinkerton, and particularly Murray's Encyclopædia of Geography (the latest), in the English language. In the French language there are General Treatises by Mentelle and Malte-Brun, of which last there is an excellent English translation. In the German language we may mention Die Erdkunde, or, Allgemeine Vergleichende Geographiė, von Carl Ritter; an elaborate and valuable, but most voluminous work, published in Berlin, of which the first volume, on Africa, appeared in 1822, and the second, third, and fourth, on Asia, at subsequent periods, down to this present year (1834). Apparently it will extend to ten or twelve volumes of 1000 or 1200 pages each, octavo.

On the general construction of maps there is a treatise by Jamieson. This is in a popular style. Full information relating to the construction of maps of every kind, and even to the details of engraving and lettering, may be found in Mémorial Topographique et Militaire. This work, in six numbers, was composed at the general depôt of war, in the time of Bonaparte, by order of the minister. Mathematical disquisitions on the construction of maps have been given by Delahire, Mém. de l'Acad. des Sciences, 1701; Euler, Acta Acad. Petropolitanæ, vol. i. of first part; Lorgna, Principi de Geografia, 1789; Cassini, Acad. des Sciences, 1745; Clairaut, idem, 1733; Lagrange, Acad. de Berlin, 1779. There is a valuable Mémoire sur la Projection des Cartes Géographiques, 1810, by Henry, given as a sequel to Mémorial Topographique. The subject is also fully treated by Puissant, in Traité de Topographie, &c. 1807. As to maps, what has been said of books will apply to them; the latest are likely to be the best. Those of Arrowsmith, Faden, Carey, Hall, and Gardiner, are deserving of full confidence.

The best globes we know are those by Carey and Gardiner. We particularly recommend the large terrestrial globe of this last artist, as the finest we have ever seen.

GEOLOGY. The rapidly progressive state of this cience has induced us to defer the consideration of it till e reach the head of MINERALOGY; under which it will e fully treated.

GEOMANCY, GEOMANTIA, a kind of divination, per-ormed by means of a number of little points or dots, ade on paper at random, and considering the various nes and figures which those points present, and thence rming a pretended judgment of futurity, and deciding any question proposed. The word is formed from the Greek γεα, or γη, *terra*, earth, and μαντεια, divination; the ancient custom being to cast little pebbles on the ground, and thence to form conjectures, instead of the points afterwards made use of. Polydore Virgil defines geomancy to be a kind of divination performed by means of clefts or chinks made in the ground, and of which he conceives the Persian Magi to have been the inventors.

GEOMETRY.

HISTORY OF THE SCIENCE.

History.

The properties of bodies may be resolved into two classes; one comprehending those which belong to all bodies whatsoever, and another, such as belong only to particular bodies. Amongst the properties of the first class we may consider extension, magnitude, figure, divisibility, impenetrability, inertia, weight, mobility, &c. Some of those of the second are solidity, liquidity, transparency, and the like. Of these properties, *extension*, *magnitude*, *figure*, and *divisibility*, are the subject of Geometry. The discussion of other properties of body belongs to Physics, called also Natural Philosophy.

The objects of geometry having been continually presented to the human mind, and being of such a nature as could at all times be perfectly comprehended, it may be supposed that the science would in some form or other exist from the very beginning of society. Indeed there is a natural geometry which all possess, and which must have been employed in the divisions of property and the erection of dwellings in every age. The name of the science indeed indicates its origin, for it is derived from γεωμετρια, the science of land-measuring.

According to the testimony of Herodotus, the science was first cultivated in Egypt. He had been informed at Memphis and Thebes, that Sesostris the king had divided the lands amongst his subjects, giving to each an allotment, for which an annual tribute was to be paid. The overflowing of the Nile, however, disturbed the landmarks, and rendered it necessary to re-adjust them by measurement; and hence the origin of geometry, which in the course of time passed from Egypt into Greece. There are two things to be here noticed; the assertion of a verification depending on geometry, and the particular opinion of Herodotus as to the origin of the science. If, as some chronologers have supposed, Sesostris be the same as the King Sesac, or Shishac, who made war on Rehoboam, the son of Solomon, it would follow from Herodotus, that geometry had its origin not more than about a thousand years before the Christian era. It might, however, be earlier; for the operation of measuring the land indicated a science which had made some progress. Aristotle has attributed the invention of geometry to the Egyptian priests, who, living secluded from the world, had leisure for study. But however this might be, all ancient writers are agreed in giving the Egyptians the credit of having been the earliest cultivators of geometry.

The philosopher Thales, who lived 640 years before Christ, brought the sciences, and particularly mathematics, into Greece from Egypt, whither he had gone in quest of knowledge at an advanced period of life. Diogenes Laertius relates that he there measured the height of the obelisks by means of their shadows; and Plutarch says, that this display of skill in geometry astonished the king Amasis. This shows that the Egyptians had not then advanced far in geometrical knowledge. Proclus also has recorded that Thales, by geometrical principles, determined the distance of vessels remote from the shore. On his return to Greece he founded the Ionian school, so called from Ionia, his native country. His celebrity for learning excited the attention of his countrymen, and drew to him disciples.

There appears to have been some slight traces of geometry in Greece at a still earlier period. We allude to the geometrical construction of a triangle by Euphorbus of Phrygia, and the discovery of some properties of figures. These, however, were probably just the natural geometry common to all ages. The rule and compasses, most important instruments, have been referred to the ages of fable, the honour of the invention of the latter having been ascribed to the nephew of Dædalus, and that of the square and level to Theodorus of Samos, one of the architects of the temple of Ephesus. But there are no certain indications of geometry as a science before Thales. He laid its foundation in Greece, and infused into his countrymen a taste for the science. He is said to have applied a circle to the measurement of angles, and to have discovered various properties of triangles, by comparing them one with another. In particular, he discovered the important proposition that all angles in a semicircle are right angles, a discovery which greatly delighted him, and for which he expressed his gratitude to the Muses by a sacrifice. Proclus has recorded that he made many discoveries in the science, which, however, have gone to the common stock of geometrical knowledge that had accumulated before Euclid collected it into a system, and the authors of which are unknown. It is probable that the greater part of the disciples of Thales were geometers, but few of their names have descended to us. Ameristus and Anaximander are the only ones now known. Of the former we only know that he was a skilful geometer. The latter wrote a kind of elementary treatise or introduction to geometry, the earliest work of the kind that is known to have existed.

Thales was succeeded in his school by Anaximander, who is said to have invented the sphere, the gnomon, and geographical charts. These required a considerable knowledge of geometrical science. It has been said that he attempted the grand practical geometrical problem of measuring the magnitude of the earth. This probably has originated in his being the inventor of representations of its surface. The honour of being the first to measure the earth seems to belong to another. Anaximander was followed by Anaximenes, born at Miletus 540 years B. C. He is said to have invented sun-dials, and thus must have known both astronomy and geometry; indeed a desire to understand the former would prove a strong stimulus to the study of the latter. He had as his disciple and successor Anaxagoras, who being persecuted for his opinions, employed himself in prison in trying to square the circle. This is the first notice on record of an attempt to resolve what appears now to be an insoluble problem, on which no modern geometer will spend his time. It might, however, have a very different aspect to the ancient mathematicians.

Pythagoras, born about 580 years B. C., was one of the greatest men of antiquity. According to some he was a Tuscan, whilst others say he was a Tyrian; but his name is better known than his origin. At the age of eighteen he became the disciple of Thales, and imbibed deeply his opinion of the importance of temperance and economy of time as necessary to success in the study of philosophy. In the infancy of science knowledge was only to be acquired by travel, the men of different countries standing in the place of our modern books as the depositories of learning. Pythagoras visited Phœnicia, Chaldea, and India. In the annals of this last country the remembrance of the philosophical traveller is still preserved. He afterwards went into Egypt, where he is said to have remained twenty-two years, holding intercourse with the priests. The long duration of his abode is not probable, as the knowledge he seems to have acquired did not correspond to so protracted a residence. Whilst

Egypt, he is said to have consulted the columns of Sothis, n which that celebrated person had inscribed the princi- les of geometry. He returned to Samos, his adopted coun- y, and there opened his school; but not finding auditors, e removed to Italy, and took up his abode in Cortona, a wn in the territory of Tarentum, where he found many isciples, and acquired a great reputation. He is said to ave discovered the important theorem in geometry, that a right-angled triangle the squares on the sides contain- g the right angle are together equal to the square on the de opposite to it; and on this account he is said to have crificed an hundred oxen in gratitude to the Muses. The crifice is probably a fable. The shedding of blood was ntrary to his moral principles, and so many oxen were t likely to be at the disposal of a philosopher. In his hool, geometry made great progress, and was augmented y several new theories, such as that of the incommensu- bility of certain lines, in particular that of the side of a uare to its diagonal. The theory of the regular solids d its origin also in the Pythagorean school, a doctrine hich requires an extensive knowledge of geometry. This bject, now neglected amidst the riches of modern ma- ematics, because of its small utility, was in the beginning great importance, on account of other discoveries which ust have been incidentally made in its prosecution. Dio- enes Laertius has attributed to Pythagoras the discovery at of all figures having the same boundary, the circle nong plane figures, and the sphere among solids, are the ost capacious. If this was so (a thing doubtful), he is the st on record who considered isoperimetrical problems.

The Pythagorean school sent forth many philosophers d mathematicians: amongst the latter, Philolaus and Ar- ytas held a distinguished rank. Of Philolaus we know t little. He held to its full extent the Pythagorean doc- ine of the motion of the earth round the sun as a centre, d was the first to unveil it. He composed a work on echanics, and thus has a claim to be associated with Eu- xus and Archytas as inventors of that part of mathema- cs. He had a tragical end, having been massacred by e people of the small republic of which he had been a gislator. We know more of Archytas. He was the au- or of a solution of the problem of two mean proportionals. e was also one of the first who made use of the geome- ical analysis, which, according to Proclus, he had learned om Plato, and by its assistance he made many discoveries geometry. We pass over his mechanical inventions, e of which, the artificial pigeon, which winged its way rough the air, certainly savours of the marvellous. Ar- ytas is said to have been blamed by Plato for applying ometry to mechanics; but if this was so, it might be for e manner of the application. His solution of the problem finding two mean proportionals gives support to this njecture; for although ingenious, it has the defect of re- iring a motion which cannot be executed.

Democritus of Abdera cultivated geometry extensively. has been conjectured that he was one of the first who eated of the contact of circles and spheres, and of irra- onal lines and solids.

Hippocrates, who lived about the year 380 B. C. was ori- nally a merchant; but having no turn for commerce, he d not prosper. To renovate his affairs, he went to Athens, d there for the first time became acquainted with geome- y, which seemed to suit his particular turn of mind. In e prosecution of this study he discovered that the curvi- neal space, called from its form a *lune*, comprehended y half the circumference of one circle and the fourth of e circumference of another (their concavities being turned e same way), was equal to a rectilineal space, viz. the ea of a right-angled triangle, whose hypothenuse was the ameter of the circle, and its sides each equal to the ra- us of the quadrantal arc. This could not be considered as a true quadrature of a curvilineal space; it was merely a geometrical juggle, by which a common space being taken from two equal curvilineal figures, one of the remainders was by a sort of chance a rectilineal figure. The first true quadrature of a curvilineal space is due to Archimedes. Hippocrates attempted the quadrature of the circle; but, if his mode of reasoning has been truly handed down to us, he committed a great oversight. This is the first recorded paralogism in geometry. He was more successful in treating of the duplication of the cube, which he showed to depend on the finding of two mean proportionals between two given lines. He was also the first who composed elements of geometry, but these have been lost. He appears to have retained the mercantile spirit, insomuch that he accepted money for teaching geometry. On this account he was expelled the Pythagorean school; a measure somewhat hard, considering his reduced circumstances.

Two geometers, Bryson and Antiphon, appear to have lived about the time of Hippocrates, and a little before Aristotle. They are only known by some animadversions of the latter on their attempts to square the circle. Before this time geometers knew that the area of a circle was equal to a triangle whose base is equal to its circumference, and altitude equal to its radius. This truth could not escape the observation of the early geometers. Bryson erroneously believed that, by a geometrical construction, he could find the circumference, in which case the quadrature would have been easy. Antiphon, it appears, proceeded by increasing continually the number of sides of an inscribed regular polygon, and considered the circle to be equal to the ultimate result; a process perfectly correct, and the same in effect as that by which Archimedes found the area of the parabola.

From this brief view of the progress of geometry during the first two centuries after its introduction into Greece, we pass to the school of Plato, in which geometry completely changed its character, and advanced with increased vigour and more rapid strides. Hitherto its subjects had been of the most elementary nature; now, however, the views of geometers became more enlarged, and a new era in the science commenced. Although the disciple and successor of Socrates, who had no taste either for mathematical or physical science, Plato held them in the highest estimation; and, imitating the earlier sages of Greece, he undertook voyages and journeys to improve his mathematical knowledge. He visited Egypt to converse with the priests, and Italy to consult with the celebrated Pythagoreans Philolaus, Timæus of Locris, and Archytas. With the last of these he contracted a particular friendship. He went also to Cyrene to hear the discourses of the mathematician Theodorus; and on his return to Greece, when he had founded his school, he made the mathematics, particularly geometry, the basis of his instructions; and his disciples, encouraged by his example and his exhortations, applied with ardour to the study of that science. He never allowed a day to pass without making his disciples acquainted with some new truth. He placed over his school this inscription, *Let no one ignorant of geometry enter here.* He held that the Divinity continually geometrizes; meaning thereby, no doubt, that the laws by which the universe are governed are in accordance with the doctrines of mathematics. It does not appear that Plato composed any work expressly on the mathematics; but his invention of the geometrical analysis may be considered as one of the greatest improvements the science has received. The theory of Conic Sections originated in the Platonic school; and a third discovery was that of Geometrical Loci, a theory not only beautiful and interesting on account of the abstract truths which it unfolds, but also by reason of its great importance in the resolution of geometrical problems. The celebrated problem concerning the duplication of the cube was agitated about his time; but its origin was earlier; for Hippocrates, as has been already stated, had reduced it to the finding of two continued mean proportionals. Plato himself gave a solution of the problem; and it was also resolved by Archytas, Eudoxus, Eratosthenes, and Menæchmus. The solutions of eleven of the ancient geometers have been preserved in the Commentary of Eutocius on Archimedes' Treatise concerning the Sphere and Cylinder. It is probable that the trisection of an angle, a problem of the same degree of difficulty as the duplication of the cube, excited the efforts of the Platonic school. We have indeed no positive testimony in favour of this conjecture; but the progress of the human mind does not allow us to doubt that the problem was of great antiquity. After the solution of the very simple problem, the bisection of an angle, it was natural to think of dividing it into three equal angles; and those who first thought of the latter problem would no doubt be astonished to find, that two problems so like in appearance should yet differ so much in the difficulty of their solution. The trisection of an angle, and the duplication of a cube, are in fact problems of such a nature that they cannot be resolved by straight lines and circles alone, the only lines admitted by the ancients into their elements of geometry. The reason of this impossibility would not be apparent to the ancient geometers, although it is made evident by the modern doctrines of algebra.

The names of the individuals to whom we owe the particular discoveries which have been specified have not come down to us; they must therefore be regarded as belonging to the Platonic school generally. Proclus has recorded the names of a number of the geometers of that school. Some of advanced years attended it as friends of its celebrated head, or from respect to his doctrines; others, chiefly young persons, as disciples. Of the first class were Laodamus, Archytas, and Theætetus: Laodamus was one of the earliest to whom Plato communicated his method of analysis before he made it public, and he is said to have profited much by the possession of this instrument of discovery. Archytas was a Pythagorean, having extensive knowledge in geometry and mechanics. He frequently visited Plato at Athens; but in one of his voyages he perished by shipwreck. Theætetus was a rich citizen of Athens, who had studied along with Plato under Socrates. He appears to have cultivated the theory of the regular solids, called now the Platonic bodies.

The progress of geometry now required that its elements should be new modelled. This was done by Leon, a scholar of Neoclis, or Neoclides, a philosopher who had studied under Plato. To Leon has been ascribed that part of the solution of a problem called its *determination,* which treats of the cases in which the problem is possible, and of those in which it cannot be resolved. Eudoxus of Cnidus was one of the friends and contemporaries of Plato; he generalized many theorems, and thereby greatly advanced geometry. It is believed that he cultivated the conic sections; and even the invention of these has been ascribed to him. He resolved the problem of the duplication of the cube; and it is to be regretted that Eutocius, who speaks with contempt of his solution, has not recorded it with others in his Commentary on Archimedes. Diogenes Laertius has attributed to him the invention of curve lines in general; from which we may infer, that other curves besides the conic sections were known in the school of Plato. Archimedes, in his Treatise on the Sphere and Cylinder, says that Eudoxus found the measure of the pyramid and cone, and that he was especially occupied with the contemplation of solids. Some have given him the credit of being the writer of the fifth book of Euclid, which treats of proportion. Amongst the numerous mathematicians of the Platonic school, there was one, Cratistus, who is particularly mentioned by Proclus. He was a remarkable person; for his knowledge of his science was in a manner innate. There was no problem of that time, however difficult, which he could not resolve by his natural geometry. He was the Pascal of antiquity. There were two brothers, Menæchmus and Dinostratus, who also greatly distinguished themselves. The former, a particular disciple of Plato, extended the theory of the conic sections. Eratosthenes seems to attribute to him the merit of having invented them; at any rate, he was the first who solved the problem of doubling a cube by means of these curves. Dinostratus followed in the path of his brother, and advanced geometry by his discoveries. He is particularly known as the reputed inventor of a curve called the *quadratrix,* by which he seems to have intended to divide an angle or an arc of a circle in any given ratio. The curve takes its name from a property by which, could it be constructed geometrically, the quadrature of the circle would be obtained. According to Pappus, Dinostratus discovered this property of the curve; and probably this is the reason why it has been called the quadratrix of Dinostratus, just as we say the spiral of Archimedes. Indeed there is some ground for believing that the curve was invented by Hippias, a philosopher and skilful geometer, contemporary with Socrates.

It was chiefly in geometry that the followers of Plato excelled. In this they imitated their leader, who directed his attention to abstract speculations, rather than to the study of nature. The conic sections, one of their most refined and profound geometrical theories, remained merely an intellectual speculation from its first invention till the days of Kepler and Newton, when it acquired a high importance on account of the discovery that the orbits of the planets are conic sections.

The school of Plato, after the death of its founder, was divided into two others, which, although opposed to each other on various points, yet agreed in holding the mathematics in esteem, and in regarding them as an indispensable preparation for the study of philosophy. It is recorded, that a person ignorant of geometry and arithmetic having presented himself for admission into the school of Xenocrates, the successor of Plato after Speusippus, he was repelled by its chief, with an intimation that he was not properly prepared for the study of philosophy: *Ansas philosophorum non habes,* said the philosopher.

The mathematics, thus encouraged and protected, continued to be cultivated and improved. The celebrated geometer Euclid was of this school; and it may be conjectured, from the age in which he lived, that he had acquired his knowledge under the tuition of the first successors of Plato. So also, we may presume, was Aristæus, another celebrated geometer of antiquity, though little known in our time, because his works have perished. We learn, however, from Pappus, that he was one of the ancients who contributed the most to the progress of the sublime geometry. He was the author of two excellent works; one a treatise on *The Conic Sections,* in five books, which contained a great part of what Apollonius has given in the first four books of his work; the other, also in five books, treated of *Solid Loci.* Pappus, in prescribing a course of study to his son, places this last work next in order after the Conics of Apollonius. Hence we may infer that the propositions which it contained were of a higher order of difficulty, and required a previous knowledge of the conic sections. Euclid entertained great esteem for Aristæus. We may hence conclude that he was either his disciple or his intimate friend.

The pure mathematics were less cultivated in the school of Aristotle than they had been in that of Plato; they were not, however, neglected; for, unlike the modern peripatics, who discouraged the study of geometry, Aristotle as deeply versed in the science, as may be inferred om his writings, which abound in examples drawn from ometry.

Although the mathematics received but little addition the Aristotelian school, still they had some cultivators. f these, Theophrastus was the principal. He wrote some eatises relating to them, particularly a complete history these sciences down to his time, a work which has un- tunately been lost. It consisted of four books on the story of geometry, six on that of astronomy, and one that of arithmetic. We have great reason to regret e want of the sure light which this work, had it come wn to our times, would have thrown on the origin and ogress of these sciences, instead of which, we have only a v glimmerings, that serve to make the darkness sen- le, but not to dissipate the obscurity. Another dis- le of Aristotle, Eudemus, composed a history of the thematics. This consisted of six books on the history geometry, and as many on that of astronomy. We e to these all we now know concerning the origin of ose sciences; for it is from this source that Proclus, heon, and Diogenes Laertius have drawn the few notices hich they have transmitted to us.

We come next to a new epoch in the history of the an- nt mathematics. This was the institution of the school Alexandria. However memorable this event may have en in the history of general literature, it is more espe- lly remarkable in that of the mathematics; for in this ebrated school all the mathematical sciences were cul- ated with a degree of care not inferior to that which d been bestowed on pure geometry in the school of ato, and with corresponding success.

The period which immediately followed the death of exander proved one of trouble and confusion. The vast pire founded by that conqueror was dismembered by principal captains; and Egypt was the portion which to one of them, Ptolemy Lagus. As soon as he had ablished tranquillity in his dominions, Lagus turned his ention to the sciences; and by his encouragement of ir cultivators, he drew to him many of the learned of eece; and his capital soon rivalled Athens as the resort men of knowledge and talent. These constituted the exandrian school. The perfection of this celebrated ablishment is mainly due to his son and successor Pto- ny Philadelphus, who bestowed on the learned men he induced to settle in his capital, protection and liberal couragement. Amongst those who resorted to this in- ution, none has been more celebrated than the Greek ometer Euclid. His country is unknown; and of the nts of his life no notice has reached us. It appears that had resided in Greece, and studied geometry under disciples of Plato. Thence he went to Alexandria, uced probably by the liberality of the first Ptolemy. ppus has described him as gentle and modest, and en- taining a particular regard for those who could contri- e to the progress of the mathematics. His character med a contrast to that of Apollonius, another geo- ter, who was vain, and delighted in depreciating his temporaries. We may suppose that Euclid was not ch of a courtier, from his reply to Ptolemy, who in- red of him whether there was not an easier way to a owledge of geometry than the study of his Elements. here is no royal road to geometry," was his answer. have elsewhere (see Euclid) given a full account of s distinguished geometer and his writings.

he great excellence of the Elements of Euclid must rease our regret for the loss of a treatise which he com- ed on *Porisms*. Of this work, all that has come down modern times is an abstract, inserted by Pappus Alex- lrinus in his Mathematical Collections. This, however, has suffered so much from time, that all we can immediately learn from it is, that the ancients put a high value on porisms, and regarded them as an important part of their analysis. The efforts of modern geometers had been exerted in endeavouring to discover the nature of porisms, but without much success. At length Dr Robert Simson, with a zeal and perseverance not to be surpassed, succeeded in divining their nature, and even in restoring a great number of Euclid's propositions. These form a part of the posthumous works of this distinguished geometer.

Leaving the Alexandrian school, our attention is drawn to Sicily, which gave birth to Archimedes, a geometer whose genius has been the admiration of all who have come after him. His life was written by Heraclides; but this precious piece of biography, so well calculated to interest our curiosity, has unfortunately perished. Archimedes was born 287 years before our era. He was the relation and friend of Hiero, king of Syracuse. His skill as a mechanician is universally known; but it is only as a geometer that we shall speak of him here. Endowed with a mind of the highest order, he exerted it in the extension of mathematical science. The measure of curvilineal magnitude was a subject new in his time, concerning which but little was known. Archimedes attached himself to this branch by predilection, and opened new views, which have engaged the attention and exercised the genius of such men in modern times as Kepler, Cavalieri, and Dr Wallis. The last of these has called him a man of prodigious sagacity, who first laid the foundations of almost all that had given celebrity to the seventeenth century of our era.

The writings of Archimedes were numerous. We have two books by him on the sphere and cylinder, which terminate in the fine geometrical discoveries, that the solidity and surface of the sphere are respectively two thirds of the solidity and surface of the circumscribing cylinder, with which he was so much delighted, that he desired that these figures should be inscribed on his tomb. His book on the measure of the circle is a kind of supplement to his treatise on the sphere, which supposed a knowledge of that measure. The determination of the exact ratio of the diameter to the circumference was, as at present, a problem not to be resolved; but he found limits to that ratio, and an approximation to it sufficiently accurate for the ordinary wants of the arts, which was all that he attempted. He might, however, have carried his approximation farther, as was afterwards done by Apollonius, and by Philo, another geometer less known.

Archimedes having succeeded in measuring the sphere and cylinder, bodies long the study of geometers, he opened a new field of inquiry in his Treatise on Conoids and Spheroids. All his determinations are now familiar to geometers; his processes of reasoning are highly ingenious, but withal somewhat intricate. Indeed we question whether many modern mathematicians have had patience to go through his investigations, considering that the same conclusions can now be reached by much shorter methods.

The properties of the spiral, invented by his friend Conon, and the quadrature of the parabola, are among the additions made to the ancient geometry by Archimedes. This last was a grand step in the progress of geometry; because it was the first curvilineal space legitimately squared, and the only one, until the application of the modern methods of analysis. In latter times the notion of infinity has been introduced into geometry, and has contributed greatly to its extension. The ancients, however, carefully avoided this term, which might have injured the stability of the science. Their theory of exhaustions supplied its place, and was a safe, although a laborious and indirect way of establishing truth. The writings of Archimedes give the finest examples of its application. We pass over the mechanical and optical inventions of this great man, and only observe that they indicate a state of considerable perfection in the geometrical science of that period.

The writings of Archimedes are the most important of the few classic remains of ancient geometry which we now possess. The subjects of which they treat, being less elementary, are now less studied than those in the Elements of Euclid. Every geometer, however, should have read them at least once in his life. The earliest edition of his writings was published at Basle in 1644. It was in Greek, with a Latin translation by Venatorius, the two versions being printed as separate volumes, and accompanied by the Commentary of Eutocius. There have been many editions of his works. Of these we shall only notice two; that of Torelli, in Greek and Latin, published at Oxford in 1792, and a French translation of his writings by Peyrard, the learned editor and translator of Euclid's works.

Returning to the school of Alexandria, we have to mention Eratosthenes, a geometer as well as an astronomer. Indeed he was one of those uncommon men, whose genius embraces all subjects; for he was also an orator, a poet, an antiquary, and a philosopher. His extensive knowledge induced the third Ptolemy to make him his librarian. He chiefly cultivated geometry and astronomy, and has been classed with the three great geometers of antiquity, Aristæus, Euclid, and Apollonius, who had improved geometrical analysis. Pappus mentions a work by Eratosthenes on this subject, in two books. He has told us its title, but has not described its exact object, which can therefore only be conjectured. He gave a solution of the problem of the duplication of the cube, which Eutocius has preserved in his Commentaries on Archimedes; and he applied his geometrical and astronomical science to the solution of the grand problem, the measurement of the magnitude of the earth, which, however, had been attempted before his time.

Apollonius of Perga appeared as a geometer in the Alexandrian school, about the time when Archimedes had finished his career. It might be a question which of these two great men was endowed with the higher genius; for such was the estimation in which Apollonius was held at the period in which he lived, that he obtained the appellation of the *great geometer*. He was the most profound and fertile writer that has ever treated of geometry. His works which have survived the ravages of time, or have been restored by modern geometers, with the addition of the Data and Porisms of Euclid, this last also a restoration, constitute nearly all which we now know of that beautiful subject, the ancient geometrical analysis. Whoever would understand it, and acquire skill and facility in its application, would do well to study with care the various works of Apollonius which have been restored, if not exactly according to the letter, at least in the true spirit of the originals. A full account of the writings of this distinguished geometer has been given as an article of biography (see APOLLONIUS); it is therefore unnecessary to enumerate them here.

The ancient mathematicians addressed their writings to others, their particular friends. It is in this way that the names of some of their contemporaries have descended to us, although their writings have been lost. Apollonius dedicated the first three books of his Conics to Eudemus, a geometer, and in such terms as show that he addressed himself to one well acquainted with the subject. He says that he had been encouraged to study the subject by Naucrates; and he requests Eudemus to communicate what he had written to Philonides, also a geometer. Eudemus having died, he addressed the fourth book to Attalus, and speaks of Thrasydeus, with whom Conon of Samos, a little anterior to his time, had held a correspondence on the conics; also of Nicoteles the Cyrenean, who it seems had a controversy with Conon. The regret which Archimedes expresses for the loss of Conon gives us reason to believe that he was a profound geometer. We know also that he was an astronomer. Archimedes dedicated several of his works to Dositheus, another geometer, whose name has thus become known to us.

It was about this period that the geometer Nicomedes lived. He was the inventor of the *Conchoid*, a curve which served to resolve two remarkable problems, the duplication of the cube, and the trisection of an angle.

The period which comprehended the ages of Euclid, Archimedes, and Apollonius, was that in which the science of geometry shone forth with the greatest splendour. It had been in a state of gradual improvement from the time of Thales. Now, however, it seems to have arrived at a degree of perfection beyond which its cultivators did not carry it. We may suppose that the science of astronomy took its place, and presented a new and more inviting field of discovery. Hipparchus, the father of astronomy, was also a geometer; for we find him applying its principles, combined with arithmetic, to his science.

There were geometers who were also mechanicians. These, as well as the astronomers, probably cultivated geometry alone as connected with their own science. Gemimus of Rhodes lived between the time of Hipparchus and the beginning of our era. He was the author of a work on geometry, and another on astronomy. The former, which is lost, was probably a historical commentary, a sort of development of geometrical discoveries. Proclus seems to have drawn from it all that he has said on the history and metaphysics of geometry. Its loss is matter of regret. Ctesibius, and Hero his disciple, were celebrated as mechanicians. The former lived in the middle of the second century before Christ. Philo of Byzantium was also a celebrated mechanician. Possidonius was at once geometer, astronomer, mechanician, and geographer. He deserved well of geometry, for having repelled the attack of Zeno the Epicurean, who had attempted to invalidate its principles and certainty. Dionysiodorus was a skilful geometer, as appears by his solution of a difficult problem of Archimedes. Theodosius was the author of a work on the geometry of the sphere, which has descended to our times. It appears to have been studied as a classic in the English universities. Dr Barrow gave an edition of it, along with the writings of Archimedes, and the four books of the Conics of Apollonius, in 1615. The best edition is that of Hunt, printed at Oxford 1707.

The study of the mathematical sciences, which languished in the first century of the Christian era, revived a little in the beginning of the second. Menelaus, an astronomer, wrote on trigonometry and spherical geometry. This work has reached our times by a translation from the Arabic. Dr Halley, holding in high esteem every vestige of the ancient geometry, had prepared a new edition of this geometer, corrected from a Hebrew manuscript. It did not appear, however, until 1758, by the care of Costard, the author of a history of astronomy. Menelaus, as we learn from Pappus, cultivated the theory of curve lines; a subject which may be regarded as belonging to the higher geometry among the ancients.

Ptolemy, if not an inventive geometer, must at least have been perfectly acquainted with its theories, for he had the merit of applying them to astronomy. His Almagest has handed down from antiquity a beautiful geometrical theorem, the foundation of the Greek trigonometry. It is this; the rectangle contained in the diagonals of a quadrilateral inscribed in a circle, is equal to both the rectangles contained by the opposite sides.

Several mathematicians of no great note lived in the ird and fourth centuries of the Christian era. Such were erenus, who wrote two books on cones and cylinders; ypsicles of Alexandria, the supposed author of two books regular solids, sometimes ascribed to Euclid; and Per- us Citticus, who wrote on certain lines called *Spiriques*, rmed from a solid generated by an arc of a circle revolv- g about a fixed axis. Philo of Thyaneus, and Demetrius Alexandria, both wrote on curve lines.

We are now come to a period in which the sciences had gun to decline; when, instead of original treatises, wri- s were content to compose commentaries and annota- ns on the works of their more illustrious predecessors. was in this way that Pappus and Theon of Alexandria, o lived towards the end of the fourth century, rendered vice to the mathematical sciences. The first, however, ist not be classed with the ordinary scholiasts; for in his thematical Collections he has shown that he was an ex- t geometer. His object in composing this work was to lect into one body many scattered discoveries, and to strate and supply deficiencies in the writings of the cele- ated mathematicians who had preceded him. He has ne this in regard to Apollonius, Archimedes, Euclid, and eodosius, by a number of lemmas and important propo- ons which they had assumed as known. His writings ve made us acquainted with the various attempts made the ancients to double the cube, and to divide an angle o three or more equal parts. We are indebted to him almost all we know of these and other important mat- s in the ancient geometry; and it is through his writings t the names of many geometers have come down to our ys, which, but for him, would have been lost in the ob- rity of time. The preface to his seventh book is of in- imable value, inasmuch as it has preserved from oblivion ny of the analytic works of the ancients. His brief ana- is of these works, for that is all we have, has given con- uity to the history of geometry; and his indications have ved as vestiges of the steps by which the ancients pro- eded in their discoveries. Guided by these brief notices, ingenuity of the moderns has succeeded in restoring writings of Apollonius and Euclid, which had disap- red for ages. It is not improbable, that in this renovated m, the works of these geometers surpass in excellence originals. The restorers have had the advantage of an proved state of the science, and the works of later geo- ters, to assist them in their researches.

It is probable that at this time there is not an entire by of the eight books of Pappus in existence; certainly re is none in Britain. In a catalogue of the manuscripts England and Ireland, published at Oxford in 1698, there mention made of two copies in the Savilian library. ese have been more than two centuries in Oxford. One, rked No. 3, is in folio, and is well written on paper; it tains the Greek text of the third, fourth, fifth, sixth, venth, and eighth books, and in addition some works of eodosius and Autolycus. There is no memorial to in- ate when it was written, or by whom. The other copy, h a mark No. 9, is not so well written; it has been co- d by various hands, on separate sheets of paper. This y, besides the books preserved in the former, contains o a part of the second book. Dr Wallis has spoken of ee manuscripts of Pappus at Oxford, one in the Bodleian d two in the Savilian library. No traces of a third copy n now be found in the Bodleian library. The late Dr ail, in his life of Dr Robert Simson, has described a manu- ipt now in the Advocates' Library, Edinburgh. It con- ns five books of Pappus, viz. the third, fourth, fifth, sixth, d eighth; but unfortunately the seventh, the most valu- le portion of the work, is wanting. This was purchased Paris by Dr James Moore in 1748.

The British Museum possesses a manuscript copy of Pappus, which had been the property of the Saliante family at Verona. None of the manuscripts of which we have any details are of a very early date. There are some points of resemblance in all that have been examined, which seem to indicate a common origin. It is well known that early manuscripts are few in number; sometimes only one is known. This may have been the case in regard to the text of Pappus, and will account for the agreement of all the manuscripts in particular places. We owe the edition which we possess of this ancient work to the labour of Commandine, who translated and enriched it with notes, but died when he was about to give it to the world. It afterwards appeared in 1588, under the patronage and by the pecuniary aid of Francisco Maria, duke of Urban. That part of the second book which has been preserved was published in the third volume of the works of Dr Wallis: it treats of the ancient arithmetic.

We had formerly occasion to mention Hypatia, the daughter of Theon, as a commentator on Diophantus, in our account of the progress of Algebra. She has a claim to our notice also in the history of geometry, by her having composed a commentary on the writings of Apollonius.

The philosopher Proclus, the chief of the Platonic school at Athens, made it in some measure the seat of the mathematical sciences about the middle of the fifth century. In imitation of the chief of his sect, he held the sciences in great estimation. He was not, however, distinguished for original discoveries; but his commentary on the first book of Euclid, setting aside the fault of its prolixity, is valuable, because of the information it contains on the history and metaphysics of geometry at a remote period.

We pass over several geometers of this period, of whom hardly any thing but their names is known. We mention, however, Diocles as the inventor of a curve called the cissoid, contrived for the solution of the celebrated problem, to find two mean proportionals.

Geometrical science had by this time been long on the decline. The Alexandrian school, however, still existed; and a repetition of such a period as that in which Apollonius and Euclid flourished might have been hoped for, had it not been for the troubles which agitated the East. The taking of Alexandria by the Saracens in the year 640 gave a deathblow to the sciences, not only in that celebrated city, but throughout the Greek empire. The library was delivered over to destruction by the command of the ignorant fanatic Omar; and this, the finest monument of human genius, the accumulated store of knowledge that had been collecting for ages, was employed during six months in warming the four thousand baths of Alexandria. Such was the end of the Alexandrian school, which had for nearly ten centuries contributed to the advancement of the human mind in knowledge.

About the eighth century we find Hero, called *the younger*, an engineer and mathematician. He wrote a treatise on *Geodæsia* (so practical geometry was called), which had no great merit; it is, however, remarkable for containing, without demonstration, a rule for finding the area of a triangle when its three sides are known. There is no notice of this important theorem in the writings of the ancients which have come down to us. It was, however, probably found by some geometer earlier than Hero. It appears to have been afterwards lost, and rediscovered by Tartalca.

We have an unfavourable opinion of the modern Arabians, but there was a period when they had a very different character. When the sciences were neglected by the Greeks, and existed only in manuscripts buried in the dust of libraries, the Arabians brought them forth from obscurity, and gave them an honourable asylum. They were the depositaries of knowledge during the ages of barbarism and ignorance which overspread Europe; and we owe to our intercourse with them the first glimpses of light which penetrated the obscurity of the eleventh, twelfth, and thirteenth centuries. The Arabians diligently cultivated the science of astronomy; and as a corresponding knowledge of other branches of science was necessary to success, they became geometers, opticians, and even algebraists. The greater part of the Greek geometers, particularly those necessary to the study of astronomy, as Euclid, Theodosius, Hypsicles, Menelaus, were translated into the Arabic language in the time of Almamon, or soon after him. They even began to cultivate the sublime geometry of the ancients, for the four first books of the Conics of Apollonius were translated by order of that prince. They added to their literature the writings of Archimedes, and at least three of the last books of the Conics of Apollonius; and all these works are to be found in libraries rich in oriental manuscripts. It is from the last-mentioned work, corrected and augmented by the notes of Nassireddin, a Persian geometer, that Dr Halley has enriched our geometry with the fifth, sixth, and seventh books of the ancient Greek author; the remaining books, viz. the eighth, appear however to have been entirely lost. The Arabian writers quote the writings of several Greek geometers of which we know nothing, such as a treatise on parallel lines, another on triangles, and a third on the division of the circle. We must allow to the Arabians the merit of having given to our trigonometry its present form. They also simplified the practice of its operations, by employing the sines of the arcs instead of the chords of the double arcs employed by the Greeks. This was even one of their earliest inventions, for we find it in the writings of their astronomer Albatenius.

The Arabian historians have recorded the names of several of their cultivators of geometry; but these may be passed over, ignorant as we are of their contributions to the science. The optician Alhazen however deserves notice, because of the knowledge of geometry shown in his writings, and also on account of a geometrical problem applicable to optics which bears his name. The solution he gives was probably derived from the Greek geometers. It must be confessed the Arabians do not appear to have been an inventive people; almost always commentators or compilers, they seldom rose higher than the labours which such functions impose.

The Persians have also had their geometers. The most celebrated was Nassir-Eddin Al-Tussi. The science is indebted to him for some good works, particularly a learned commentary on Euclid, which was written in Arabic, and printed in 1590 in Italy. Another geometrical work is a revision of the Conics of Apollonius, with a commentary. Dr Halley found this useful in remodelling the fifth, sixth, and seventh books of that precious treatise. The Persian geometers have long known the principal Greek writers; and they even profess to have some of their writings which we have not known. It appears that their geometers had a peculiar taste in treating the doctrines of abstract science, for they have given every proposition of the elements a name expressive of one of its uses, or of some fanciful analogy it may have to things foreign to geometry. The forty-seventh of the first book of Euclid, for example, they call the *figure of the bride*, and the forty-eighth the *bride's sister*; and, with some reason, they call the mathematics the *difficult science*. Mathematical knowledge among the Turks has been nearly in the same state as among the Persians. The libraries of Constantinople contain Arabic and some Turkish translations of the Greek writers. Geometry is taught in their schools, but it does not appear that they go beyond the Elements of Euclid. There are hardly any traces of geometry amongst the Hebrews. We know that when Solomon's temple was built, Hiram king of Tyre furnished architects and navigators. From this we may infer that the Jews had no geometry at that period. It was not before their second dispersion that they took an interest in the sciences. However, when mixed with other nations, some of their learned men cultivated geometry, but never proceeded beyond the elements. About the time of Almamon, in imitation of the Arabians, they translated the writings of some of the Greek mathematicians into their language, in particular those of Euclid and Archimedes. They however made no addition themselves to geometrical science.

The researches of Europeans concerning the mathematical and astronomical science of India have discovered among the Hindus some works on geometry of great antiquity. We have already given some account of these interesting writings in our sketch of the history of Algebra; and we have there described the *Lilavati*, a work on arithmetic and geometry by Bhascara Acharya, a Hindu mathematician, who lived about the year 1150 of the Christian era. In another work, reputed more ancient, viz. the Surya Siddhanta, we find a rational system of trigonometry combined with fable and absurdity. There has been great difference of opinion as to the time when this last treatise, the most ancient on the Indian astronomy, was written. The French astronomer Bailly believed it to have been composed more than 3000 years before the Christian era; but more sober inquirers have judged it to be about 750 years old. The trigonometry it contains is probably much older. The Hindu books on geometry are remarkable for not containing demonstrations. The writers knew the celebrated proposition concerning the squares on the sides of a right-angled triangle, the discovery of which is ascribed to Pythagoras; and they also knew the rule for finding the area of a triangle from its sides, which was not known to the early Greeks. It appears from the Institutes of Akbar, that the Indians supposed the diameter of a circle to be to its circumference as 1250 to 3927; which is the proportion of 1 to 3·1416, and is more accurate than the determination of Archimedes, or indeed than any known before the sixteenth century.

The Chinese have cultivated astronomy from a remote antiquity, yet it does not appear that they have made any progress in geometry. They knew the proposition of Pythagoras, it would seem, earlier than it was known to the Greeks, yet it remained sterile in their hands. They had no spherical trigonometry before the thirteenth century, and then it was not of native growth; it was probably derived from the Arabians or Persians.

The Romans, unlike the Greeks, gave little attention to the sciences. The mathematics in particular were disregarded at Rome; and geometry, scarcely known there, did not extend beyond the art of measuring land and of fixing boundaries. The mathematics were, however, not unknown to Cicero. The respect with which he speaks of them, and the veneration he manifested for the memory of Archimedes in searching for his tomb, on which he knew were inscribed a sphere and cylinder, indicate that he had given some attention to the subject of geometry.

The Roman geographer Strabo must be numbered amongst the geometers of his day: and Cicero mentions another, Didymus, who was blind; but he was a Greek by birth. Vitruvius has given much information, in his architecture, on matters connected with geometry.

We pass over those ages in which the sciences had nearly disappeared in Europe, and hail with satisfaction their revival in the eighth century. Mathematical science was at first dimly recognised, like the dawn of a new day after a gloomy night, in the writings of Boethius, Bede, his disciple Alcuin, and Gerbert, who travelled into Arabia, the only country where a knowledge of the mathematical sciences could be acquired. In this he was imitated by the English monk Adelard, or Athelard, in the twelfth century, who went into Spain and Egypt; also by other

Englishmen, such as Daniel Morlay, Robert of Reading, William Shell or William de Conchis, Clement Langton, &c. Adelard on his return translated Euclid, and he appears to have been the first who made this writer known in the West. His work was never printed. Plato of Tivoli translated the Spherics of Theodosius into Latin about 1120; but this translation was not printed before 1518. It is worthy of remark, that almost all the restorers of the sciences were ecclesiastics, who in the seclusion of the cloisters studied the works of the ancients which had been preserved in the monasteries. This at least is one benefit the world has received from the leisure of the monks of that period, which all of them did not spend in idleness.

The sciences found many cultivators, and much encouragement from sovereigns, in the thirteenth century; Jordanus Nemorarius, who lived about 1230, was well versed in geometry and arithmetic. John of Halifax, known also by the name of Sacro-Bosco, his contemporary, was a mathematician. Campanus of Navarre, the celebrated translator and commentator of Euclid's Elements, was of this age. Almost all the early editions of this work were made from his version and his manuscript commentary. We have a treatise by him on the Quadrature of the Circle. But he deviates from geometrical accuracy, by mistaking the approximate ratio found by Archimedes for the true and exact ratio. The paralogism which he gives for a demonstration may, however, be excused in the geometers of his time. They were few, and their writings must not be too nicely scanned. The name of Roger Bacon is so identified with the progress of science, that we must reckon him among the geometers of his day. In support of this claim we record his treatise on Perspective, a geometrical theory.

Leonardus of Pisa, who in the fifteenth century brought algebra into Italy, was also known as a cultivator of geometry. He composed a treatise on the subject, which Commandine thought worthy of publication, and had prepared it for the press; but his death prevented its appearance.

In the beginning of this century, Cardinal Cusa acquired reputation in geometry, by a pretended quadrature of the circle, and other writings. These, however, were only a tissue of paralogisms. It appears from the introduction to a tract of this writer, that Pope Nicolas V. who occupied the pontifical throne from 1447 to 1455, was a geometer, and had translated the works of Archimedes from Greek into Latin. The true restorers of mathematical science in the fifteenth century were Purbach and Regiomontanus. Purbach banished the use of sexagenary calculation from trigonometry, which he enriched with several new propositions. He supposed the radius divided into 600,000 parts, instead of the divisions used by the ancients; and in place of the chords of the double arcs, expressed in sexagenary parts of the radius, he calculated the sines in 600,000ths of the radius. He was the inventor of the geometrical square, an instrument used in practical geometry; and he appears to have been the first who applied the plumb-line to mark the divisions of an instrument. Regiomontanus, whose true name was John Muller (called also *John of Mont-Royal*), was born in 1436. At the age of fourteen he was captivated with the mathematical sciences, and put himself under the guidance of Purbach. The preceptor and his pupil made a journey into Italy to study Greek, in order that they might draw their knowledge from the pure sources of antiquity. Purbach died there, but his disciple followed out his purpose. He afterwards translated the Spherics of Menelaus and Theodosius into Latin; he corrected from the Greek text the ancient version of Archimedes made by Gerard of Cremona; he translated the Conics of Apollonius, and the Cylindrics of Serenus, besides other works on mixed mathematics; he commented on the books of Archimedes, which Eutocius had not touched. He defended Euclid against the imputations of Campanus, and he confuted the pretended quadrature of Cardinal Cusa. We pass over for the present his improvements in trigonometry.

Lucas Paciolus, or Lucas de Burgo, the author of the earliest printed book on algebra, contributed by the same work to the establishment of geometry. It was first printed in 1494, and was therefore one of the early printed books on the science, but not the earliest, for the first edition of Euclid was in 1482.

The decline of the Greek empire, and the taking of Constantinople, which happened in 1453, scattered the learned men of that country, many of whom took shelter in Italy, and brought with them their language, and the precious remains of ancient learning. The art of printing soon spread abroad these treasures, and in the sixteenth century geometry was very generally cultivated. Amongst the writers on the science in this century we may, in particular, reckon Zamberti, John Baptiste Memmius, Commandine, Guido Ubaldo, Maurolycus, and Tartalea. These and others laboured usefully on the ancients, by translations and commentaries. The Jesuit Clavius deserves particular mention. Besides his labour on Euclid, we owe to him a good work for the time on practical geometry in eight books.

We pass a multitude of names, and come to the French geometer Vieta, who was deeply versed in the ancient as well as in the modern geometry, and the restorer of the tangencies, one of the lost works of Apollonius. Adrian Metius, a Dutch geometer, deserves to be mentioned for his convenient and accurate approximate ratio (113 to 355) of the diameter to the circumference of a circle, given in a work on practical geometry. At this period the geometer Nonius, a professor at Coimbra, laboured with zeal in spreading a knowledge of the science in Portugal.

The seventeenth century opened propitiously for the progress of geometry. Lucas Valerius, an Italian, took up a subject which Archimedes had neglected, namely, the centre of gravity of solids; and Marinus Ghetaldus, another Italian, made an attempt to restore the lost book of Apollonius, entitled *De Inclinationibus;* but he left the labour incomplete. He also composed a work *De Resolutione et Compositione Mathematica*, which proves him to have imbibed the true spirit of the ancient geometry. A Scottish geometer, Alexander Anderson, lived at this time. He had a decided taste for the ancient analysis, of which he gave an essay in his *Supplementum Apollonii Redivivi*, in which he supplied what Ghetaldus had left imperfect. The Netherlands could boast of some geometers who did credit to their time. Ludolph Van Ceulen has been celebrated for his approximation to the ratio of the diameter of a circle to its circumference (ALGEBRA, art. 272), a prodigious effort of labour, but requiring little genius. Willebrord Snellius was a more distinguished geometer. He undertook the restoration of the lost book *De Sectione Determinata* of Apollonius, and accomplished his task creditably. He improved greatly the way in which Ceulen had approximated to the ratio of the diameter to the circumference, and verified the labour of that model of patience in calculation. Albert Girard has acquired great reputation in geometry by his supposed divination of the Porisms of Euclid; for in his edition of Stevinus he positively avers that he had restored the three books, which, however, never appeared; and indeed it may be doubted whether he understood the true nature of porisms. John Neper might be reckoned amongst geometers, but he has still higher claims to the notice of posterity for his invention of logarithms.

The science was sedulously cultivated in England at this period by Robert Record, John Dee, Leonard and Thomas Digges, and Henry Billingsley. Record was the author of the *Pathway of Knowledge*, the earliest book in the English language on geometry. It was first printed in

1551, and is dedicated to Edward VI. Edward Wright, the inventor of what is called *Mercator's Chart,* was an English geometer whose knowledge of the science greatly exceeded what was common in his time.

Germany had many geometers at this period, but none of a high order. John Werner of Nuremberg cultivated the ancient geometry, and excelled in a knowledge of its analysis. Every writer on geometry at this period gave a system of trigonometry nearly the same as we now have it in its most elementary form. To George Joachim Rheticus mathematical science is particularly indebted for a trigonometrical table, more extensive than any that had been given before him. It was printed in 1594, with this title, *Opus Palatinum de Triangulis;* but the author was then dead. The work was published by Valentine Otho.

Pitiscus, another German geometer, extended and reprinted this work in 1613, with the title of *Thesaurus Mathematicus, sive canon sinuum ad radium* 1,000,000,000, &c. This is indeed a treasure, and one of the most remarkable monuments of human patience extant.

Want of space compels us to pass in silence many names not less celebrated than some we have given, but less remarkable, because of their abundance in respect of the age to which they gave splendour. Indeed we may reckon that every astronomer and algebraist was then a geometer.

Kepler opened an unexplored way into the field of geometry, by boldly introducing the notion of infinity into that science. We may suppose that Archimedes must have entertained in effect the same idea in his speculations on the sphere and cylinder, but was prevented from following it to its full extent by the strict laws according to which the early mathematicians had constructed their demonstrations. The views of Kepler were eagerly seized by Roberval in France, and by Cavalieri in Italy. They were the fertile germs which, under the culture of such men, led, in the course of the seventeenth century, to a rich harvest of discoveries.

We have now arrived at a period at which the discoveries of the ancients formed but a small part of the whole body of geometrical science, augmented as it had been by the moderns, and which was continually increasing. The new views which were opened soon produced the methods of indivisibles of Cavalieri and Roberval, the theory of tangents of Fermat, the arithmetic of infinites of Wallis, the geometry of curve lines of Descartes, and, finally, the method of fluxions of Newton, and the differential calculus of Leibnitz. The origin and progress of these have been fully explained in our introductions to ALGEBRA and FLUXIONS, and require not to be here repeated. The ancient geometry, however, still had great value. Huygens and Newton delivered their sublime discoveries in its language, and represented the relations of time, space, velocity, force, the objects of their physical inquiries, by geometrical diagrams. The rigorous mode of ancient demonstrations served likewise as a model on which to form the processes of reasoning by which the new truths in geometry and physics were to be established.

Not to pass altogether in silence the names of geometers whose discoveries have made the seventeenth century ever memorable, we observe, that to Guildin, a Jesuit, we owe the discovery of a property of the centre of gravity applicable to the measurement of solids formed by revolution; and to Descartes, Fermat, Roberval, and Barrow, a method of determining the tangents of curves. Galileo first suggested the *cycloid,* the nature of which was afterwards fully disclosed by the investigations of Roberval, Fermat, Pascal, Huygens, Wren, and Wallis. James Gregory first suggested the logarithmic curve; and John Bernoulli and Leibnitz showed the true nature of the catenary, which Galileo could not discover; afterwards, David Gregory demonstrated its properties by the new geometry.

The ancient geometry came in for a share of that general attention which was bestowed on the modern theories. Newton, as has been already stated, held it in high esteem; and David Gregory and Dr Halley employed their genius and learning in restoring to their pristine excellence the precious remains of Euclid and Apollonius.

Previously to the time of Newton, pure geometry and algebra were the only subjects which mathematicians had for the exercise of their genius; but his sublime discoveries presented a new and an immense field for investigation. The fact that the orbits of the planets are ellipses, naturally connected the doctrines of astronomy with the conic sections; and the two were wrought up into the beautiful physico-mathematical theory of central forces delivered in the *Principia.* When this came to be fully understood, it served as a model of reasoning in all speculations on physics, and the geometrical method of Newton was adopted and imitated by his followers. Thus, we have the *Elements of Physical and Geometrical Astronomy* of David Gregory, and the *Phoronomia* of Herman, and many other like treatises, composed in the geometrical style. It was, however, soon discovered, and first by foreign mathematicians, that the geometrical method, which, when carried a certain length, is perspicuous and easy, is yet unsuitable to the more difficult speculations of mechanical philosophy, by reason of its cumbersomeness. It was therefore abandoned by Leibnitz, the Bernoullis, Euler, and their followers, and the greatly more manageable modern methods of the fluxional or differential calculus adopted in its stead. The mathematicians in Britain, who had imbibed deeply and acquired a relish for the spirit of the geometrical method, however, still adhered wholly or in part to that method. Maclaurin, the expositor of Newton's calculus of fluxions, defended its principles, and delivered many of his own fine speculations in the pure and mixed mathematics, in the prolix style of the ancient geometry. But he also gave a theory of the fluxional calculus in the more concise language of the modern analysis, which served as a practical example of the advantage which the latter has over the former as an instrument of invention. Dr Robert Simson, the editor of Euclid, greatly preferred the geometrical to the modern analysis; and his disciple, Dr Mathew Stewart, the author of *General Theorems, Tracts relating to Physical Astronomy,* and *Propositiones Geometricæ more Veterum Demonstratæ,* fully agreed with him in this sentiment. At a later period another Scottish professor, the late Mr Playfair, with a profound knowledge of both the ancient and modern analysis, and with no prejudice in favour of the former, yet gave an elegant example of its beauty, in his paper on the origin and investigation of porisms.

These distinguished Scottish mathematicians, by their writings, contributed greatly to keep up the taste for geometry in Britain during the last century. It is proper to acknowledge also, that much is due to Dr A. Robertson, the late professor of astronomy at Oxford, to Dr Horsley, bishop of Rochester, and others, for the estimation in which the geometrical analysis is now held in Britain.

The nature and objects of the ancient geometry have been fully understood for a century past, and the only question now is, how it ought to be studied. There have been a great variety of treatises within that time sent into the world. We do not, however, suppose that the science has gained by this diversity of guides. The settled public opinion seems to be in favour of some standard book; and Euclid's *Elements* have been, by almost universal consent, chosen as that standard in this country. There is another work of great excellence in the French language, *Eléments de Géométrie,* by the late Legendre, a mathematician of the highest celebrity. Were we to chuse a book different from Euclid for purposes of instruction, would be Legendre's Geometry, of which there is an Iglish translation. It may be useful to read more than oe book on a subject which we wish to understand thorughly, and those who hold this opinion can find no better bk than that of the French geometer. We have kept hn constantly in view in composing this treatise.

n tracing the progress of a science, it is always interting to know by what steps it has advanced in the creer of improvement. These may be well ascertained b consulting the authors who have written on the science, fm its infancy downwards. With this view we have gen a catalogue of writers on algebra and fluxions, and w now do the same in regard to geometry. The early wters are not so much mentioned for their excellence, as fm a wish to give a faithful portraiture of the state and pgress of the science at different periods. The works o geometry in the last century are too numerous to be al specified. Many have fallen into obscurity. Almost al are mere transcripts from Euclid; indeed, generally spaking, their excellence is in proportion to the fidelity wh which they have copied the ancient.

Ancient Writers on Geometry.

Elid, Elements of Geometry	flourished B. C. 272
irst edition in Latin, that of Ratdolt	1482
irst edition of Greek text, by Hervage,	1533
dit. in Greek, Latin, and French, by Peyrard	1814
For other editions, see EUCLID.)	
—— Porisms, restored by Dr Simson, Opera quædam Reliqua	1776
Allonius, Conics, and various works	fl. B. C. 244
or an account of his writings, see APOLLONIUS.	
Ahimedes on the Sphere and Cylinder, &c. born	B. C. 287
irst edition of Greek text by Venatorius,	1544
xford edition, Gr. and Lat., by Torelli,	1792
dition in French, by Peyrard	1808
Etosthenes, Geometria cum Annot. 1672	fl. B. C. 194
Thon, Commentator on Euclid	fl. B. C. 117
Thodosius, Sphericorum libri tres, printed at xford, 1707	fl. A. C. 75
Melaus, Spherics, edited by Maurolycus	fl. A. C. 100
Senus, De Sectione Cylindri et Coni	fl. A. C. 200
is treatise is in Oxford edition of Apollonius.	
Ppus, Mathematicæ Collectiones, 1588, 1660	fl. A. C. 380
Pclus, Commentator on Euclid	fl. A. C. 450
aylor gave a translation in English, 1788.	
Verum Mathematicorum Athenæi, Bitonis, pollodori, Heronis, Philonis, et aliorum, Opera, r. et Lat	1693

Writers in Modern Times.

Las de Burgo, Summa de Arithmetica, &c	1494
Bardinus, Geometria Speculativa	1495
Bille, L'Art et Science de Géométrie	1514
Nle Cusa, De Geometricis Transmutationibus	1514
Aert Durer, Institutionum Geometricarum lib. iv	1532
Otius Fineus, Liber de Geometrica Practica	1544
Reord, The Pathway to Knowledge	1551
Beo, Opuscula quædam Geometrica	1554
Raus, Arithmeticæ lib. ii. Geometricæ lib. xxvi	1580
Fikius, Geometriæ Rotundæ lib. iii	1583
Stinus, Problematum Geometricorum lib. v	1583
Batius, Geom. Problema Tredecem Modis Dem	1586
Via, Opera Mathematica	1589
Dges (Tho.), Pantometria, a geometrical treatise	1591
Bista Porta, Elementorum Curvilineorum lib. ii	1601
Raus, Geometria	1604
Clius, Geometria Practica	1606
Gltaldus, Apollonius Redivivus	1607
Aerson, Supplementum Apollonii Redivivi	1612
Kepler, Nova Stereometria, &c	1618
Van Ceulen, De Circulo et Adscriptis	1619
Snellius, Cyclometricus	1621
Metius, Arith. libri ii. et Geom. libri vi	1626
Guildin, De Centro Gravitatis, &c	1635
Cavalieri, Geometria Indivisibilibus promota	1635
——— Exercitationes Geometricæ sex	1647
Descartes, Geometria	1637
Toricelli, De Sphæra et Solidis Sphæralibus, &c	1644
Gregory St Vincent, Opus Geom. quadrat. Circuli.	1647
Rudd, Practical Geometry	1650
Wallis, Arithmetica Infinitorum	1656
——— De Cycloide et Cissoide	1659
Pascal (A. Dettonville), Lettres (on the Cycloid)	1658
Ricci, Exer. Geom. de Maximis et Minimis	1666
J. Gregory, Vera Circ. et Hyp. Quadratura	1667
——— Geometriæ Pars Universalis	1668
Slusius, Mesolabum, &c	1668
Huygens, De Linearum Curvarum evolutione et dimensione (in Horol. Oscil.)	1673
——— Opera (collected by S'Gravesande)	1751
Barrow, Lectiones Geometricæ	1674
Viviani, Enodatio Problematum Gallicorum	1677
De Omerique, Analysis Geometrica	1698
Sharpe, Geometry Improved	1718
Clairaut, Elémens de Géométrie	1746
Math. Stewart, General Theorems	1746
——— Propositiones Geometricæ	1763
Montucla, Histoire des Recherches sur la quadrature du Cercle (in Histoire de Mathématiques)	1754
T. Simpson, Elements of Geometry	1752
Emerson, Elements of Geometry	1763
Hutton, A Treatise on Mensuration	1770
Lawson on the Geometrical Analysis of the Ancients	1774
R. Simson, Opera quædam Reliqua	1776
West, Elements of Mathematics	1784
Playfair, Origin and Investigation of Porisms (*Edin. Phil. Trans.* vol. iii.)	1794
——— Elements of Geometry	1795
Wallace, Geometrical Porisms (in *Edin. Phil. Tr.* vol. iv.)	1796
La Croix, Elémens de Géométrie	1795
Mascheroni, Géométrie du Compas	1798
——— Problèmes pour les Arpenteurs	1803
Legendre, Eléments de Géométrie (third edition)	1800
Kramp, Elémens de Géométrie	1805
Leslie, Elements of Geometry, Geometrical Analysis, &c	1809
L'Huillier, Elémens d'Analyse Géométrique, &c	1809
Diesterweg, Geometriche Aufgaben nach der Methode der Grechen	1825
Vincent, Cours de Géométrie Elémentaire	1827
Duncan, Elements of Plane and Solid Geometry	1833

General Notions of Geometrical Magnitude.

Our notions of geometrical magnitudes are obtained by the contemplation of a *body*, or *solid*. We readily understand that this is extended in three directions; that is, it has length, breadth, and thickness. The outside or boundary of a solid, that which separates the particular space it occupies from space in general, is called a *surface* or *superficies*. A surface, then, is not conceived as having any thickness; it has only length and breadth.

A surface has a boundary; something which encloses it, or separates any portion of it from the remainder. This boundary, which has no thickness, nor breadth, but length only, is a *line*.

Again, there is something which terminates a line, indicating where it begins and where it ends, or which may

Lines and Figures upon a Plane.

separate it into distinct portions. This is a point, which has neither thickness, length, nor breadth. These three kinds of magnitude, viz. solids, surfaces, and lines, are the objects of geometrical discussion.

There is no limit to the number of lines, and surfaces, and solids, which may be considered in geometry. The elements of the science, however, treat only of a few of these: Straight lines, circles, rectilineal plane figures, and their affections, constitute one part of geometry; another treats of the intersections of planes, of solids bounded by planes, and of the three round bodies, viz. the cylinder, the cone, and the sphere. This diversity of objects leads to the division of the subject into two parts, one which treats of figures on a plane, and another the geometry of solids.

PART I.—OF LINES AND FIGURES UPON A PLANE.

SECT. I.—PRINCIPLES OF GEOMETRY.

Definitions.

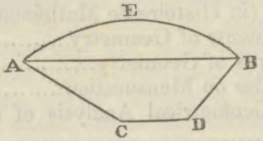
I. Geometry is a science which treats of the properties and relations of quantities having extension, and which are called magnitudes. Extension is distinguished into length, breadth, and thickness.

II. A *Point* is that which has position, but not magnitude.

III. A *Line* is that which has only length. Hence the extremities of a line are points, and the intersections of one line with another are also points.

IV. A *Straight* or *Right Line* is the shortest way from on point to another.

Fig. 1.



V. Every line which is neither straight nor composed of straight lines is a *Curve Line*. Thus AB is a straight line, ACDB is a line made up of straight lines, and AEB is a curve line.

VI. A *Superficies* or *Surface* is that which has only length and breadth. Hence the extremities of a superficies are lines, and the intersections of one superficies with another are also lines.

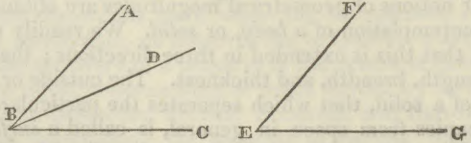
VII. A *Plane Superficies* is that in which any two points being taken, the straight line between them lies wholly in that superficies.

VIII. Every superficies which is neither plane nor composed of plane superficies, is a *Curve Superficies*.

IX. A *Solid* is that which has length, breadth, and thickness. Hence the boundaries of a solid are superficies; and the boundary which is common to two solids which are contiguous, is a superficies.

X. A *Plane Rectilineal Angle* is the inclination of two straight lines to one another, which meet together, but are not in the same straight line. The point in which the lines meet one another is called the *Vertex* of the angle.

Fig. 2.



When there is only one angle at a point, it may be expressed by the letter placed at that point; thus the angle contained by the lines EF and EG may be called the angle E. If, however, there be several angles, as at B, then each is expressed by three letters, one of which is the letter that stands at the vertex of the angle, and the others are the letters that stand somewhere upon the lines containing the angle, the letter at the vertex being placed between the other two. Thus the angle contained by the lines BA and BD is called the angle ABD or DBA.

Angles, in common with other quantities, admit of addition, subtraction, multiplication, and division. Thus the sum of the angles ABD and ABC is the angle DBC; the difference of the angles DBC and ABD is the angle ABC.

Fig. 3.

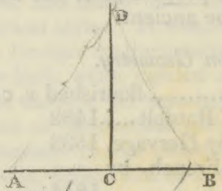
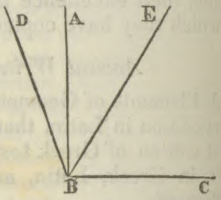


Fig. 4.

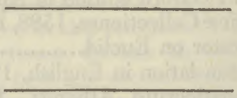


XI. When a straight line standing on another straight line makes the adjacent angles equal to one another, each of them is called a *Right Angle*, and the straight line which stands on the other is called a *Perpendicular* to it. Thus, if DC meet AB, and make the angles ACD, DCB equal to one another, each of them is a right angle, and DC is a perpendicular to AB.

XII. An *Obtuse Angle* is that which is greater than a right angle, and an *Acute Angle* is that which is less than a right angle. Thus ABC being supposed a right angle, DBC is an obtuse angle, and EBC an acute angle.

XIII. *Parallel Straight Lines* are such as are in the same plane, and which being produced ever so far both ways, do not meet.

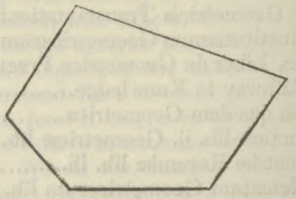
Fig. 5.



XIV. A *Plane Figure* is a plane terminated everywhere by lines.

If the lines be straight, the space which they enclose is called a *Rectilineal* figure, or a *Polygon*, and the lines themselves constitute the *Perimeter* of the polygon.

Fig. 6.



XV. When a polygon has three sides (which is the smallest number it can have), it is called a *Triangle*; when it has four, it is called a *Quadrilateral*; when it has five, a *Pentagon*; when six, a *Hexagon*, &c.

XVI. An *Equilateral* triangle is that which has three equal sides (fig. 7); an *Isosceles* triangle is that which has only two equal sides (fig. 8); and a *Scalene* triangle is that which has all its sides unequal (fig. 10).

Fig. 7.

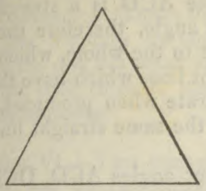
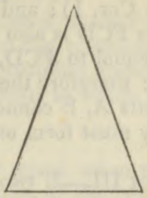
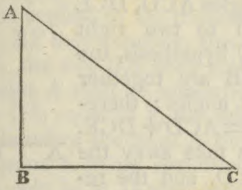


Fig. 8.



XVII. A *Right-angled* triangle is that which has a right a gle; the side opposite to the right angle is called the *ypothenuse.* Thus in the triangle ABC, having the a gle at B a right angle, the side AC is the hypothenuse.

Fig. 9.



XVIII. An *Obtuse-angled* triangle is that which has an o use angle (fig. 10); and an *acute-angled* triangle is that ich has three acute angles (fig. 11).

Fig. 10.

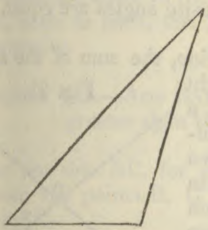
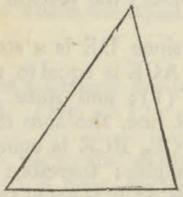


Fig. 11.



IX. Of quadrilateral figures, a *square* is that which h all its sides equal, and all its angles right angles (fig. 1 . A *Rectangle* is that which has all its angles right a les, but not all its sides equal (fig. 13). A *Rhombus* i hat which has all its sides equal, but its angles are not r t angles (fig. 14). A *Parallelogram*, or *Rhomboid*, is t t which has its opposite sides parallel (fig. 15). A *apezoid* is that which has only two of its opposite sides p allel (fig. 16).

Fig. 12.

Fig. 13.

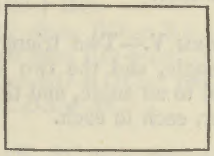


Fig. 15.

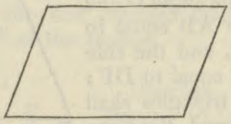


Fig. 14.

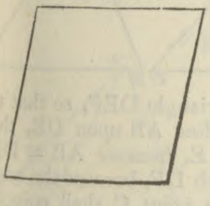
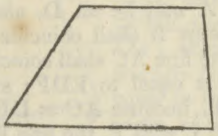


Fig. 16.



Lines and Figures upon a Plane.

XX. A *Diagonal* is a straight line which joins the vertices of two angles, which are not adjacent to each other, such as AC in fig. 42.

XXI. An *Equilateral Polygon* is that which has all its sides equal; and an *Equiangular Polygon* is that which has all its angles equal. If a polygon be both equilateral and equiangular, it is called a *Regular Polygon.*

XXII. Two polygons are *equilateral* between themselves when the sides of the one are equal to the sides of the other, each to each, and in the same order; that is, when in going about each of the figures in the same direction, the first side of the one is equal to the first side of the other; the second side of the one is equal to the second side of the other; the third to the third, and so on. The same is to be understood of two polygons which are *equiangular* between themselves.

Explanation of Terms.

An *Axiom* is a proposition the truth of which is evident at first sight.

A *Theorem* is a truth which becomes evident by a process of reasoning called *Demonstration.*

A *Problem* is a question proposed, which requires a solution.

A *Lemma* is a subsidiary truth employed in the demonstration of a theorem, or the solution of a problem.

The common name, *Proposition*, is given indifferently to theorems, problems, and lemmas.

A *Corollary* is a consequence which follows from one or several propositions.

A *Scholium* is a remark upon one or more propositions that have gone before, tending to show their connection, their restriction, their extension, or the manner of their application.

A *Hypothesis* is a supposition made either in the enunciation of a proposition, or in the course of a demonstration.

Explanation of Signs.

That the demonstrations may be more concise, we shall make use of the following signs borrowed from algebra; and in employing them we shall take for granted that the reader is acquainted with at least the notation and first principles of that branch of mathematics.

To express that two quantities are equal, the sign $=$ is put between them; thus $A = B$ signifies that the quantity denoted by A is equal to the quantity denoted by B.

To express that A is less than B they are written thus, $A < B$.

To express that A is greater than B they are written thus, $A > B$.

The sign $+$ (read *plus*) written between the letters which denote two quantities, indicates that the quantities are to be added together; thus $A + B$ means the sum of the quantities A and B.

The sign $-$ (read *minus*) written between two letters means the excess of the one quantity above the other; thus $A - B$ means the excess of the quantity denoted by A above the quantity denoted by B. The signs $+$ and $-$ will sometimes occur in the same expression; thus $A + C - D$ means that D is to be subtracted from the sum of A and C; also $A - D + C$ means the same thing.

The sign $\times$ put between two quantities means their product if they be considered as numbers; but if they be considered as lines, it signifies a rectangle having these lines for its length and breadth; thus $A \times B$ means the product of two numbers A and B; or else a rectangle having A and B for the sides about one of its right angles. We shall likewise indicate the product of two quantities, in some cases, by writing the letters close together; thus mA will be used to express the product of m and A, and so on with other expressions, agreeably to the common notation in algebra.

The expression A^2 means the square of the quantity A, and A^3 means the cube of A; also PQ^2 and PQ^3 mean, the one the square, and the other the cube, of a line whose extremities are the points P and Q.

On the other hand, the sign $\surd$ indicates a root to be extracted; thus $\sqrt{A \times B}$ means the square root of the product of A and B.

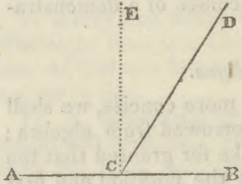
Axioms.

1. Two quantities, each of which is equal to a third, are equal to one another.
2. The whole is greater than its part.
3. The whole is equal to the sum of all its parts.
4. Only one straight line can be drawn between two points.
5. Two magnitudes, whether they be lines, surfaces, or solids, are equal, when, being applied the one to the other, they coincide with one another entirely, that is, when they exactly fill the same space.
6. All right angles are equal to one another.

Note.—The references are to be understood thus: (7) refers to the seventh proposition of the section in which it occurs; (4, 2) means the fourth proposition of the second section; (2 Cor. 28, 4) means the second corollary to the twenty-eighth proposition of the fourth section.

Theorem I.—A straight line CD, which meets with another AB, makes with it two adjacent angles, which, taken together, are equal to two right angles.

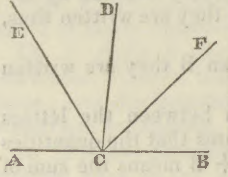
Fig. 17.



At the point C let CE be perpendicular to AB. The angle ACD is the sum of the angles ACE, ECD; therefore ACD + BCD is the sum of the three angles ACE, ECD, BCD. The first of these is a right angle, and the two others are together equal to a right angle; therefore the sum of the two angles ACD, BCD, is equal to two right angles.

Cor. 1. If one of the angles is a right angle, the other is also a right angle.

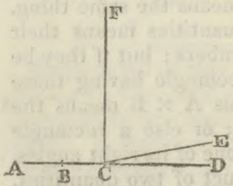
Fig. 18.



Cor. 2. All the angles ACE, ECD, DCF, FCB, at the same point C, on the same side of the line AB, are, taken together, equal to two right angles. For their sum is equal to the two angles ACD, DCB.

Theorem II.—Two straight lines which coincide with each other in two points, also coincide in all their extent, and form but one and the same straight line.

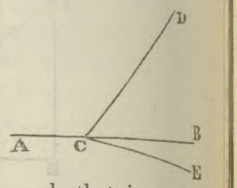
Fig. 19.



Let the points which are common to the two lines be A and B; in the first place it is evident that they must coincide entirely between A and B; otherwise two straight lines could be drawn from A to B, which is impossible (Axiom 4). Now let us suppose, if possible, that the lines when produced separate from each other at a point C, the one becoming ACD, and the other ACE. At the point C let CF be drawn, so as to make the angle ACF a right angle; then ACE being a straight line, the angle FCE is a right angle (1 Cor. 1); and because ACD is a straight line, the angle FCD is also a right angle, therefore the angle FCE is equal to FCD, a part to the whole, which is impossible; therefore the straight lines which have the common points A, B cannot separate when produced, therefore they must form one and the same straight line.

Theorem III.—If two adjacent angles ACD, DCB make together two right angles; the two exterior lines AC, CB, which form these angles, are in the same straight line.

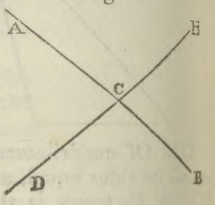
Fig. 20.



For if CB is not the line AC produced, let CE be that line produced, then, ACE being a straight line, the angles ACD, DCE are together equal to two right angles (1); but, by hypothesis, the angles ACD, DCB are together equal to two right angles; therefore $ACD + DCB = ACD + DCE$. From these equals take away the common angle ACD, and the remaining angles DCB, DCE are equal, that is, a part equal to the whole, which is impossible; therefore CB is the line AC produced.

Theorem IV.—If two straight lines AB, DE cut each other; the vertical or opposite angles are equal.

Fig. 21.



For since DE is a straight line, the sum of the angles ACD, ACE is equal to two right angles (1); and since AB is a straight line, the sum of the angles ACE, BCE is equal to two right angles; therefore the sum ACD + ACE is equal to the sum ACE + BCE. From each of these take away the same angle ACE, and there remains the angle ACD equal to its opposite angle BCE.

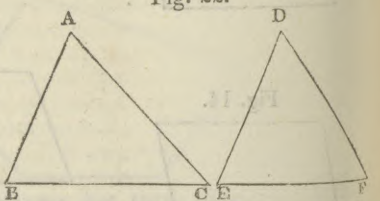
In like manner it may be demonstrated, that the angle ACE is equal to its opposite angle BCD.

Cor. 1. From this it appears, that if two straight lines cut one another, the angles they make at the point of their intersection are together equal to four right angles.

Cor. 2. And hence all the angles made by any number of lines meeting in one point are together equal to four right angles.

Theorem V.—Two triangles are equal when they have an angle, and the two sides containing it of the one, equal to an angle, and the two sides containing it of the other, each to each.

Fig. 22.



Let the triangles ABC, DEF have the angle A equal to the angle D, the side AB equal to DE, and the side AC equal to DF; the triangles shall be equal. For if the triangle ABC be applied to the triangle DEF, so that the point A may be on D, and the line AB upon DE, then the point B shall coincide with E, because $AB = DE$; and the line AC shall coincide with DF, because the angle BAC is equal to EDF; and the point C shall coincide with F, because $AC = DF$; and since B coincides with E, and C with F, the line BC shall coincide with EF, and

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the two triangles shall coincide exactly, the one with the other; therefore they are equal (Ax. 5).

Cor. Hence it follows that the bases, or third sides BC, EF of the triangles are equal; and the remaining angles B, C of the one are equal to the remaining angles E, F of the other, each to each, namely, those to which the equal sides are opposite.

Theorem VI.—Two triangles are equal, when they have a side, and the two adjacent angles of the one equal to a side, and the two adjacent angles of the other, each to each. (See fig. 22.)

Let the side BC be equal to the side EF, the angle B to the angle E, and the angle C to the angle F; the triangle ABC shall be equal to the triangle DEF. For if the triangle ABC be applied to the triangle DEF, so that the equal sides BC, EF may coincide, then, because the angle B is equal to E, the side BA shall coincide with ED, and therefore the point A shall be somewhere in ED; and because the angle C is equal to F, the side CA shall coincide with FD, and therefore the point A shall be somewhere in FD; now the point A being somewhere in the lines ED and FD, it can only be at D their intersection; therefore the two triangles ABC, DEF must entirely coincide, and be equal to one another.

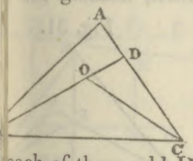
Cor. Hence it appears that the remaining angles A, D of the triangles are equal; and the remaining sides AB, AC of the one are equal to the remaining sides DE, DF of the other, each to each, viz. those to which the equal angles are opposite.

Theorem VII.—Any two sides of a triangle are together greater than the third. (Fig. 22.)

For the side BC, for example, being the shortest way between the points B, C (Def. 4), it must be less than BA + AC.

Theorem VIII.—If from a point O, within a triangle ABC, there be drawn straight lines OB, OC to the extremities of BC, one of its sides; the sum of these lines shall be less than that of AB, AC, the two other sides.

Fig. 23.

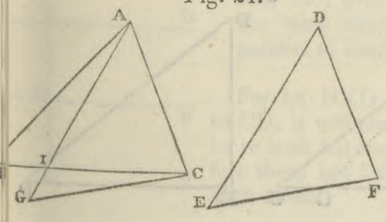


Let BO be produced to meet CA in D; because the straight line OC is less than OD + DC, to each of these add BO, and $BO + OC \angle BO + OD + DC$; that is, $BO + OC \angle BD + DC$.

Again, since $BD \angle BA + AD$, to each of these add DC, and we have $BD + DC \angle BA + AC$; but it has been shown that $BO + OC \angle BD + DC$, much more then is $BO + OC \angle BA + AC$.

Theorem IX.—If two sides AB, AC of a triangle ABC be equal to two sides DE, DF of another triangle DEF, each to each, but the angle BAC contained by the former greater than the angle EDF contained by the latter; the third side BC of the first triangle shall be greater than the third side EF of the second.

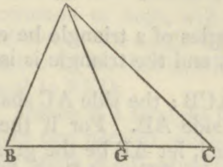
Fig. 24.



Suppose AG drawn so that the angle CAG = D, take AG = DE and join CG; then the triangle GAC is equal to the triangle EDF (5), and therefore GC = EF. Now there may be three cases, according as the point G falls without the triangle BAC, fig. 24, or on the side BC, fig. 25, or within the same triangle, fig. 26.

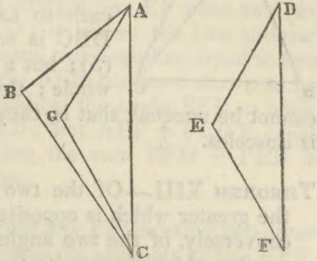
Case I. Because $GC \angle GI + IC$, and $AB \angle AI + IB$ (7), therefore $GC + AB \angle GI + AI + IC + IB$, that is, $GC + AB \angle AG + BC$; from each of these unequal quantities take away the equal quantities AB, AG, and there remains $GC \angle BC$, therefore $EF \angle BC$.

Fig. 25.



Case II. If the point G fall upon the side BC, then it is evident that GC, or its equal EF, is less than BC.

Fig. 26.



Case III. Lastly, if the point G fall within the triangle BAC, then $AG + GC \angle AB + BC$ (8), therefore, taking away the equal quantities AG, AB, there remains $GC \angle BC$ or $EF \angle BC$.

Cor. Hence, conversely, if EF be less than BC, the angle EDF is less than BAC; for the angle EDF cannot be equal to BAC, because then (5), EF would be equal to BC; neither can the angle EDF be greater than BAC, for then (by the Theor.) EF would be greater than BC.

Theorem X.—Two triangles are equal, when the three sides of the one are equal to the three sides of the other, each to each. (Fig. 22.)

Let the side AB = DE, AC = DF, and BC = EF; then shall the angle A = D, B = E, C = F.

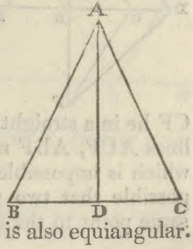
For if the angle A were greater than D; since the sides AB, AC are equal to DE, DF, each to each, it would follow (9), that BC would be greater than EF; and if the angle A were less than the angle D, then BC would be less than EF; but BC is equal to EF, therefore the angle A can neither be greater nor less than the angle D, therefore it must be equal to it. In the same manner it may be proved that the angle B = E, and that the angle C = F.

Scholium. It may be remarked, as in Theorem V. and Theorem VI. that the equal angles are opposite to the equal sides.

Theorem XI.—In an isosceles triangle, the angles opposite to the equal sides are equal to one another.

Let the side AB = AC, then shall the angle C = B.

Fig. 27.



Suppose a straight line drawn from A the *vertex* of the triangle, to D the middle of its base; the two triangles ABD, ACD have the three sides of the one equal to the three sides of the other, each to each, namely, AD common to both, AB = AC by hypothesis, and BD = DC by construction, therefore (preced. Theor.) the angle B is equal to the angle C.

Cor. Hence, every equilateral triangle is also equiangular.

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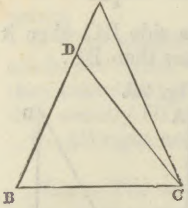
Scholium. From the equality of the triangles ABD, ACD, it follows that the angle BAD = DAC, and that the angle BDA = ADC; therefore these two last are right angles. Hence it appears that a straight line drawn from the vertex of an isosceles triangle to the middle of its base is perpendicular to that base, and divides the vertical angle into two equal parts.

In a triangle that is not isosceles, any one of its three sides may be taken indifferently for a *base;* and then its *vertex* is that of the opposite angle. In an isosceles triangle, the base is that side which is not equal to one of the others.

Theorem XII.—If two angles of a triangle be equal; the opposite sides are equal, and the triangle is isosceles.

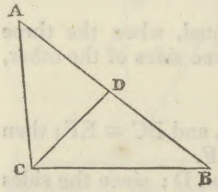
Fig. 28.



Let the angle ABC = ACB; the side AC shall be equal to the side AB. For if the sides are not equal, let AB be the greater of the two; take BD = AC, and join CD; the angle DBC is by hypothesis equal to ACB, and the two sides DB, BC are equal to the two sides AC, BC, each to each; therefore the triangle DBC is equal to the triangle ACB (5); but a part cannot be equal to the whole; therefore the sides AB, AC cannot be unequal, that is, they are equal, and the triangle is isosceles.

Theorem XIII.—Of the two sides of a triangle, that is the greater which is opposite to the greater angle; and conversely, of the two angles of a triangle, that is the greater which is opposite to the greater side.

Fig. 29.

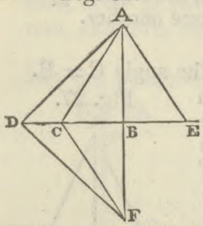


First, let the angle C > B; then shall the side AB opposite to C be greater than the side AC opposite to B. Suppose CD drawn, so that the angle BCD = B; in the triangle BDC, BD is equal to DC (12); but AD + DC > AC, and AD + DC = AD + DB = AB, therefore AB > AC.

Next, let the side AB > AC; then shall the angle C opposite to AB, be greater than the angle B, opposite to AC. For if C were less than B, then, by what has been demonstrated, AB < AC, which is contrary to the hypothesis of the proposition, therefore C is not less than B; and if C were equal to B, then it would follow that AC = AB (12), which is also contrary to the hypothesis; therefore C is greater than B.

Theorem XIV.—From a point A without a straight line DE, no more than one perpendicular can be drawn to that line.

Fig. 30.



For suppose it possible to draw two, AB and AC; produce one of them AB, so that BF = AB, and join CF. The triangle CBF is equal to the triangle ABC, for the angle CBF is a right angle, as well as CBA, and the side BF = BA; therefore the triangles are equal (5), and hence the angle BCF = BCA; but the angle BCA is by hypothesis a right angle; therefore the angle BCF is also a right angle; hence AC and CF lie in a straight line (3), and consequently two straight lines ACF, ABF may be drawn between two points A, F, which is impossible (Axiom 4); therefore it is equally impossible that two perpendiculars can be drawn from the same point to the same straight line.

Theorem XV.—If from a point A, without a straight line DE, a perpendicular AB be drawn upon that line, and also different oblique lines AE, AC, AD, &c. to different points of the same line.

First, The perpendicular AB shall be shorter than any one of the oblique lines.

Secondly, The two oblique lines AC, AE, which meet the line DE on opposite sides of the perpendicular, and at equal distances BC, BE from it, are equal to one another.

Lastly, Of any two oblique lines AC, AD, or AE, AD, that which is more remote from the perpendicular is the greater.

Produce the perpendicular AB, so that BF = BA, and join FC, FD.

1. The triangle BCF is equal to the triangle BCA; for the right angle CBF = CBA, the side CB is common, and the side BF = BA, therefore the third side CF = AC (5); but AF < AC + CF (7), that is, 2AB < 2AC; therefore AB < AC; that is, the perpendicular is shorter than any one of the oblique lines.

2. If BE = BC, then, as AB is common to the two triangles ABE, ABC, and the right angle ABE = ABC, the triangles ABE, ABC shall be equal (5), and AE = AC.

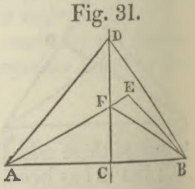
3. In the triangle DFA, the sum of the lines AD, DF is greater than the sum of AC, CF (8), that is, 2AD > 2AC; therefore AD > AC, that is, the oblique line, which is more remote from the perpendicular, is greater than that which is nearer.

Cor. 1. The perpendicular measures the distance of any point from a straight line.

Cor. 2. From the same point three equal straight lines cannot be drawn to terminate in the same straight line; for if they could be drawn, then two of them would be on the same side of the perpendicular, and equal to each other, which is impossible.

Theorem XVI.—If from C, the middle of a straight line AB, a perpendicular CD be drawn to that line; first, every point in the perpendicular is equally distant from the extremities of the line AB; secondly, every point without the perpendicular is at unequal distances from the same extremities A, B.

Fig. 31.

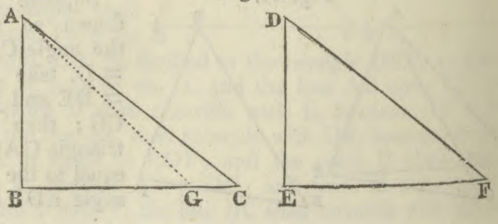


1. Let D be any point in CD; then, because the two oblique lines DA, DB are equally distant from the perpendicular, they are equal to one another (15); therefore every point in CD is equally distant from the extremities of AB.

2. Let E be a point out of the perpendicular; join EA, EB; one of these lines must cut the perpendicular in F; join BF, then AF = BF, and AE = BF + FE; but BF + FE > BE (7), therefore AE > BE, that is, E any point out of the perpendicular is at unequal distances from the extremities of AB.

Theorem XVII.—Two right-angled triangles are equal, when the hypothenuse and a side of the one are equal to the hypothenuse and a side of the other, each to each.

Fig. 32.



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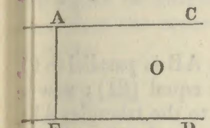
Let the hypothenuse AC = DF, and the side AB = DE; the triangle ABC shall be equal to DEF. The proposition will evidently be true (10), if the remaining sides BC, EF are equal. Now, if it be possible to suppose that they are unequal, let BC be the greater, take BG = EF, and join AG; then the triangles ABG, DEF, having the side AB = DE, BG = EF, and the angle B = E, will be equal to one another (5), and will have the remaining side AG = DF; but by hypothesis DF = AC; therefore AG = AC; but AG cannot be equal to AC (15), therefore it is impossible that BC can be unequal to EF, and therefore the triangles ABC, DEF, are equal to one another.

Theorem XVIII.—Two straight lines AC, ED, which are perpendicular to a third straight line AE, are parallel to each other.

Fig. 33.

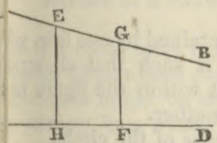


For if they could meet at a point O, then two perpendiculars OA, OE, might be drawn from the same point O, to the straight line AE, which is impossible (14).

In the next theorem, it is necessary to assume another axiom, in addition to those already laid down in the beginning of this section.

Axiom 7.

Fig. 34.

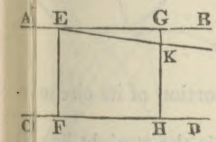


If two points E, G in a straight line AB are situated at unequal distances EH, GF from another straight line CD in the same plane; these two lines, when indefinitely produced, on the side of the least distance GH, will meet each other.

Theorem XIX.—If two straight lines AB, CD be parallel; perpendiculars EF, GH to one of the lines, which are terminated by the other line, are equal, and are perpendicular to both the parallels.

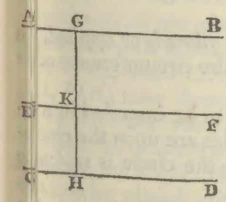
For if EF and GH, which are perpendicular to CD, were unequal, the lines AB, CD would meet each other (by the above axiom), which is contrary to the supposition that they are parallel. And if EF, GH be not perpendicular to AB, let EK be perpendicular to EF, meeting GH in K; then, because EK and FH are perpendicular to EF, they are parallel (18); and therefore, by what has been just shown, the perpendiculars EF, KH must be equal; but by hypothesis EF = GH, therefore KH = GH, which is impossible; therefore EF is perpendicular to AB; and in the same way it may be shown that GH is perpendicular to AB.

Fig. 35.



Cor. Hence it appears, that through the same point E, no more than one parallel can be drawn to the same straight line CD.

Fig. 36.

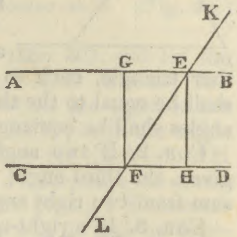


Theorem XX.—Straight lines AB, EF, which are parallel to the same straight line CD, are parallel to each other.

For let HKG be perpendicular to CD, it will also be perpendicular to both AB and EF (19); therefore these last lines are parallel to each other.

Theorem XXI.—If a straight line EF meet two parallel straight lines AB, CD; it makes the alternate angles AEF, EFD equal.

Fig. 37.



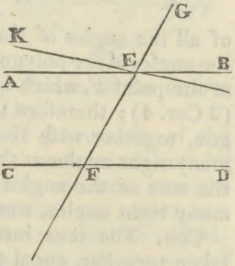
Let EH and GF be perpendicular to CD, then these lines will be parallel (18), and also at right angles to AB (19), and therefore FH and GE are equal to one another (19); therefore the triangles FGE, FHE, having the side FG = HE, and GE = FH, and FE common to both, will be equal; and hence the angle FEG will be equal to EFH, that is, FEA, will be equal to EFD.

Cor. 1. Hence if a straight line KL intersect two parallel straight lines AB, CD; it makes the exterior angle KEB equal to the interior and opposite angle EFD on the same side of the line. For the angle AEF = KEB, and it has been shown that AEF = EFD; therefore KEB = EFD.

Cor. 2. Hence also, if a straight line EF meet two parallel straight lines AB, CD; it makes the two interior angles BEF, EFD on the same side together, equal to two right angles. For the angle AEF has been shown to be equal to EFD; therefore, adding the angle FEB to both, AEF + FEB = EFD + FEB; but AEF + FEB is equal to two right angles, therefore the sum EFD + FEB is also equal to two right angles.

Theorem XXII.—If a straight line EF, meeting two other straight lines AB, CD, makes the alternate angles AEF, EFD equal; those lines shall be parallel.

Fig. 38.

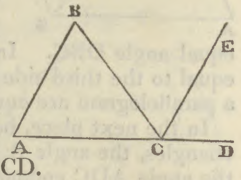


For if AE is not parallel to CD, suppose, if possible, that some other line KE can be drawn through E, parallel to CD; then the angle KEF must be equal to EFD (21), that is (by hypothesis), to AEF, which is impossible; therefore, neither KE, nor any other line drawn through E, except AB, can be parallel to CD.

Cor. If a straight line EF intersecting two other straight lines AB, CD, makes the exterior angle GEB equal to the interior and opposite angle EFD on the same side; or the two interior angles BEF, EFD on the same side equal to two right angles; in either case the lines are parallel. For if the angle GEB = EFD, then also AEF = EFD (4). And if BEF + EFD = two right angles, then, because BEF + AEF = two right angles (1), BEF + EFD = BEF + AEF, and taking BEF from both, EFD = AEF, therefore (by the theorem) in each case the lines are parallel.

Theorem XXIII.—If a side AC of a triangle ABC be produced towards D; the exterior angle BCD is equal to both the interior and opposite angles BAC, ABC.

Fig. 39.



Let CE be parallel to AB, then the angle B = BCE (21), and the angle A = ECD (1 Cor. 21), therefore B + A = BCE + ECD = BCD.

Cor. The exterior angle of a triangle is greater than either of the interior opposite angles.

Theorem XXIV.—The three interior angles of a triangle ABC taken together are equal to two right angles.

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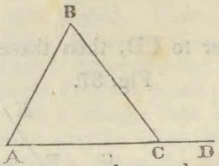
For if AC be produced to D, then $A + B = BCD$, (23); to each of these equal quantities add ACB, then shall $A + B + ACB = BCD + BCA$; but $BCD + BCA =$ two right angles (1), therefore $A + B + ACB =$ two right angles.

Fig. 40.



Cor. 1. If two angles of one triangle be equal to two angles of another triangle, each to each; the third angle of the one shall be equal to the third angle of the other, and the triangles shall be equiangular.

Cor. 2. If two angles of a triangle, or their sum, be given, the third angle may be found, by subtracting their sum from two right angles.

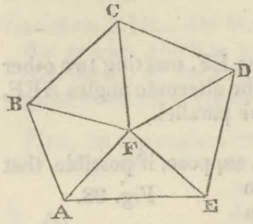
Cor. 3. In a right-angled triangle, the sum of the two acute angles is equal to a right angle.

Cor. 4. In an equilateral triangle, each of the angles is equal to the third part of two right angles, or to two thirds of one right angle.

Theorem XXV.—The sum of all the interior angles of a polygon is equal to twice as many right angles, wanting four, as the figure has sides.

Let ABCDE be a polygon; from a point F within it draw straight lines to all its angles, then the polygon shall be divided into as many triangles as it has sides; but the sum of the angles of each triangle is equal to two right angles (24); therefore, the sum of all the angles of the triangles is equal to twice as many right angles as there are triangles, that is, as the figure has sides; but the sum of all the angles of the triangles is equal to the sum of all the angles of the polygon, together with the sum of the angles at the point F, which last sum is equal to four right angles (2 Cor. 4); therefore the sum of all the angles of the polygon, together with four right angles, is equal to twice as many right angles as the figure has sides, and consequently the sum of the angles of the polygon is equal to twice as many right angles, wanting four, as the figure has sides.

Fig. 41.

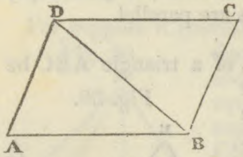


Cor. The four interior angles of a quadrilateral are, taken together, equal to four right angles.

Theorem XXVI.—The opposite sides of a parallelogram are equal, and the opposite angles are also equal.

Draw the diagonal BD; the two triangles ADB, DBC have the side BD common to both, and AB, DC being parallel, the angle $ABD = BDC$ (21), also, AD, BC being parallel, the angle $ADB = DBC$; therefore the two triangles are equal (6), and the side AB, opposite to the angle ADB, is equal to DC, opposite to the equal angle DBC. In like manner the third side AD is equal to the third side BC, therefore the opposite sides of a parallelogram are equal.

Fig. 42.



In the next place, because of the equality of the same triangles, the angle A is equal to the angle C, and also the angle ADC composed of the two angles ADB, BDC is equal to the angle ABC composed of the angles CBD, DBA; therefore the opposite angles of a parallelogram are also equal.

Theorem XXVII.—If the opposite sides of a quadrilateral ABCD be equal, so that $AB = DC$, and $AD = BC$; then, the equal sides are parallel, and the figure is a parallelogram. (Fig. 42.)

Draw the diagonal BD. The two triangles ABD, CDB have the three sides of the one equal to the three sides of the other, each to each, therefore the triangles are equal (10); and the angle ADB, opposite to AB, is equal to DBC opposite to DC; therefore the side AD is parallel to BC (22). For a similar reason AB is parallel to DC; therefore the quadrilateral ABCD is a parallelogram.

Theorem XXVIII.—If two opposite sides AB, DC of a quadrilateral be equal and parallel; the two other sides are in like manner equal and parallel; and the figure is a parallelogram. (Fig. 42.)

Draw the diagonal BD. Because AB is parallel to CD, the alternate angles ABD, BDC are equal (21); now the side $AB = DC$, and DB is common to the triangles ABD, BDC, therefore these triangles are equal (5), and hence the side $AD = BC$, and the angle $ADB = DBC$, consequently AD is parallel to BC (22), therefore the figure ABCD is a parallelogram.

SECT. II.—OF THE CIRCLE.

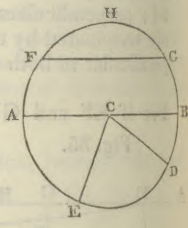
Definitions.

I. A *Circle* is a plane figure contained by one line, which is called the *circumference*, and is such that all straight lines drawn from a certain point within the figure to the circumference are equal to one another.

And this point is called the *centre* of the circle.

II. Every straight line CA, CE, CD, &c. drawn from the centre to the circumference, is called a *Radius* or *Semidiameter*; and every straight line, such as AB, which passes through the centre, and is terminated both ways by the circumference, is called a *Diameter*.

Fig. 43.



Hence it follows that all the radii of a circle are equal, and all the diameters are also equal, each being the double of the radius.

III. An *Arch* of a circle is any portion of its circumference, as FHG.

The *chord* or *subtense* of an arch is the straight line FG which joins its extremities.

IV. A *Segment* of a circle is the figure contained by an arch and its chord. If the figure be the half of the circle it is called a *Semicircle*.

Note. Every chord corresponds to two arches, and consequently to two segments; but in speaking of these, it is always the smallest that is meant, unless the contrary be expressed.

V. A *Sector* of a circle is the figure contained by an arch DE and the two radii CD, CE, drawn to the extremities of the arch. If the radii be at right angles to each other, it is called a *Quadrant*.

VI. A straight line is said to be *placed*, or *applied*, in a circle, when its extremities are in the circumference of the circle, as FG.

VII. A rectilineal figure is said to be *inscribed* in a circle, when the vertices of all its angles are upon the circumference of the circle; in this case, the circle is said to be *circumscribed* about the figure.

VIII. A straight line is said to *touch* a circle, or to be a

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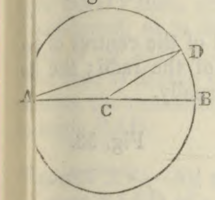
tangent to a circle, when it meets the circumference in one point only; such, for example, is BD, fig. 49. The point A which is common to the straight line and circle, is called the *Point of Contact*.

X. A polygon is said to be *described* or *circumscribed* about a circle, when all its sides are tangents to the circle; and in this case, the circle is said to be *inscribed* in the polygon.

Theorem I.—Any diameter AB divides the circle, and its circumference, into two equal parts. (Fig. 43.)

For if the figure AEB be applied to AFB, so that the base AB may be common to both, the curve line AEB must fall exactly upon the curve line AFB; otherwise there would be points in the one, or the other, unequally distant from the centre, which is contrary to the definition of a circle.

Fig. 44.



Theorem II.—Every chord is less than the diameter.

Let the radii CA, CD be drawn from the centre to the extremities of the chord AD; then the straight line AD is less than AC + CD, that is, $AD \angle AB$.

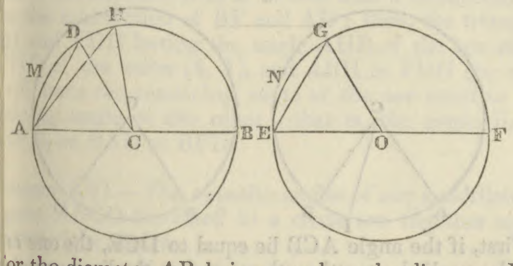
Theorem III.—A straight line cannot meet the circumference of a circle in more than two points.

For if it could meet it in three, these three points would be equally distant from the centre, and therefore three equal straight lines might be drawn from the same point to the same straight line, which is impossible (2 Cor. 15, 1).

Theorem IV.—In the same circle, or in equal circles, equal arches are subtended by equal chords; and, conversely, equal chords subtend equal arches.

If the radius AC be equal to the radius EO, and the arch AMD equal to the arch ENG; the chord AD shall be equal to the chord EG.

Fig. 45.



For the diameter AB being equal to the diameter EF, the semicircle AMDB may be applied exactly upon the semicircle ENGF, and then the curve line AMDB shall coincide entirely with the curve line ENGF; but the arch AMD being supposed equal to ENG, the point D must fall upon G, therefore the chord AD is equal to the chord EG.

Conversely, if the chord AD = EG, the arch AMD is equal to the arch ENG.

For if the radii CD, OG be drawn, the two triangles ACD, EOG have three sides of the one equal to the three sides of the other, each to each, viz. AC=EO, CD=OG, and AD=EG; therefore, these triangles are equal (10, 1), and hence the angle ACD = EOG. Now, if the semicircle ADB be placed upon EGF, because the angle ACD = EOG, it is evident that the radius CD will fall upon the radius OG, and the point D upon G; therefore the arch AMD is equal to the arch ENG.

Theorem V.—In the same circle, or in equal circles, the greater arch is subtended by the greater chord; and, conversely (if the arch be less than half the circumference), the greater chord subtends the greater arch. (Fig. 45.)

For let the arch AH be greater than AD, and let the chords AD, AH, and the radii CD, CH, be drawn. The two sides AC, CH, of the triangle ACH, are equal to the two sides AC, CD of the triangle ACD; and the angle ACH is greater than ACD; therefore the third side AH is greater than the third side AD (9, 1), therefore the chord which subtends the greater arch is the greater. Conversely, if the chord AH be greater than AD, it may be inferred (Cor. 9, 1) from the same triangles, that the angle ACH is greater than ACD, and that thus the arch AH is greater than AD.

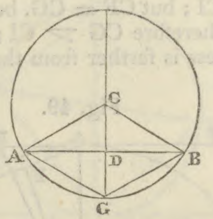
Note. Each of the arches is here supposed less than half the circumference; if they were greater, the contrary property would have place, the arch increasing as the chord diminishes.

Theorem VI.—The radius CG, perpendicular to a chord AB, bisects the chord (or divides it into two equal parts); it also bisects the arch AGB subtended by the chord.

Draw the radii CA, CB; these radii are two equal oblique lines in respect of the perpendicular CD, therefore they are equally distant from the perpendicular (15, 1), that is, AD = DB.

In the next place, because CG is perpendicular to the middle of AB, every point in CG is at equal distances from A and B (16, 1), therefore, if GA, GB be drawn, these lines are equal, and as they are the chords of the arches AG, BG, the arches are also equal (4).

Fig. 46.

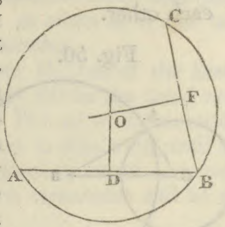


Scholium. Since C the centre, D the middle of the chord AB, and G the middle of the arch subtended by that chord, are three points situated in the same straight line perpendicular to that chord; and that two points in a straight line are sufficient to determine its position; it follows that a straight line which passes through any two of these points must necessarily pass through the third, and must be perpendicular to the chord. It also follows, that a perpendicular to the middle of a chord passes through the centre, and the middle of the arch subtended by that chord.

Theorem VII.—If three points A, B, C be taken in the circumference of a circle; no other circumference which does not coincide with the former can be made to pass through the same three points.

Let the chords AB, BC be drawn, and let OD, OF be drawn from the centre, perpendicular to, and consequently bisecting these chords. The centre of every circle passing through A and B, must necessarily be somewhere in the perpendicular DO (last theor.), and in like manner the centre of every circle passing through B and C must be somewhere in the perpendicular OF; therefore the centre of a circle passing through A, B, and C, must be in the intersection of the perpendiculars DO, FO, and consequently can only be at one and the same point O;

Fig. 47.

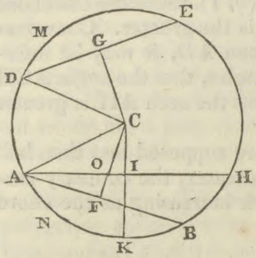


therefore, only one circle can be made to pass through the same three points A, B, C.

Cor. One circumference of a circle cannot intersect another in more than two points; for if they could have three common points, they would have the same centre, and consequently would coincide with each other.

Theorem VIII.—Two equal chords are equally distant from the centre; and of unequal chords, the less is farther from the centre.

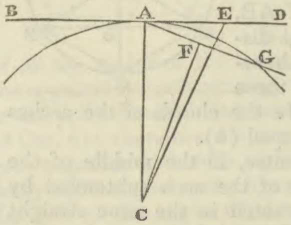
Fig. 48.



Let the chord AB = DE; suppose the chords bisected by the perpendiculars CF, CG from the centre, and draw the radii CA, CD. The right angled triangles CAF, CDG have equal hypothenuses CA, CD; the side AF ($=\frac{1}{2}$ AB) of the one is also equal to the side DG ($=\frac{1}{2}$ DE) of the other, therefore, their remaining sides CF, CG (which are the distances of the chords from the centre) are equal (17, 1).

Next, let the chord AH be greater than DE; the arch AKH shall be greater than DME; upon the arch AKH take ANB equal to DME, draw the chord AB, and suppose COF drawn from the centre perpendicular to AB, and CI perpendicular to AH. It is evident that CF > CO, and (15, 1) CO > CI; much more then is CF > CI; but CF = CG, because the chords AB, DE are equal; therefore CG > CI; that is, of the unequal chords, the less is farther from the centre.

Fig. 49.



Theorem IX.—The perpendicular BD, drawn at the extremity of a radius CA, is a tangent to the circle.

For any oblique line CE is greater than the perpendicular CA (15, 1), therefore the point E is without the circle; therefore the line BD has but one point A common with the circumference, and consequently it is a tangent to the circle. (Def. 8.)

Scholium. Through the same point A, only one tangent, AD, can be drawn to the circle. For if it be possible to draw another, let AG be that other tangent; draw CF perpendicular to AG; then CF shall be less than CA (15, 1), therefore F must be within the circle; and consequently AF when produced must necessarily meet the circle in another point besides A; therefore it cannot be a tangent.

Theorem X.—If BC, the distance of the centres of two circles, be less than the sum of their radii, and also the greater radius less than the sum of the distance of their centres and the lesser radius, the two circles intersect each other.

Fig. 50.

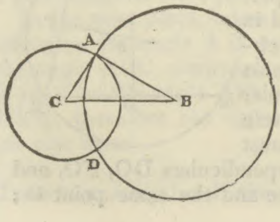
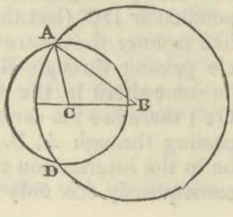


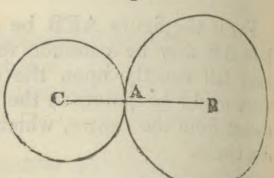
Fig. 51.



For, that the circles may intersect each other in a point A, it is necessary that the triangle ABC be possible; therefore, not only must CB be less than CA + AB, but also the greater radius AB must be less than AC + CB (7, 1); and it is evident, that as often as the triangle ABC can be constructed, the circumferences described on the centres B, C, shall intersect each other in two points A, D.

Theorem XI.—If the distance CB of the centres of two circles be equal to the sum of the radii CA, BA; the circles shall touch each other externally.

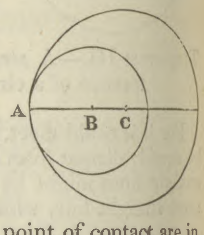
Fig. 52.



It is evident that they have a common point A; but they cannot have more; for if they had two, then the distance of the centres must necessarily be less than the sum of the radii.

Theorem XII.—If the distance CB of the centres of two circles be equal to the difference of the radii; the two circles shall touch each other internally.

Fig. 53.

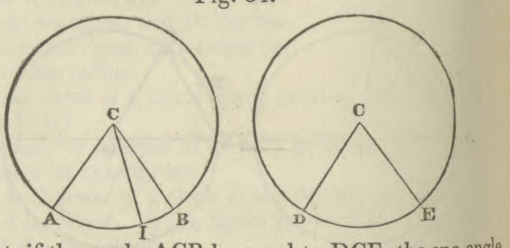


In the first place, it is evident that the point A is common to them both; they cannot, however, have another; for that this may happen, it is necessary that the greater radius AB be smaller than the sum of the radius AC and the distance CB of the centre (10), which is not the case.

Cor. Therefore, if two circles touch each other, either internally or externally, their centres and the point of contact are in the same straight line.

Theorem XIII.—In the same circle, or in equal circles, equal angles ACB, DCE, at the centres, intercept upon the circumference equal arches AB, DE. And, conversely, if the arches AB, DE be equal, the angles ACB, DCE are equal.

Fig. 54.



First, if the angle ACB be equal to DCE, the one angle may be applied upon the other; and as the lines containing them are equal, it is manifest that the point A will fall upon D, and the point B upon E; thus the arch AB will coincide with and be equal to the arch DE.

Next, if the arch AB be equal to DE; the angle ACB is equal to DCE: for if the angles are not equal, let ACB be the greater, and let ACI be taken equal to DCE; then, by what has been already demonstrated, the arch AI = DE; but by hypothesis AB = DE; therefore, AI = AB, which is impossible; therefore the angle ACB = DCE.

Theorem XIV.—The angle BCD at the centre of a circle is double the angle BAD at the circumference, when both stand on the same arch BD.

First, let the centre of the circle be within the angle

BD ; draw the diameter AE. The exterior angle BCE o he triangle BCA is equal to both the inward and oppo si angles BAC, CBA (23, 1); but the triangle BCA bein isosceles, the angle BAC = CBA ; therefore the angle BE is double of the angle BAC. For the same reason, th angle DCE is double of the angle DAE ; therefore the wole angle BCD is double of the whole angle BAD.

Fig. 55.

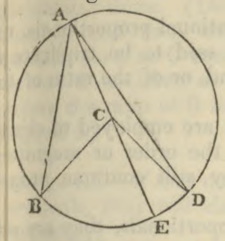
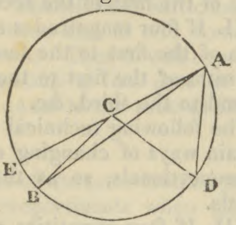


Fig. 56.



uppose, in the next place, that the centre is without the anle BAD ; then, drawing the diameter AE, it may be donstrated, as in the first case, that the angle ECD is dble of the angle EAD, and that the angle ECB, a part ofhe first, is double the angle EAB, a part of the other ; trefore the remaining angle BCD is double the remainin angle BAD.

TEOREM XV.—All angles BAD, BFD in the same segment BAFD of a circle are equal to one another.

Fig. 57.

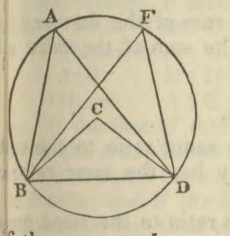
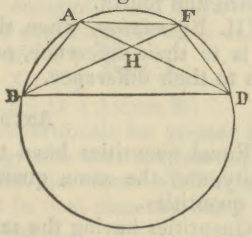


Fig. 58.



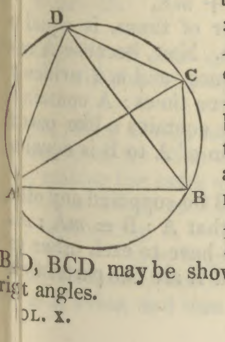
f the segment be greater than a semicircle, from the cetre C draw CB and CD ; then the angles BAD and BD being (by last theorem) each equal to half BCD, th must be equal to one another.

ut if the segment BAFD be less than a semicircle, let He the intersection of BF and AD ; then, the triangles AH and FDH having the angle AHB of the one equal toHD of the other (4, 1), and ABH = FDH (by case 1 will have the remaining angle of the one equal to the reaining angle of the other ; that is, the angle BAH = HFD, or BAD = BFD.

TEOREM XVI.—The opposite angles of any quadrilateral gure ABCD described in a circle are together equal two right angles.

raw the diagonals AC, BD ; because the angle ABD = ACD, and CBD = CAD (last theor.), the sum ABD + CBD = ACD + CAD ; or ABC = ACD + CAD ; to each of these equals add ADC, and ABC + ADC = ACD + CAD + ADC ; but the last three angles being the angles of the triangle ADC, are taken together equal to two right angles (24, 1), therefore ABC + ADC = two right angles. In the same manner the angles BD, BCD may be shown to be together equal to two rit angles.

Fig. 59.

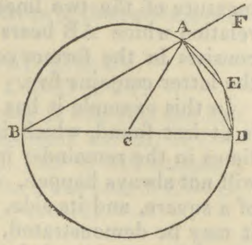


Lines and Figures upon a Plane.

THEOREM XVII.—In a circle, the angle BAD in a semicircle is a right angle, but the angle ABD in a segment greater than a semicircle is less than a right angle ; and the angle AED in a segment less than a semicircle is greater than a right angle.

Let C be the centre, join CA, and produce BA to F. Because CB = CA, the angle CAB = CBA (11, 1) ; and because CD = CA, the angle CAD = CDA, therefore, the whole angle BAD = CBA + CDA ; but these two last angles are together equal to DAF (23, 1), therefore the angle BAD = DAF ; and hence each of them is a right angle.

Fig. 60.



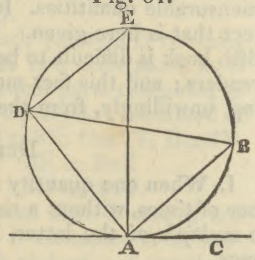
And because ABD + ADB is a right angle, therefore ABD, an angle in a segment greater than a semicircle, is less than a right angle.

And because ABDE is a quadrilateral in a circle, the opposite angles B and E are equal to two right angles (last theor.), but B is less than a right angle ; therefore the angle E, which is in a segment less than a semicircle, is greater than a right angle.

THEOREM XVIII.—The angle BAC contained by AC, a tangent, and AB, a chord drawn from the point of contact, is equal to any angle ADB in the alternate segment of the circle.

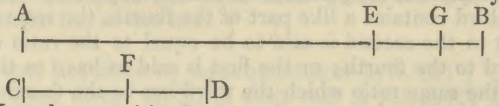
Draw the diameter AE, and join DE. The angles EAC, EDA, being right angles (last theor.), are equal to one another ; and of these, EAB, a part of the one, is equal to EDB, a part of the other (15), therefore the remainder, BAC, of the former is equal to the remainder, BDA, of the latter.

Fig. 61.



SECT. III.—OF PROPORTION.

In comparing two quantities of the same kind, in respect of magnitude, we are led to consider how often the one quantity contains either the whole or some part of the other quantity. To resolve this question, we must find a *common measure* of the quantities ; that is, a quantity that is contained in each a certain number of times exactly.



Let the quantities be two given straight lines AB, CD ; their common measure (if they have one) may be found by proceeding as follows :

Take the less line CD out of the greater AB, as often as possible, and let BE be the remainder. Next take the remainder BE out of the line CD, as often as it can be had, and let DF be the second remainder.

Again, take the second remainder DF out of the first BE, as often as it can be had, and let BG be the third remainder. Take the third remainder BG out of the second DF as often as possible, and proceed in this way, until a remainder be found, which is contained an exact number of times in the preceding. This last remainder will be a common measure of the two lines.

For example, let CD be contained twice in AB, with the remainder BE ; and BE once in CD, with a remainder DF; and DF once in BE, with a remainder BG, and let BG be contained twice exactly in DF; then

$$DF = 2\,BG$$
$$EB = DF + BG = 3\,BG$$
$$CD = EB + DF = 5\,BG$$
$$AB = 2\,CD + EB = 13\,BG.$$

Thus it appears, that BG is contained thirteen times in AB, and five times in CD; therefore BG is a common measure of the two lines. Hence also we see, that the relation which AB bears to CD, in regard to magnitude, consists in the former containing thirteen such parts as the latter contains five.

In this example it has been supposed that a remainder is at last found, which is contained an exact number of times in the remainder immediately preceding. But this will not always happen. If the given lines be the diagonal of a square, and its side, and in innumerable other cases, it may be demonstrated, that no one of the succeeding remainders can be contained an exact number of times in that before it: therefore such quantities cannot have a common measure. Hence quantities are distinguished into two kinds, viz. such as admit of a common measure, and such as do not admit of a common measure. The former are said to be *commensurable*, and the latter *incommensurable.*

The doctrine of proportion, as delivered in the 5th book of Euclid's Elements, applies alike to commensurable and incommensurable quantities; the theory may, however, be rendered considerably easier, by confining it to commensurable quantities. It is this limited view of the subject that is here given. Experience proves that Euclid's fifth book is difficult to be understood by the generality of readers; and this fact may serve as an excuse for deviating, unwillingly, from the illustrious ancient.

Definitions.

I. When one quantity contains another a certain number of times, without a remainder, the former is said to be a *multiple* of the latter, and the latter a *part* of the former.

II. When several quantities are multiples of as many others, and each contains its part the same number of times, the former are called *equimultiples* of the latter, and the latter *like parts* of the former.

III. Between any two finite magnitudes of the same kind there subsists a certain relation, in respect of quantity, which is called their *ratio.* The two magnitudes compared are called the *terms* of the ratio. The first the *antecedent*, and the last the *consequent.*

IV. If there be four quantities, and if the first contain a part of the second (without a remainder) just as often as the third contains a like part of the fourth, the ratio of the first to the second is said to be equal to the ratio of the third to the fourth; or the first is said to have to the second the same ratio which the third has to the fourth.

V. The terms of any number of equal ratios are called *proportionals.*

> *Note.* When four quantities A, B, C, D, are proportionals, it is usual to say, that A is to B, as C to D, and to write them thus, A : B : : C : D; or thus, A : B = C : D.

VI. Quantities are said to be continual proportionals when the ratio of the first to the second, of the second to the third, of the third to the fourth, and so on, are all equal.

VII. When three quantities are continual proportionals, the second is said to be a mean proportional between the other two.

VIII. In proportionals, the antecedent terms are called homologous to one another; as also the consequents to one another.

IX. When there is any number of quantities of the same kind, the first is said to have to the last the ratio compounded of the ratio which the first has to the second, and of the ratio which the second has to the third, and of the ratio which the third has to the fourth, and so on, to the last magnitude.

X. If three magnitudes are continual proportionals, the ratio of the first to the third is said to be duplicate of the ratio of the first to the second.

XI. If four magnitudes are continual proportionals, the ratio of the first to the fourth is said to be triplicate of the ratio of the first to the second, or of the ratio of the second to the third, &c.

The following technical words are employed to signify certain ways of changing either the order or magnitude of proportionals, so as that they still continue proportionals.

XII. If four quantities are proportionals, they are said to be proportionals *by inversion*, when it is inferred that the second is to the first, as the fourth to the third.

XIII. They are proportionals by *alternation*, when the first is to the third, as the second to the fourth.

XIV. By *composition*, when the sum of the first and second is to the second, as the sum of the third and fourth to the fourth.

XV. By *division*, when the difference of the first and second is to the second, as the difference of the third and fourth to the fourth.

XVI. By *conversion*, when the first is to the difference of the first and second, as the third to the difference of the third and fourth.

XVII. By *mixing*, when the sum of the first and second is to their difference, as the sum of the third and fourth to their difference.

Axioms.

1. Equal quantities have the same ratio to the same quantity, and the same quantity has the same ratio to equal quantities.

2. Quantities having the same ratio to the same quantity, or to equal quantities, are equal among themselves; and those to which the same quantity has the same ratio are equal to one another.

3. Ratios equal to one and the same ratio are also equal one to the other.

Theorem I.—Quantities have to one another the same ratio which their equimultiples have.

Let A and B be two quantities, and supposing m to denote any number, let mA and mB (that is, m times A and m times B) be any equimultiples of these quantities; the ratio of A to B is equal to the ratio of mA to mB; or $A : B = mA : mB$.

For, let A contain three such parts, each equal to X, as B contains four, so that

$$A = X + X + X;\ B = X + X + X + X.$$

Then $mA = mX + mX + mX$,

$$mB = mX + mX + mX + mX,$$

because a whole taken any number of times, is equal to the sum of its parts taken as often. Now, because A contains the one fourth of B three times, and mA evidently contains one fourth of mB also three times; A contains a part of B exactly as often as mA contains a like part of mB. Therefore (Def. 4), the ratio of A to B is equal to the ratio of mA to mB.

In the same manner, if A and B be supposed any other multiples of X, it may be proved that $A : B = mA : mB$.

Cor. Like parts of magnitudes have to each other, the same ratio as the whole; for A and B are like parts of mA and mB.

Lines and Figures upon a Plane.

Theorem II.—If four quantities be proportionals, they are proportionals also when taken inversely.

Let A, B, C, D be four quantities, such, that $A : B = C : D$; then $B : A = D : C$.

For, suppose that C contains two such equal parts as D contains three, then, because the ratio of A to B is equal to the ratio of C to D, A will contain two such parts as B contains three. (Def. 4.) Therefore B will contain three such parts as A contains two; and D will contain three such parts as C contains two. Thus B will contain a part of A as often as D contains a like part of C; therefore the ratio of B to A is equal to the ratio of D to C. (Def. 4.)

Theorem III.—If four quantities of the same kind be proportionals, they will also be proportionals when taken alternately.

Let $A : B = C : D$, then, if the quantities be all of the same kind, $A : C = B : D$.

For, let C contain three such parts as D contains four; then (Def. 4) A will contain three such parts as B contains four. Let each of the equal parts contained in A and B be X, and let each of the equal parts contained in C and D be Y; then

$$A = 3X \qquad B = 4X$$
$$C = 3Y \qquad D = 4Y.$$

And because A and C contain X and Y the same number of times, A and C are equimultiples of X and Y. (Def. 2.) Also, because B and D contain X and Y the same number of times, B and D are equimultiples of X and Y.

$$\left.\begin{array}{ll}\text{Therefore} & A : C = X : Y \\ \text{And} & B : D = X : Y\end{array}\right\} \text{Prop. I.}$$
$$\text{Hence} \quad A : C = B : D \quad \text{(Axiom 3.)}$$

Cor. If the first of four proportionals be greater than the third, the second shall be greater than the fourth; and if the first be equal to the third, the second shall be equal to the fourth; and if the first be less than the third, the second shall be less than the fourth.

Theorem IV.—If four quantities be proportionals, they shall also be proportionals by composition.

Let $A : B = C : D$; then, by composition, $A + B : B = C + D : D$.

Let C contain five such parts as D contains three, then (Def. 4) A will contain five such parts as B contains three. Let each of the equal parts contained in A and B be X, and let each of the equal parts contained in C and D be Y. Then, because

$$A = 5X,\ B = 3X,\ C = 5Y,\ D = 3Y,$$

by adding, $A + B = 8X$, and $C + D = 8Y$.

Now, $B = 3X$, and $D = 3Y$;

Therefore $A + B$ contains one third of B eight times, and $C + D$ contains one third of D also eight times, and, in general, $A + B$ will contain a part of B as often as $C + D$ contains a like part of D; therefore (Def. 4) $A + B : B = C + D : D$.

Theorem V.—If four quantities be proportionals, they will also be proportionals by division.

Let $A : B = C : D$, and let A be greater than B, and C greater than D; then $A - B : B = C - D : D$.

For, making the same supposition as in last proposition, so that $A = 5X$, $B = 3X$, $C = 5Y$, $D = 3Y$,

by subtracting, $A - B = 2X$, and $C - D = 2Y$.

Now, $B = 3X$, $D = 3Y$.

Thus it appears, that in this case $A - B$ contains one third of B twice, and that $C - D$ contains one third of D also twice; and, in general, that $A - B$ will always contain some part of B as often as $C - D$ contains a like part of D; therefore (Def. 4) $A - B : B = C - D : D$.

Theorem VI.—If four quantities be proportionals, they shall also be proportionals by conversion.

Let $A : B = C : D$; then $A : A - B = C : C - D$.

For, making the same supposition as in the two last propositions, because

$$A = 5X,\ B = 3X,\ C = 5Y,\ D = 3Y,$$
$$\text{therefore } A - B = 2X,\ C - D = 2Y.$$

Hence it appears, that in this case A contains the half of $A - B$ five times, and that C contains the half of $C - D$ also five times; and, in general, that A will contain a part of $A - B$ as often as C contains a like part of $C - D$; therefore (Def. 4) $A : A - B = C : C - D$.

Theorem VII.—If the first of four magnitudes has the same ratio to the second which the third has to the fourth, and if any equimultiples whatever be taken of the first and third, and any whatever of the second and fourth; the multiple of the first shall have the same ratio to the multiple of the second that the multiple of the third has to the multiple of the fourth.

Let $A : B = C : D$, and supposing m and n to denote any two numbers, let the antecedents A and C be taken each m times, and let the consequents B and D be taken each n times; $mA : nB = mC : nD$.

Suppose that C contains two such parts as D contains three, then (Def. 4) A will contain two such parts as B contains three. Let each of the equal parts contained in A and B be X, and let each of the equal parts contained in C and D be Y, so that $A = 2X$, $B = 3X$, $C = 2Y$, $D = 3Y$.

$$\text{Then } mA = 2mX \qquad nB = 3nX$$
$$mC = 2mY \qquad nD = 3nY.$$

From these expressions, it appears that X and Y are like parts of nB and nD; for each is contained in its multiple three n times; also, that mA and mC are equimultiples of X and Y; for each contains its part two m times. Therefore mA contains a part of nB, exactly as often as mC contains a like part of nD; and hence (Def. 4) $mA : nB = mC : nD$.

Cor. If $A : B = C : D$, then $mA : B = mC : D$, and $A : nB = C : nD$.

Theorem VIII.—If there be any number of quantities, and as many others, which, taken two and two in order, have the same ratio; the first will have to the last of the first quantities the same ratio which the first of the others has to the last.

A, B, C,
H, K, L.

First, Let there be three quantities, A, B, C, and other three, H, K, L, such that $A : B = H : K$, and $B : C = K : L$; then $A : C = H : L$.

For, suppose that H contains two such parts as K contains three and L seven, then (Def. 4) A will contain two such parts as B contains three, and C seven.

Let the equal parts contained in A, B, C be X, and let the equal parts contained in H, K, L be Y, so that

$$A = 2X,\ B = 3X,\ C = 7X,$$
$$H = 2Y,\ K = 3Y,\ L = 7Y.$$

In this case, A contains one seventh of C twice, and H contains one seventh of L also twice; and, in general, A will contain a part of C as often as H contains the same part of L; therefore $A : C = H : L$ (Def. 4).

A, B, C, D,
H, K, L, M.

Next, let there be four quantities A, B, C, D, and other four H, K, L, M, such that $A : B = H : K$, and $B : C = K : L$, and $C : D = L : M$; then $A : D = H : M$.

For, since A, B, C are three quantities, and H, K, L other three quantities, which, taken two and two, have the same ratio; by the foregoing case, $A : C = H : L$. And because $A : C = H : L$, and $C : D = L : M$; therefore, by that same case, $A : D = H : M$. In the same way, the demonstration may be extended to any number of quantities.

Note. This proposition is usually cited by the words *ex æquali* or *ex æquo*.

Theorem IX.—If there be any number of quantities, and as many others, which, taken two and two, in a cross order, have the same ratio; the first will have to the last of the first quantities, the same ratio which the first of the others has to the last.

First, let there be three quantities A, B, C, and other three H, K, L, such that $A : B = K : L$, and $B : C = H : K$; then $A : C = H : L$.

A, B, C,
H, K, L.

For, suppose K to contain two such equal parts as L contains three, then A will contain two such parts as B contains three. (Def. 4.) Let each of the equal parts contained in A and B be X, and let each of the equal parts contained in K and L be Y, so that

$$A = 2X,\ B = 3X,\ K = 2Y,\ L = 3Y.$$

Also, let Z be the same part of C that Y is of L, and let V be the same part of H that X is of A; so that, in this case,

$$C = 3Z,\ H = 2V.$$

Then, because $B : C = H : K$; that is, $3X : 3Z = 2V : 2Y$, and (by Prop. I.) $3X : 3Z = X : Z$, and $2V : 2Y = V : Y$; therefore $X : Z = V : Y$ (Ax. 3). Hence (by Prop. VII.) $2X : 3Z = 2V : 3Y$; but $2X = A$, $3Z = C$, $2V = H$, $3Y = L$; therefore $A : C = H : L$.

Next, let there be four quantities, A, B, C, D, and other four H, K, L, M, such that $A : B : L : M$, and $B : C = K : L$; and $C : D = H : K$; then $A : D = H : M$. For since A, B, C are three quantities, and K, L, M other three, which, taken two and two in a cross order, have the same ratio; by the first case, $A : C = K : M$; but $C : D = H : K$; therefore, again, by the first case, $A : D = H : M$. In the same manner, the demonstration may be extended to any number of quantities.

A, B, C, D,
H, K, L, M.

Note. This proposition is usually cited by the words *ex æquali in proportione perturbata*, or *ex æquo* inversely.

Theorem X.—If the first has to the second the same ratio which the third has to the fourth, and the fifth to the second the same ratio which the sixth has to the fourth; the first and fifth together shall have to the second the same ratio which the third and sixth have to the fourth.

Let $A : B = C : D$,
and $E : B = F : D$;
then $A + E : B = C + F : D$.

Because $E : B = F : D$, by inversion, $B : E = D : F$ (2); but, by hypothesis, $A : B = C : D$; therefore *ex æquali* (Prop. VIII.), $A : E = C : F$; and, by composition, $A + E : E = C + F : F$. Again, by hypothesis, $E : B = F : D$, therefore *ex æq.* $A + E : B = C + D : F$.

Theorem XI.—If four quantities be proportionals, the sum of the first two is to their difference as the sum of the other two to their difference.

Let $A : B = C : D$; then, if A be greater than B, $A + B : A - B = C + D : C - D$.

For, since $A : B = C : D$,
by division (5) $A - B : B = C - D : D$,
and inversion (2) $B : A - B = D : C - D$,
and by composition (4) $A + B : B = C + D : D$,
therefore, *ex æq.* $A + B : A - B = C + D : C - D$.

In like manner, if B be greater than A, it may be proved that $A + B : B - A = C + D : D - C$.

Theorem XII.—If any number of quantities be proportionals; as one of the antecedents is to its consequent, so is the sum of all the antecedents to the sum of all the consequents.

Let $A : B = C : D = E : F$; then $A : B = A + C + E : B + D + F$. For, suppose that A contains two such parts, each $= X$, as B contains three, and that C contains two such parts, each $= Y$, as D contains three, and that E contains two such parts, each $= Z$, as F contains three, and so on; then

$$A = 2X \qquad B = 3X$$
$$C = 2Y \qquad D = 3Y$$
$$E = 2Z \qquad F = 3Z.$$

Hence, by addition,

$A + C + E = 2X + 2Y + 2Z = 2(X + Y + Z)$; $B + D + F = 3X + 3Y + 3Z = 3(X + Y + Z)$.

Thus it appears that A contains one third of B twice, and that $A + C + E$ contains one third of $B + D + F$ also twice; and, in general, that A will contain a part of B just as often as $A + C + E$ contains a like part of $B + D + F$; therefore $A : B = A + C + E : B + D + F$.

In treating of proportion, we have supposed that the antecedent contains some part of the consequent a certain number of times exactly, which part is therefore a common measure of the antecedent and consequent. But there are quantities which cannot have a common measure, and which are therefore said to be *incommensurable*; such, for example, are the sides of two squares one of which has its surface double that of the other.

Although the ratio of two incommensurable quantities cannot be expressed in numbers, yet we can always assign a ratio in numbers which shall be as near to that ratio as we please. For let A and B be any two quantities whatever, and suppose that x is such a part of A that $A = px$; then if q denote the number of times that x can be taken from B, and d the remainder, we have $B = qx + d$, and $qx = B - d$; and because $p : q = px : qx$, therefore $p : q = A : B - d$. Now, as d is less than x, by taking x sufficiently small, d may be less than any proposed quantity; so that $B - d$ may differ from B by less than any given quantity; therefore two numbers p and q may always be assigned, such, that the ratio of p to q shall be the same as the ratio of A to a quantity that differs less from B than by any given quantity, however small that quantity may be.

Hence we may conclude, that whatever has been delivered in this section relating to commensurable quantities, may be considered as applying equally to such as are incommensurable.

SECT. IV.—THE PROPORTIONS OF FIGURES.

Definitions.

I. *Equivalent Figures* are such as have equal surfaces.

Two figures may be equivalent, although very dissimilar; thus a circle may be equivalent to a square, a triangle to a rectangle, and so of other figures.

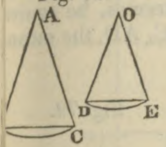
We shall give the denomination of *equal* figures to those which, being applied the one upon the other, coincide entirely: thus, two circles having the same radius are equal; and two triangles having three sides of the one equal to three sides of the other, each to each, are also equal.

Lines and Figures upon a Plane.

II. Two figures are *similar*, when the angles of the one re equal to the angles of the other, each to each; and ne *homologous* sides proportionals. The homologous sides re those which have the same position in the two figures; r which are adjacent to the equal angles. The angles hemselves are called *homologous angles*.

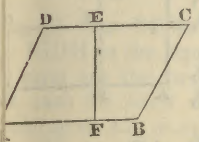
Two equal figures are always similar, but similar figures may be very unequal.

Fig. 62.



III. In two different circles, *similar sectors, similar arches, similar segments*, are such as correspond to equal angles at the centre. Thus the angle A being equal to the angle O, the arch BC is similar to the arch DE, and the sector ABC to the sector ODE, &c.

Fig. 63.



IV. The *Altitude of a parallelogram* is the perpendicular which measures the distance between the opposite sides or bases AB, CD.

V. The *Altitude of a triangle* is the perpendicular AD drawn from the vertical angle A upon the base BC.

Fig. 64.

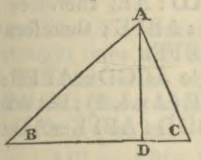
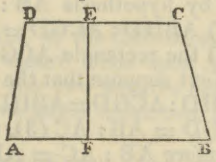


Fig. 65.



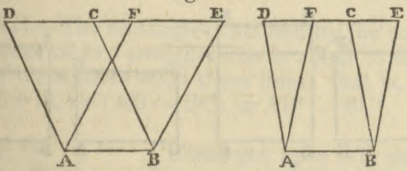
VI. The *Altitude of a trapezoid* is the perpendicular EF rawn between its two parallel bases AB, CD.

VII. The *Area* and the surface of a figure are terms of early the same signification. The term *area*, however, is nore particularly used to denote the superficial quantity of he figure in respect of its being measured, or compared ith other surfaces.

HEOREM I.—Parallelograms which have equal bases and equal altitudes are equivalent.

Let AB be the common base of the parallelograms ABCD, EBAF, which being supposed to have the same ltitude, the sides DC, FE opposite to the bases will lie n DE a line parallel to AB. Now, from the nature of a arallelogram, AD = BC, and AF = BE; for the same eason DC = AB, and FE = AB; therefore DC = FE, nd taking away DC and FE from the same line DE, the emainders CE and DF are equal; hence the triangles DAF, CBE have three sides of the one equal to three ides of the other, each to each; and consequently are qual (10, 1). Now, if from the quadrilateral ABED the riangle ADF be taken away, there will remain the parallelogram ABEF; and if from the same quadrilateral ABED, the triangle CBE, equal to the former, be taken way, there will remain the parallelogram ABCD; therefore the two parallelograms ABCD, ABEF, which have he same base and the same altitude, are equivalent.

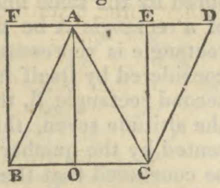
Fig. 66.



Cor. Every parallelogram is equivalent to a rectangle f the same base and altitude.

HEOREM II.—Every triangle ABC is the half of a parallelogram ABCD, having the same base and altitude.

Fig. 67.



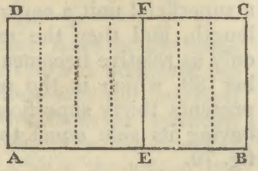
For the triangles ABC, ACD are equal (28, 1).

Cor. 1. Therefore a triangle ABC is the half of a rectangle BCEF of the same base and altitude.

Cor. 2. All triangles having equal bases and equal altitudes are equivalent.

THEOREM III.—Two rectangles of the same altitude are to each other as their bases.

Fig. 68.

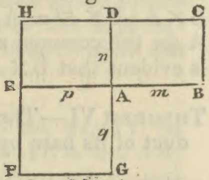


Let ABCD, AEFD be two rectangles, which have a common altitude AD; the rectangle ABCD shall have to the rectangle AEFD the same ratio that the base AB has to the base AE.

Let the base AB have to the base AE the ratio of the number p (which we shall suppose 7) to the number q (which may be 4), that is, let AB contain p (7), such equal parts as AE contains q (4); then, if perpendiculars be drawn to AB and AE at the points of division, the rectangles ABCD and AEFD will be divided, the former into p and the latter into q rectangles, which will be all equal (1); for they have equal bases and the same altitude. Thus the rectangle ABCD will also contain p such equal parts as the rectangle AEFD contains q; therefore the rectangle ABCD is to AEFD as the number p to the number q (Ax. 3, 3), that is, as the base AB to AE.

THEOREM IV.—Any two rectangles are to each other as the products of any numbers proportional to their sides.

Fig. 69.



Let the numbers m, n, p, q have among themselves the same ratios that the sides of the rectangles ABCD, AEFG have to each other; that is, let AB contain m such equal parts, whereof AD contains n; and AE contains p, and AG contains q, then shall ABCD : AEFG $= mn : pq$.

Let the rectangles be so placed that the sides AB, AE may be in a straight line, then AD and AG will also lie in a straight line (3, 1). Now (3)

$$\text{ABCD} : \text{AEHD} = \text{AB} : \text{AE} = m : p,$$

but $m : p = nm : np$ (1, 3),

therefore ABCD : AEHD $= nm : np$.

Again, AEHD : AEFG = AD : AG $= n : q$;

but $n : q = pn : pq$;

therefore AEHD : AEFG $= pn : pq$;

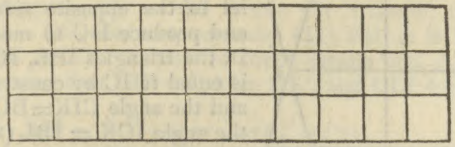
and it was shown that

ABCD : AEHD $= nm : np$ or pn,

therefore (8, 3) ABCD : AEFG $= mn : pq$.

SCHOLIUM.

Fig. 70.



Hence it appears, that the product of the base by the altitude of a rectangle may be taken for its measure, observing that by such product is meant that of the number of linear units in the base by the number of linear units in the altitude. This measure is however not absolute, but relative; for it must be supposed, that in comparing one rectangle with another, the sides of both are measured by the same linear unit. For example, if the base of a rectangle A be three units, and its altitude 10, the rectangle is represented by 3×10, or 30; this number considered by itself has no meaning; but if we have a second rectangle B, the base of which is twelve units and the altitude seven, this second rectangle shall be represented by the number 12×7, or 84; and hence it may be concluded that the two rectangles are to each other as 30 to 84; therefore, if in estimating any superficies the rectangle A be taken for the measuring unit, the rectangle B shall have for its absolute measure $\frac{84}{30}$, that is, it shall be $\frac{84}{30}$ superficial units.

It is more common, as well as more simple, to take for a superficial unit a square, the side of which is an unit in length, and then the measure which we have regarded only as relative becomes absolute: for example, the number 30, which is the measure of the rectangle A, represents thirty superficial units, or thirty squares, each having its side equal to an unit. To illustrate this, see fig. 70.

Theorem V.—The area of any parallelogram is equal to the product of its base by its altitude. (Fig. 67.)

For the parallelogram ABCD is equivalent to the rectangle FBCE, which has the same base BC, and the same altitude AO (Cor. 1); but the measure of the rectangle is BC × AO (Schol. 4), therefore the area of the parallelogram is BC × AO.

Cor. Parallelograms having the same base, or equal bases, are to each other as their altitudes; and parallelograms having the same altitude are to each other as their bases; for in the former case put B for the common base, and A and A′ for the altitudes, then the areas of the figures are B × A and B × A′; and it is manifest that B × A : B × A′ = A : A′; and in the latter case, putting A for the common altitude, and B and B′ for the bases, it is evident that B × A : B′ × A = B : B′.

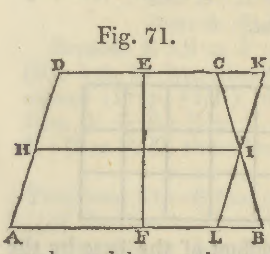
Theorem VI.—The area of a triangle is equal to the product of its base by the half of its altitude. (Fig. 67.)

For the triangle ABC is half of the parallelogram ABCD, which has the same base BC, and the same altitude AO (2); but the area of the parallelogram is BC × AO (5), therefore that of the triangle is $\frac{1}{2}BC \times AO$, or $BC \times \frac{1}{2}AO$.

Cor. Two triangles of the same altitude are to each other as their bases; and two triangles having the same base are to each other as their altitudes.

Theorem VII.—The area of a trapezoid ABCD is equal to the product of its altitude EF by half the sum of its parallel sides AB, CD.

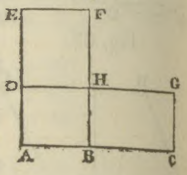
Fig. 71.



Through the point I, the middle of BC, draw KL parallel to the opposite side AD, and produce DC to meet KL. In the triangles IBL, ICK, IB is equal to IC by construction, and the angle CIK = BIL, and the angle ICK = IBL (21, 1); therefore these triangles are equal; and hence the trapezoid ABCD is equivalent to the parallelogram ALKD, and has for its measure AL × EF. But AL = DK, and because the triangle IBL is equal to the triangle KCI, the side BL = CK; therefore AB + CD = AL + DK = 2AL; hence AL is half the sum of the parallel sides AB, CD; and as the area of the trapezoid is equal to FE × AL, it is also equal to $FE \times \left(\frac{AB+CD}{2}\right)$.

Theorem VIII.—If four straight lines AB, AC, AD, AE be proportionals; the rectangle ABFE, contained by the two extremes, is equivalent to the rectangle ACGD contained by the means. And conversely, if the rectangle contained by AB, AE, the extremes, be equivalent to the rectangle contained by AC, AD, the means, the four lines are proportionals.

Fig. 72.



Let the rectangles be so placed as to have the common angle A, and let BF, DG intersect each other in H. Because the rectangles ABHD, ACGD have the same altitude AD,

ABHD : ACGD = AB : AC (3);

and because the rectangles ABHD, ABFE have the same altitude AB, for the same reason,

ABHD : ABFE = AD : AE;

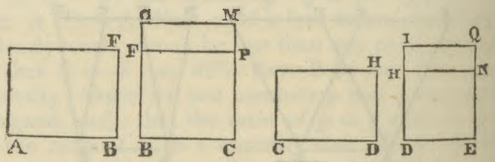
but by hypothesis AB : AC = AD : AE, therefore (Ax. 3, 3) ABHD : ACGD = ABHD : ABFE; therefore (Ax. 2, 3) the rectangle ACGD = ABFE.

Next suppose that the rectangle ACGD = ABFE; then ABHD : ACGD = ABHD : ABFE (Ax. 1, 3); but ABHD : ACGD = AB : AC (3), and ABHD : ABFE = AD : AE; therefore AB : AC = AD : AE.

Cor. If three straight lines be proportionals, the rectangle contained by the extremes is equal to the square of the mean; and if the rectangle contained by the extremes be equal to the square of the mean, the three straight lines are proportionals.

Theorem IX.—If four straight lines be proportionals, and also other four; the rectangles contained by the corresponding terms shall be proportionals; that is, if AB : BC = CD : DE, and BF : BG = DH : DI, then shall rectangle AF : rect. BM = rect. CH : rect. DQ.

Fig. 73.



For in BG and DI produced, if necessary, take BF = BF, and DH = DH, and let FP be parallel to BC, and HN to DE; then (3),

rect. AF : rect. BP = AB : BC,
and rect. CH : rect. DN = CD : DE;

but AB : BC = CD : DE (by hypothesis), therefore,

rect. AF : rect. BP = rect. CH : rect. DN;

now (3) rect. BP : rect. BM = BF : BG, and rect. DN : rect. DQ = DH : DI; but BF : BG = DH : DI (by hypoth.) therefore,

rect. BP : rect. BM = rect. DN : rect. DQ;

but it has been shown that

rect. AF : rect. BP = rect. CH : rect. DN,

therefore (8, 3),

rect. AF : rect. BM = rect. CH : rect. DQ.

Cor. Hence the squares of four proportional straight lines are themselves proportionals.

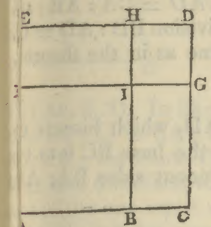
Theorem X.—If a straight line AC be divided into any two parts at B, the square made upon the whole line

Lines and Figures upon a Plane.

AC shall be equal to the squares made upon the two parts AB, BC, together with twice the rectangle contained by these two parts; which may be expressed thus,

$$AC^2 = AB^2 + BC^2 + 2AB \times BC.$$

Fig. 74.



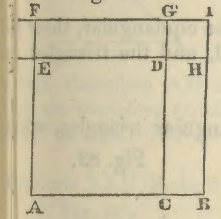
Suppose the square ACDE to be constructed; take AF = AB, draw FG parallel to AC, and BH parallel to CD.

The square ACDE is made up of four parts; the first ABIF is the square upon AB, because AF = AB; the second IGDH is the square upon BC, for AC = AE, and AB = AF; therefore AC — AB = AE — AF, that is, BC = EF; but BC = IG, and EF = DG (26, 1); therefore IGDH is the square upon BC; and the remaining two parts are the two rectangles BCGI, FEHI, which have each for their measure AB × BC; therefore the square upon AC is equal to the squares upon AB and BC, and twice the rectangle AB × BC.

Theorem XI.—If a straight line AC be the difference of two straight lines AB, BC, the square made upon AC shall be equal to the excess of the two squares upon AB and BC above twice the rectangle contained by AB and BC; that is,

$$AC^2 = AB^2 + BC^2 - 2AB \times BC.$$

Fig. 75.

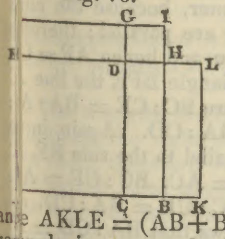


Construct the square ABIF, take AE = AC, and draw CG parallel to BI, and HK parallel to AB; and complete the square EFLK. The two rectangles CBIG, GLKD have each AB × BC for their measure; and if these be taken from the whole figure ABILKEA, that is, from $AB^2 + BC^2$, there will remain the square ACDE, that is, the square upon AC.

Theorem XII.—The rectangle contained by the sum and the difference of two straight lines is equal to the difference of the squares upon those lines; that is,

$$(AB + BC) \times (AB - BC) = AB^2 - BC^2.$$

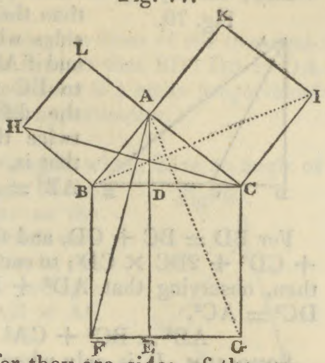
Fig. 76.



Construct upon AB and AC the squares ABIF, ACDE; produce AB, so that BK = BC, and complete the rectangle AKLE. The base AK of the rectangle is the sum of the two lines AB, BC; and its altitude AE is the difference of the same lines; therefore the rectangle AKLE = (AB + BC) (AB — BC); but the same rectangle is composed of two parts ABHE + BHLK, of which BHLK is equal to the rectangle EDGF, for BH = DE and BK = FE; therefore AKLE = ABHE + EDGF; but these two parts constitute the excess of the square ABIF above the square DHIG, the former of which is the square upon AB, and the latter the square upon BC; therefore $(AB + BC) \times (AB - BC) = AB^2 - BC^2$.

Theorem XIII.—The square upon the hypothenuse of a right-angled triangle is equal to the sum of the squares upon the two other sides.

Fig. 77.

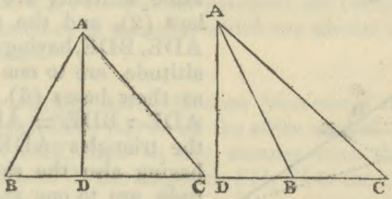


Let ABC be a right-angled triangle; having formed the squares upon its three sides, draw a perpendicular AD from the right angle upon the hypothenuse, and produce it to E, and draw the diagonals AF, CH. The angle ABF is evidently the sum of ABC and a right angle, and the angle HBC is also the sum of ABC and a right angle; therefore the angle ABF = HBC. Now AB = BH, for they are sides of the same square, and BC = BF for the same reason; therefore the triangles ABF, HBC have two sides, and the included angle of the one equal to two sides, and the included angle of the other, each to each, therefore the triangles are equal (5, 1); but the triangle ABF is the half of the rectangle BDEF (which for brevity's sake we shall call BE), because it has the same base BF, and the same altitude BD (2); and the triangle HBC is in like manner half of the square AH; for the angles BAC, BAL being both right angles, CA and AL constitute a straight line parallel to BH (3, 1); and thus the triangle HBC and the square AH have the same base HB, and the same altitude AB; from which it follows that the triangle is half of the square (2). It has now been proved that the triangle ABF is equal to the triangle HBC; and that the rectangle BE is double of the former, and the square AH double of the latter; therefore the rectangle BE is equal to the square AH. It may be demonstrated in like manner that the rectangle CDEG, or CE, is equal to the square AI; but the rectangles BE, CE make up the square BCGF; therefore the square BCGF upon the hypothenuse is equal to the squares ALHB, AKIC upon the other two sides.

Theorem XIV.—In a triangle ABC, if the angle C be acute; the square of the opposite side AB is less than the squares of the sides which contain the angle C; and if AD a perpendicular be drawn to BC from the opposite angle, the difference shall be equal to twice the rectangle BC × CD; that is,

$$AB^2 = AC^2 + CB^2 - 2BC \times CD.$$

Fig. 78.



First, suppose AD to fall within the triangle, then BD = BC — CD, and consequently (11) $BD^2 = BC^2 + CD^2 - 2BC \times CD$; to each of these equals add AD^2; then, observing that $BD^2 + DA^2 = BA^2$, and $CD^2 + DA^2 = CA^2$,

$$AB^2 = BC^2 + CA^2 - 2BC \times CD.$$

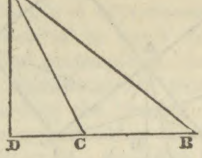
Next, suppose AD to fall without the triangle, so that BD = CD — BC, and therefore $BD^2 = CD^2 + BC^2 - 2BC \times CD$ (11), to each of these add AD^2 as before, and we get

$$AB^2 = BC^2 + CA^2 - 2BC \times CD.$$

Theorem XV.—In a triangle ABC, if the angle C be obtuse; the square of the opposite side AB is greater than the sum of the squares of the sides which contain the angle C; and if AD a perpendicular be drawn to BC from the opposite angle; the difference shall be equal to twice the rectangle BC × CD; that is,

$$AB^2 = AC^2 + BC^2 + 2BC \times CD.$$

Fig. 79.

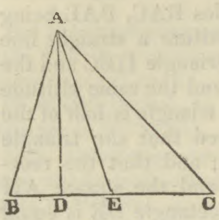


For $BD = BC + CD$, and therefore (10), $BD^2 = BC^2 + CD^2 + 2BC \times CD$; to each of these equals add AD^2, then, observing that $AD^2 + DB^2 = AB^2$, and $AD^2 + DC^2 = AC^2$,

$$AB^2 = BC^2 + CA^2 + 2BC \times CD.$$

Scholium. It is only when a triangle has one of its angles a right angle, that the sum of the squares of two of its sides can be equal to the square of the third side; for if the angle contained by those sides be acute, the sum of their squares is greater than the square of the opposite side, and if the angle be obtuse, that sum is less than the square of the opposite side.

Fig. 80.



Theorem XVI.—If a straight line AE be drawn from the vertex of any triangle ABC to the middle of its base BC; the sum of the squares of the sides is equal to twice the square of half the base, and twice the square of the line drawn from the vertex to the middle of the base; that is, $AB^2 + AC^2 = 2BE^2 + 2AE^2$.

Draw AD perpendicular to BC, then

$$AB^2 = BE^2 + EA^2 - 2BE \times ED \ (14),$$

$$\text{and } AC^2 = CE^2 + EA^2 + 2CE \times ED \ (15);$$

therefore, by adding equals to equals, and observing that $BE = CE$, and therefore $BE^2 = CE^2$, and $2BE \times ED = 2CE \times ED$,

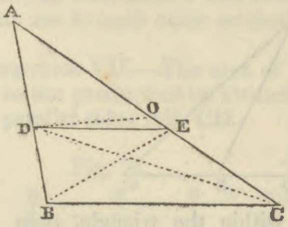
$$AB^2 + AC^2 = 2BE^2 + 2AE^2.$$

Theorem XVII.—A straight line DE drawn parallel to one of the sides of a triangle ABC, divides the other two sides AB, AC proportionally, so that $AD : DB = AE : EC$.

Join BE and CD. The triangles BDE, CDE, having the same base DE, and the same altitude, are equivalent (2), and the triangles ADE, BDE, having the same altitude, are to one another as their bases (6), that is, $ADE : BDE = AD : DB$; the triangles ADE, CDE, having also the same altitude, are to one another as their bases; that is, $ADE : CDE = AE : EC$, but the triangle BDE has been proved equal to CDE; therefore, because of the common ratio in the two proportions, we have (Ax. 3, 3)

$$AD : DB = AE : EC.$$

Fig. 81.



Cor. Hence, by composition, $AB : AD = AC : AE$; and $AB : BD = AC : CE$.

Theorem XVIII.—Conversely, if two of the sides AB, AC of a triangle be divided proportionally by the straight line DE, so that $AD : DB = AE : EC$; then shall the line DE be parallel to the remaining side BC.

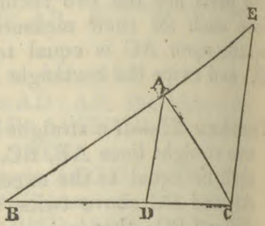
For if DE is not parallel to BC, suppose some other line DO to be parallel to BC; then, $AB : BD = AC : CO$ (17), and since by hypothesis $AD : DB = AE : EC$, and consequently, by composition, $AB : BD = AC : CE$, therefore, $AC : CO = AC : CE$; therefore, $CO = CE$ (2 Ax. 3), which is impossible; therefore DO is not parallel to BC.

Cor. If it be supposed that $BA : AD = CA : AE$; still DE will be parallel to BC; for by division $BD : AD = CE : AE$, this proportion being the same as in the theorem, the conclusion must be the same.

Theorem XIX.—A straight line AD, which bisects the angle BAC of a triangle, divides the base BC into two segments proportional to the adjacent sides BA, AC; that is, $BD : DC = BA : AC$.

Through the point C draw CE parallel to AD, so as to meet BA produced. In the triangle BCE, the line AD is parallel to one of its sides CE, therefore $BD : DC = BA : AE$; now the triangle CAE is isosceles, for, because of the parallels AD, CE, the angle $ACE = DAC$, and the angle $AEC = BAD$, (21, 1); but by hypothesis $DAC = BAD$, therefore $ACE = AEC$; and consequently, $AE = AC$ (12, 1), therefore, substituting AC instead of AE in the above proportion, it becomes $BD : DC = BA : AC$.

Fig. 82.

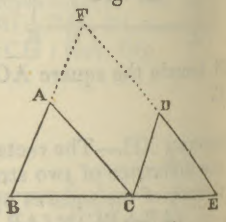


Theorem XX.—If two triangles be equiangular, their homologous sides are proportional, and the triangles are similar.

Let ABC, CDE be two equiangular triangles, which have the angle $BAC = CDE$, $ABC = DCE$, and $ACB = DEC$; the homologous sides, or the sides adjacent to the equal angles, shall be proportional; that is, $BC : CE = AB : CD = AC : DE$.

Place the homologous sides BC, CE in the same direction, and produce the sides BA, ED, till they meet in F. Because BCE is a straight line, and the angle BCA is equal to CED, the lines CA, EF are parallel (22, 1); and in like manner, because the angle $ABC = DCE$, the lines BF, CD are parallel; therefore the figure ACDF is a parallelogram, and hence $AF = CD$, and $CA = DF$ (26, 1). In the triangle BFE the line AC is parallel to the side FE, therefore $BC : CE = BA : AF$; or since $AF = CD$, $BC : CE = BA : CD$. Again, in the same triangle, because CD is parallel to the side BF, $BC : CE = FD : DE$, or, since $FD = AC$, $BC : CE = AC : DE$; having now shown that $BC : CE = BA : CD$, and that $BC : CE = AC : DE$, it follows that $BA : CD = AC : DE$; therefore the equiangular triangles BAC, CDE have their homologous sides proportional, and hence (Def. 2) the triangles are similar.

Fig. 83.



Scholium. It is manifest that the homologous sides are opposite to the equal angles.

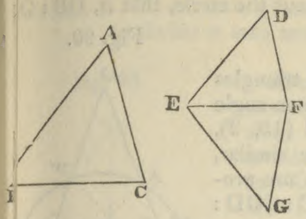
Theorem XXI.—If two triangles have their homologous sides proportional, they are equiangular and similar.

Suppose that $BC : EF = AB : DE = AC : DF$; then shall $A = D$, $B = E$, $C = F$. At the point E make the

Lines and Figures upon a Plane.

nd agle $FEG = B$, and at the point F make $EFG = C$; then the third angle G shall be equal to the third angle A, and the two triangles ABC, GEF shall be equiangular; therefore, by the last theorem, $BC : EF = AB : GE$; but by hypothesis $BC : EF = AB : DE$; therefore GE = D (Ax. 2, 3). In like manner, because by the same theo m $BC : EF = CA : FG$; and by hypothesis BC : EF = C : FD; therefore $FG = FD$; but it was shown that E = ED, therefore, the triangles GEF, DEF, having the si s of the one equal to those of the other, each to each, ar equal; but, by construction, the triangle GEF is equi- a ular to ABC, therefore also the triangles DEF, ABC ar equiangular and similar.

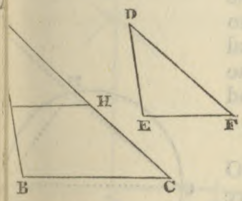
Fig. 84.



T**EOREM XXII.**—Two triangles which have an angle of he one equal to an angle of the other, and the sides bout these angles proportional, are similar.

et the angle $A = D$, and let $AB : DE = AC : DF$, the triangle ABC is similar to DEF. Take $AG = DE$, and draw GH parallel to BC, then the angle $AGH = ABC$ (21, 1), therefore the triangle AGH is equiangular to ABC, and consequently (20) $AB : AG = AC : AH$; but by hypothesis $AB : DE = AC : DF$, and by construction AG = DE, therefore $AH = DF$; the two triangles AGH, D F are therefore equal (5, 1), but the triangle AGH is si lar to ABC, therefore DEF is similar to ABC.

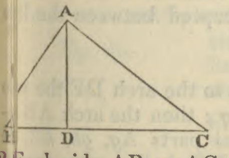
Fig. 85.



T**EOREM XXIII.**—In a right-angled triangle, if a perpendicular AD be drawn from the right angle upon the hypothenuse, then,

1. The triangles ABD, CAD on each side of the perpendicular are similar to the whole triangle BAC, and to one another.
2. ach side AB or AC is a mean proportional between e hypothenuse BC, and the adjacent segment BD or C.
3. he perpendicular AD is a mean proportional between e two segments BD, DC.

Fig. 86.



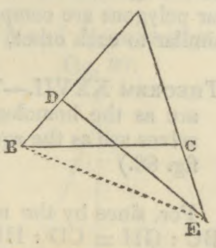
The triangles BAD, BAC have the common angle B besides, the right angle BAC is equal to the right ar e BDA, therefore the third angle BAD of the one is e al to the third angle BCA of the other; therefore, th e triangles are equiangular and similar; and in the sa e manner it may be shown that the triangle DAC is e angular and similar to BAC; therefore the three triar es are equiangular and similar to each other.

Because the triangle BAD is similar to the triangle B C, their homologous sides are proportional. Now the si BD of the lesser triangle is homologous to the side B of the greater, because they are opposite to the equal ar es BAD, BCA; in like manner BA, considered as a si of the lesser triangle, is homologous to the side BC of e greater, each being opposite to a right angle; therefo , $BD : BA = BA : BC$. In the same manner it may be hown that $CD : CA = CA : CB$, therefore each side is a mean proportional between the hypothenuse and the segment adjacent to that side.

3. By comparing the homologous sides of the two similar triangles ABD, ACD, it appears that $BD : DA = DA : DC$; therefore the perpendicular is a mean proportional between the segments of the hypothenuse.

T**HEOREM XXIV.**—Two triangles which have an angle of the one equal to an angle of the other, are to each other as the rectangles of the sides which contain the equal angles; that is, the triangle ABC is to the triangle ADE as the rectangle $AB \times AC$ to the rectangle $AD \times AE$.

Fig. 87.



Join BE; because the triangles ABE, ADE, have a common vertex E, they have the same altitude, therefore $ABE : ADE = AB : AD$ (Cor. to 6); but $AB : AD = AB \times AE : AD \times AE$ (3), therefore,

$$ABE : ADE = AB \times AE : AD \times AE.$$

In the same manner, it may be demonstrated that

$$ABC : ABE = AB \times AC : AB \times AE;$$

therefore (8, 3) $ABC : ADE = AB \times AC : AD \times AE$.

C**OR.** Therefore the two triangles are equivalent, if the rectangle $AB \times AC = AD \times AE$, or (8), if $AB : AD = AE : AC$, in which case the sides about the equal angles are said to be *reciprocally* proportional.

S**CHOLIUM.** What has been proved of triangles is also true of parallelograms, they being the doubles of such triangles.

T**HEOREM XXV.**—Two similar triangles are to each other as the squares of their homologous sides. (See fig. 85.)

Let the angle $A = D$, the angle $B = E$, and therefore the angle $C = F$,

then (20) $AB : DE = AC : DF$;

now $AB : DE = AB : DE$,

for the two ratios are identical, therefore (9),

$$AB^2 : DE^2 = AB \times AC : DE \times DF;$$

but $ABC : DEF = AB \times AC : DE \times DF$ (24),

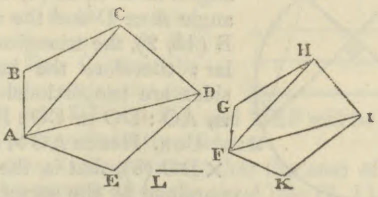
therefore $ABC : DEF = AB^2 : DE^2$ (Ax. 3, 3),

therefore the two similar triangles ABC, DEF are to each other as the squares of the homologous sides AB, DE, or as the squares of any of the other homologous sides.

T**HEOREM XXVI.**—Similar polygons are composed of the same number of triangles which are similar and similarly situated.

In the polygon ABCDE, draw from one of the angles A the diagonals AC, AD to all the other angles. In the polygon FGHIK, draw in like manner from the angle F, homologous to A, the diagonals FH, FI to the other angles.

Fig. 88.



Because the polygons are similar, the angle ABC is equal to its homologous angle FGH (Def. 2), also the sides AB, BC are proportional to FG, GH; so that $AB : FG = BC : GH$, therefore the triangles ABC, FGH are similar (22);

therefore the angle $BCA = GHF$, and these being taken from the equal angles BCD, GHI, the remainders ACD, FHI are equal; but the triangles ABC, FGH being similar, $AC : FH = BC : GH$, besides, because of the similarity of the polygons, $BC : GH = CD : HI$; therefore $AC : FH = CD : HI$; now it has been already shown that the angle $ACD = FHI$, therefore the triangles ACD, FHI are similar (22). It may be demonstrated in the same manner that the remaining triangles are similar, whatever be the number of sides of the polygon; therefore two similar polygons are composed of the same number of triangles similar to each other, and similarly situated.

Theorem XXVII.—The perimeters of similar polygons are as the homologous sides; and the polygons themselves are as the squares of the homologous sides. (See fig. 88.)

For, since by the nature of similar figures $AB : FG = BC : GH = CD : HI$, &c. therefore (12, 3) $AB + BC + CD$, &c. the perimeter of the first figure, is to $FG + GH + HI$, &c. the perimeter of the second, as the side AB to its homologous side FG.

Again, because the triangles ABC, FGH are similar, $ABC : FGH = AC^2 : FH^2$ (25), in like manner $ACD : FHI = AC^2 : FH^2$; therefore,

$$ABC : FGH = ACD : FHI.$$

By the same manner of reasoning,

$$ACD : FHI = ADE : FIK,$$

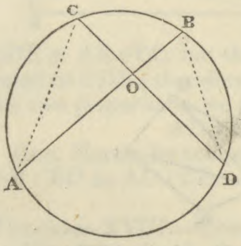
and so on if there be more triangles; hence, from this series of equal ratios, it follows (12, 3) that $ABC + ACD + ADE$, or the polygon ABCDE, is to $FGH + FHI + FIK$, or the polygon FGHIK, as one of the antecedents ABC, is to its consequent FGH, or as AB^2 to FG^2; therefore similar polygons are to each other as the squares of their homologous sides.

Cor. 1. If three similar figures have their homologous sides equal to the three sides of a right-angled triangle, the figure having the greatest side shall be equal to the two others; for these three figures are proportional to the squares of their homologous sides, and the square of the hypothenuse is equal to the squares of the other two sides.

Cor. 2. Similar polygons have to each other the duplicate ratio of their homologous sides. For let L be a third proportional to the homologous sides AB, FG, then (Def. 10, 3) AB has to L the duplicate ratio of AB to FG; but $AB : L = AB^2 : AB \times L$ (3), or since $AB \times L = FG^2$, (Cor. to 8) $AB : L = AB^2 : FG^2 = ABCDE : FGHIK$; therefore the figure ABCDE has to the figure FGHIK, the duplicate ratio of AB to FG.

Theorem XXVIII.—The segments of two chords AB, CD, which cut each other within a circle, are reciprocally proportional, that is, $AO : DO = CO : OB$.

Fig. 89.

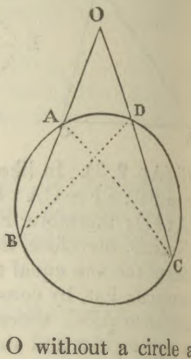


Join AC and BD; and because the triangles AOC, BOD have the angles at O equal (4, 1), and the angle $A = D$ and the angle $C = B$ (15, 2), the triangles are similar; therefore the homologous sides are proportional (20), that is, $AO : DO = CO : BO$.

Cor. Hence $AO \times BO = CO \times DO$ (8), that is, the rectangle contained by the segments of the one chord is equal to the rectangle contained by the segments of the other.

Theorem XXIX.—If from a point O without a circle two straight lines be drawn, terminating in the concave arch BC; the whole lines shall be reciprocally proportional to the parts of them without the circle, that is, $OB : OC = OD : OA$.

Fig. 90.

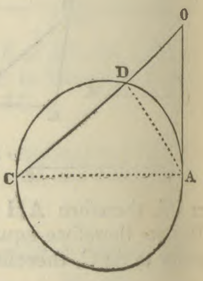


Join AC, BD; then the triangles OAC, OBD have the common angle O, also the angle $B = C$ (15, 2), therefore the triangles are similar, and the homologous sides are proportional, that is, $OB : OC = OD : OA$.

Cor. Therefore (8) $OA \times OB = OC \times OD$, that is, the rectangles contained by the whole lines, and the parts of them without the circle, are equal to one another.

Theorem XXX.—If from a point O without a circle a straight line OA be drawn touching the circle, and also a straight line OC cutting it; the tangent shall be a mean proportional between the whole line which cuts the circle, and the part of it without the circle; that is, $OC : OA = OA : OD$.

Fig. 91.



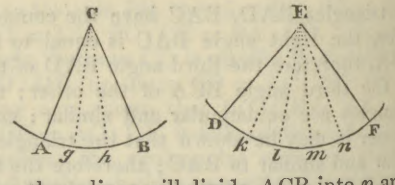
For if AC, AD be joined, the triangles OAD, OCA, have the angle at O common to both, also the angle ACD or ACO equal to DAO (18, 2), therefore the triangles are similar (20), and consequently $CO : OA = OA : OD$.

Cor. Therefore (Cor. to 8) $CO \times OD = OA^2$, that is, the square of the tangent is equal to the rectangle contained by the whole line which cuts the circle, and the part of it without the circle.

Theorem XXXI.—In the same circle, or in equal circles, any angles ACB, DEF are to each other as the arches AB, DF of the circles intercepted between the lines which contain the angles.

Suppose the arch AB to have to the arch DF the ratio of the number p to the number q; then the arch AB being supposed divided into equal parts Ag, gh, hB, the number of which is p, the arch DF shall contain q equal parts Dk, kl, lm, mn, nF, each of which is equal to any one of the equal parts into which AB is divided. Draw straight lines from the centres of the circles to the points of division; these lines will divide ACB into p angles and DEF into q angles, which are all equal (13, 2); therefore the angle ACB has to the angle DEF the ratio of the number p to the number q, which ratio is the same as that of the arch AB to the arch DF.

Fig. 92.



Cor. Hence it appears that angles may be measured and compared with each other by means of arches of circles described on the vertices of the angles as centres; observing, however, that the radii of the circles must be equal.

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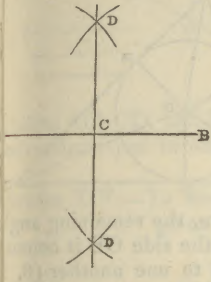
SECT. V.—PROBLEMS.

ROBLEM I.—To bisect a given straight line AB; that is, to divide it into two equal parts.

Fig. 93.

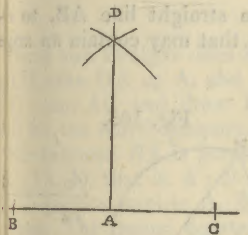


From the points A and B as centres, with any radius greater than the half of AB, describe arches, cutting each other in D and D on each side of the line AB. Draw a straight line through the points D, D, cutting AB in C; the line AB is bisected in C.

For the points D, D, being equally distant from the extremities of the line AB, are each in a straight line perpendicular to the middle of AB (16, 1), therefore the line DCD is that perpendicular, and consequently C is the middle of AB.

OBLEM II.—To draw a perpendicular to a given straight line BC, from a given point A in that line.

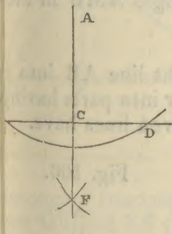
Fig. 94.



Take the points B and C at equal distances from A; and on B and C as centres, with any radius greater than BA, describe arches, cutting each other in D; draw a straight line from A through D, which will be the perpendicular required. For the point D, being at equal distances from the extremities of the line BC, must be in a perpendicular to the middle of BC (16, 1), therefore AD is the perpendicular required.

OBLEM III.—To draw a perpendicular to a given line BD, from a given point A without that line.

Fig. 95.

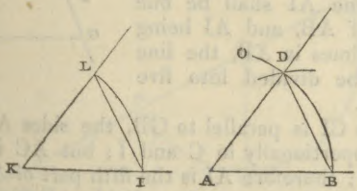


On A as a centre, with a radius sufficiently great, describe an arch, cutting the given line in two points B, D; and on B and D as centres, with a radius greater than the half of BD, describe two arches, cutting each other in F; draw a straight line through the points A and F, meeting BD in C; the line AC is the perpendicular required.

For the two points A and F are each at equal distances from B and D; therefore a line passing through A and F is perpendicular to the middle of BD (16, 1).

OBLEM IV.—At a given point A, in a given line AB, to make an angle equal to a given angle K.

Fig. 96.

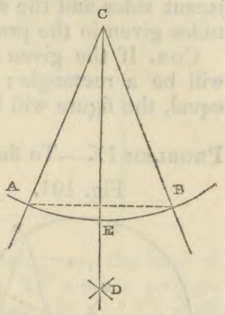


On K as a centre, with any radius, describe an arch to meet the lines containing the angle K in L and I; and on A as a centre, with the same radius, describe an indefinite arch BO; on B as a centre, with a radius equal to the chord LI, describe an arch, cutting the arch BO in D; draw AD, and the angle DAB shall be equal to K.

For the arches BD, LI having equal radii and equal chords, the arches themselves are equal (4, 2), therefore the angles A and K are also equal (13, 2).

Problem V.—To bisect a given arch AB, or a given angle C.

Fig. 97.



First, to bisect the arch AB, on A and B as centres, with one and the same radius, describe arches to intersect in D; join CD, cutting the arch in E, and the arch AE shall be equal to EB.

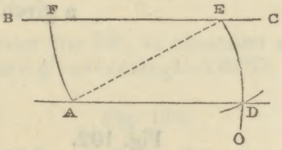
For, since the points C and D are at equal distances from A, and also from B, the line which joins them is perpendicular to the middle of the chord AB (16, 1), therefore the arch AB is bisected at E (6, 2).

Secondly, to bisect the angle C; on C as a centre, with any distance, describe an arch, meeting the lines containing the angle in A and B; then find the point D as before, and the line CD will manifestly bisect the angle C as required.

Scholium. By the same construction we may bisect each of the arches AE, EB; and again we may bisect each of the halves of these arches, and so on; thus, by successive subdivisions, an arch may be divided into four, eight, sixteen parts, &c.

Problem VI.—Through a given point A, to draw a straight line parallel to a given straight line BC.

Fig. 98.

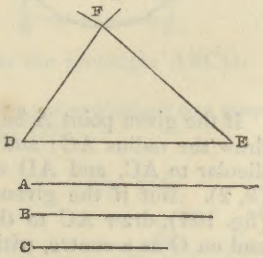


On A as a centre, with a radius sufficiently large, describe the indefinite arch EO; on E for a centre, with the same radius, describe the arch AF; in EO take ED equal to AF, draw a line from A through D, and AD will be parallel to BC.

For if AE be joined, the angle EAD is equal to AEB 13, 2), and they are alternate angles, therefore AD is parallel to BC (22, 1).

Problem VII.—To construct a triangle, the sides of which may be equal to three given lines A, B, C.

Fig. 99.



Take a straight line DE, equal to one of the given lines A; on D as a centre, with a radius equal to another of the lines B, describe an arch; on E as a centre, with a radius equal to the remaining line C, describe another arch, cutting the former in F; join DF and EF, and DEF will be the triangle required, as is sufficiently evident.

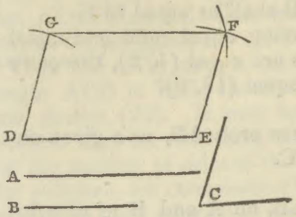
Scholium. It is necessary that the sum of any two of the lines be greater than the third line (7, 1).

Problem VIII.—To construct a parallelogram, the adjacent sides of which may be equal to two given lines A, B, and the angle they contain equal to a given angle C.

Lines and Figures upon a Plane.

Draw the straight line $DE = A$; make the angle $GDE = C$, and take $DG = B$; describe two arches, one on G as a centre, with a radius $GF = DE$, and the other on E, with a radius $EF = DG$; then DEFG shall be the parallelogram required.

Fig. 100.

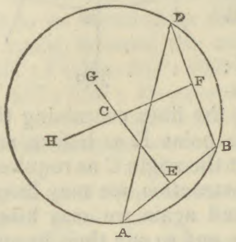


For by construction the opposite sides are equal; therefore the figure is a parallelogram (27, 1), and it is so constructed, that the adjacent sides and the angle they contain have the magnitudes given in the problem.

Cor. If the given angle be a right angle, the figure will be a rectangle; and if the adjacent sides be also equal, the figure will be a square.

Problem IX.—To find the centre of a given circle, or of a circle of which an arch is given.

Fig. 101.



Take any three points A, B, D, in the circumference of the circle, or in the given arch, and having drawn the straight lines AB, BD, bisect them by the perpendiculars EG, FH; the point C where the perpendiculars intersect each other is the centre of the circle, as is evident from Theorem VI. Sect. II.

Scholium. By the very same construction, a circle may be found that shall pass through three given points A, B, C; or that shall be described about a given triangle ADC.

Problem X.—To draw a tangent to a given circle through a given point A.

Fig. 102.

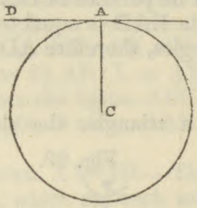
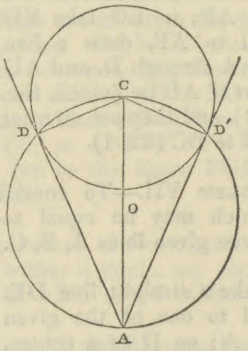


Fig. 103.



If the given point A be in the circumference (fig. 102), draw the radius AC; and through A, draw AD perpendicular to AC, and AD will be a tangent to the circle (9, 2). But if the given point A be without the circle (fig. 103), draw AC to the centre, and bisect AC in O, and on O as a centre, with OA or OC as a radius, describe a circle which will cut the given circle in two points D and D′; join AD and AD′, and each of the lines AD, AD′ will be a tangent to the circle.

For, draw the radii CD, CD′, then each of the angles ADC, AD′C is a right angle (17, 2); therefore AD and AD′ are both tangents to the circle (9, 2).

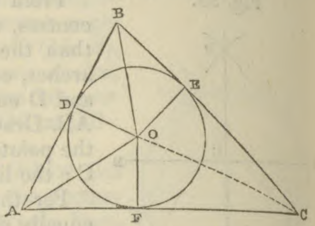
Cor. The two tangents AD, AD′ are equal to one another (17, 1).

Lines and Figures upon a Plane.

Problem XI.—To inscribe a circle in a given triangle ABC.

Bisect A and B any two angles of the triangle by the straight lines AO, BO, which meet each other in O; from O draw OD, OE, OF, perpendiculars to its sides; these lines shall be equal to one another.

Fig. 104.

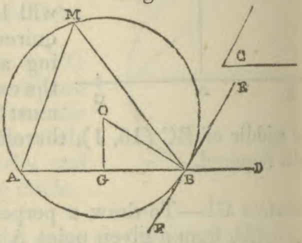


For in the triangles ODB, OEB, the angle $ODB = OEB$, and the angle $OBD = OBE$; therefore, the remaining angles BOD, BOE, are equal; and as the side OB is common to both triangles, they are equal to one another (6, 1), therefore the side $OD = OE$; in the same manner it may be demonstrated, that $OD = OF$; therefore the lines OD, OE, OF, are equal to one another; and consequently a circle described on O as a centre, with OD as a radius, will pass through E and F; and as the sides of the triangle are tangents to the circle (9, 2), it will be inscribed in the triangle.

Problem XII.—Upon a given straight line AB, to describe a segment of a circle that may contain an angle equal to a given angle C.

Produce AB towards D, and at the point B make the angle DBE equal to the given angle C; draw BO perpendicular to BE, and GO perpendicular to the middle of AB, meeting BO in O; on O as a centre, with OB as a radius, describe a circle, which will pass through A, and AMB shall be the segment required.

Fig. 105.

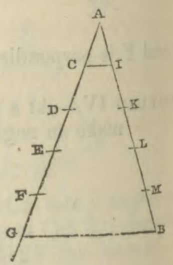


For since FE is perpendicular to BO, FE is a tangent to the circle; therefore the angle EBD (which is equal to C by construction) is equal to any angle AMB in the alternate segment (18, 2).

Problem XIII.—To divide a straight line AB into any proposed number of equal parts; or into parts having to each other the same ratios that given lines have.

First, let it be proposed to divide the line AB (fig. 106) into five equal parts. Through the extremity A draw an indefinite line AG, take AC of any magnitude, and take CD, DE, EF, and FG, each equal to AC, that is, take AG equal to five times AC; join GB, and draw CI parallel to GB, the line AI shall be one fifth part of AB, and AI being taken five times in AB, the line AB shall be divided into five equal parts.

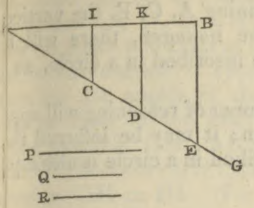
Fig. 106.



For since CI is parallel to GB, the sides AG and AB are cut proportionally in C and I; but AC is the fifth part of AG; therefore AI is the fifth part of AB.

Next, let it be proposed to divide AB (fig. 107) into parts, having to each other the ratios that the lines P, Q,

Fig. 107.

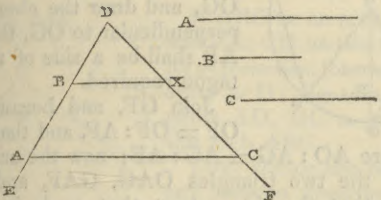


R have. Through A draw AG, and in AG take $AC = P$, $CD = Q$, $DE = R$; join EB, and draw CI and DK parallel to EB; the line AB shall be divided as required.

For, because of the parallels CI, DK, EB; the parts AI, IK, KB have to each other the same ratios that the parts AC, CD, DE have (17, 4), which parts are by construction equal to the given lines P, Q, R.

PROBLEM XIV.—To find a fourth proportional to three given lines A, B, C.

Fig. 108.



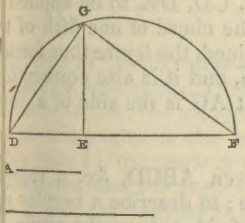
Draw two straight lines DE, DF, containing any angle; in DE take $DA = A$, and $DB = B$, and on DF take $DC = C$; join AC and draw BX parallel to AC; then DX shall be the fourth proportional required.

For because BX is parallel to AC, $DA : DB = DC : DX$ (17, 4), that is, $A : B = C : DX$; therefore DX is a fourth proportional to A, B, and C.

COR. The same construction serves to find a third proportional to two lines A and B; for it is the same as a fourth proportional to the lines A, B, and B.

PROBLEM XV.—To find a mean proportional between two straight lines A, B.

Fig. 109.

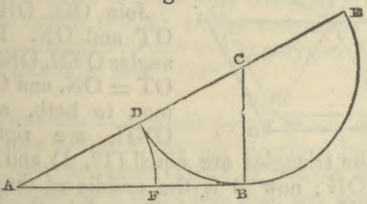


Upon any straight line DF take $DE = A$, and $EF = B$; and on DF as a diameter describe a semicircle DGF; draw EG perpendicular to DF, meeting the circle in G; the line EG shall be the mean proportional required.

For, if DG, FG be joined, the angle DGF is a right angle (17, 2), therefore, in the right-angled triangle DGF, GE is a mean proportional between DE and EF (23, 4).

PROBLEM XVI.—To divide a given straight line AB into two parts, so that the greater may be a mean proportional between the whole line and the other part.

Fig. 110.



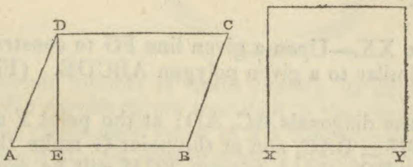
At B, one of the extremities of the line, draw BC perpendicular to AB, and equal to the half of AB; on C as a centre, with CB as a radius, describe a circle; join AC, meeting the circle in D; make $AF = AD$, and AB shall be divided at F in the manner required.

For since AB is perpendicular to the radius, it is a tangent to the circle (9, 2); and if AC be produced to meet the circle in E, $AB : AF = AE : AB$ (30, 4), and by division $AB - AF : AF = AE - AB : AB$; but $AB - AF = BF$; and since $DE = 2BC = AB$, therefore $AE - AB = AD = AF$, therefore $BF : AF = AF : AB$.

SCHOLIUM. When a line is divided in this manner, it is said to be divided in *extreme and mean ratio*.

PROBLEM XVII.—To make a square equivalent to a given parallelogram, or to a given triangle.

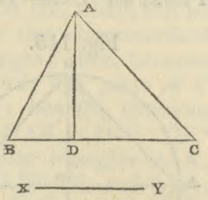
Fig. 111.



First, let ABCD be a given parallelogram, the base of which is AB, and altitude DE; find XY a mean proportional between AB and DE (by Problem 15), and XY shall be the side of the square required.

For since by construction $AB : XY = XY : DE$, therefore $XY^2 = AB \times DE$ (8, 4) = parallelogram ABCD (5, 4).

Fig. 112.

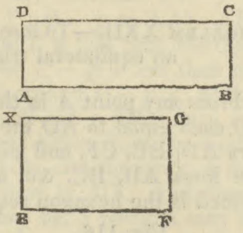


Next, let ABC be a given triangle (fig. 113), BC its base, and AD its altitude; find XY a mean proportional between half the base and the altitude, and XY shall be the side of the square required.

For since $\frac{1}{2}BC : XY = XY : AD$; therefore (8, 4) $XY^2 = \frac{1}{2}BC \times AD$ = triangle ABC (6, 4).

PROBLEM XVIII.—Upon a given line EF, to construct a rectangle EFGX equivalent to a given rectangle ABCD.

Fig. 113.

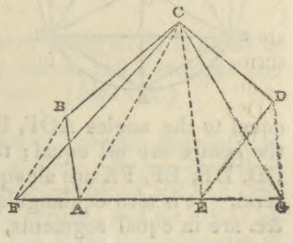


Find a fourth proportional to the three lines EF, AB, and AD (by Problem 14); draw EX perpendicular to EF, and equal to that fourth proportional, and complete the rectangle EFGX, which will have the magnitude required.

For since $EF : AB = AD : EX$, therefore (8, 4) $EF \times EX = AB \times AD$; that is, the rectangle EFGX is equal to the rectangle ABCD.

PROBLEM XIX.—To make a triangle equivalent to a given polygon ABCDE.

Fig. 114.



First, draw the diagonal CE, so as to cut off the triangle CDE; draw DG parallel to CE, to meet AE produced in G; join CG, and the given polygon ABCDE shall be equivalent to another polygon ABCG, which has one side fewer.

For since DG is parallel to CE, the triangle CGE is

Lines and Figures upon a Plane.

equivalent to the triangle CDE (2 Cor. 2, 4); to each add the polygon ABCE, and the polygon ABCDE shall be equivalent to the polygon ABCG.

In like manner, if the diagonal CA be drawn, also BF parallel to CA, meeting EA produced, and CF be joined, the triangle CFA is equivalent to the triangle CBA, and thus the polygon ABCDE is transformed to the triangle CFG.

In this way a triangle may be found equivalent to any other polygon; for by transforming the figure into another equivalent figure that has one side fewer, and repeating the operation, a figure will at last be found which has only three sides.

Scholium. As a square may be found equivalent to a triangle, by combining the problem with Prob. XVII. a square may be found equivalent to any rectilineal figure whatever.

Problem XX.—Upon a given line FG to construct a polygon similar to a given polygon ABCDE. (Fig. 88.)

Draw the diagonals AC, AD; at the point F make the angle $GFH = BAC$, and at the point G make the angle $FGH = ABC$; thus a triangle FGH will be constructed similar to ABC. Again, on FH construct in like manner a triangle FIH, similar to ADC and similarly situated; and on FI construct a triangle FKI similar to AED, and similarly situated; and these triangles FGH, FHI, FIK shall form a polygon FGHIK similar to ABCDE (26, 4).

Problem XXI.—To inscribe a square in a given circle.

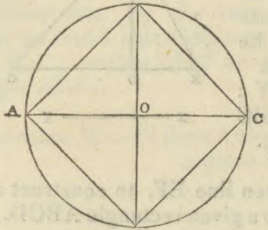


Fig. 115.

Draw two diameters AC, BD, so as to intersect each other at right angles; join the extremities of the diameters A, B, C, D, and the figure ABCD shall be a square inscribed in the circle.

For the angles AOB, BOC, &c. being all equal, the chords AB, BC, CD, DA are equal; and as each of the angles of the figure ABCD is in a semicircle, it is a right angle (17, 2), therefore the figure is a square.

Problem XXII.—To inscribe a regular hexagon, and also an equilateral triangle, in a given circle.

From any point A in the circumference, apply AB and BC each equal to AO the radius; draw the three diameters AD, BE, CF, and join their adjacent extremities by the lines AB, BC, &c. and the figure ABCDEF thus formed is the hexagon required.

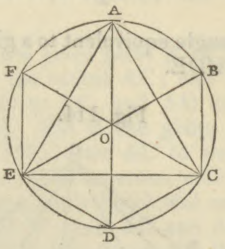


Fig. 116.

For the triangles AOB, BOC being by construction equilateral, each of the angles AOB, BOC is one third of two right angles (4, Cor. 24, 1); and since $AOB + BOC + COD =$ two right angles, therefore $COD =$ one third of two right angles; therefore the three angles AOB, BOC, COD are equal, and as these are equal to the angles AOF, FOE, EOD, the six angles at the centre are all equal; therefore the chords AB, BC, CD, DE, EF, FA are all equal; thus the figure is equilateral. It is also equiangular, for the angles FAB, ABC, &c. are in equal segments, each having for its base the chords of two sixths of the circumference; therefore the angles A, B, &c. are equal (15, 2).

If straight lines be drawn joining A, C, E, the vertices of the alternate angles of the hexagon, there will be formed an equilateral triangle inscribed in a circle, as is sufficiently evident.

Scholium. As the same manner of reasoning will apply alike to any equilateral polygon; it may be inferred that every equilateral polygon inscribed in a circle is also equiangular.

Problem XXIII.—To inscribe a regular pentagon and decagon in a given circle.

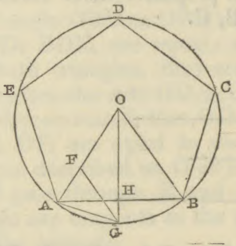


Fig. 117.

Draw any radius AO, and divide it into two parts AF, FO, such, that $AO : OF = OF : AF$ (16); from A place AG in the circumference equal to OF; join OG, and draw the chord AHB perpendicular to OG, the chord AB shall be a side of the pentagon required.

Join GF, and because $AO : OF = OF : AF$, and that $AG = OF$, therefore $AO : AG = AG : AF$; now the angle A is common to the two triangles OAG, GAF, and it has been shown that the sides about that angle in the two triangles are proportionals; therefore (22, 4), the triangles are similar, and the triangle AOG being isosceles, the triangle AGF is also isosceles, so that $AG = GF$; but $AG = FO$ (by construction), therefore, $GF = FO$, and the angle $FOG = FGO$, and $FOG + FGO = 2FOG$; but $AFG = FOG + FGO$ (23, 1), and $AFG = FAG$, therefore $FAG = 2FOG$; hence in the isosceles triangle AOG, each of the angles at the base is double the vertical angle AOG, therefore the sum of all the angles is equal to five times the vertical angle AOG; but the sum of all the angles is equal to two right angles (24, 1), therefore the angle AOG is one fifth of two right angles, and consequently $AOB = 2AOG =$ two fifths of two right angles, equal one fifth of four right angles, therefore the arch AB is one fifth of the whole circumference. If we now suppose straight lines BC, CD, DE, to be applied in the circle each equal to AB, the chord of one fifth of the circumference, and AE to be joined, the figure thus formed will be an equilateral pentagon, and it is also equiangular (Schol. 22). It is evident that AG is the side of a decagon inscribed in the circle.

Problem XXIV.—Having given ABCD, &c. a regular polygon inscribed in a circle; to describe a regular polygon of the same number of sides about the circle.

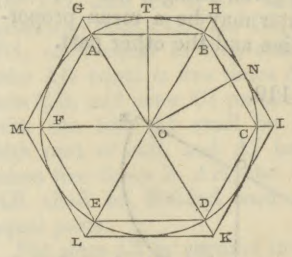


Fig. 118.

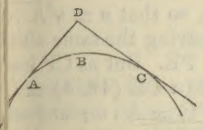
Draw GH a tangent to the circle at T the middle of the arch AB; do the same at the middle of each of the other arches BC, CD, &c.; these tangents shall form a regular polygon GHIK, &c. described about the circle.

Join OG, OH, &c. also OT and ON. In the triangles OTH, ONH, the side $OT = ON$, and OH is common to both, and OTH, ONH, are right angles, therefore the triangles are equal (17, 1) and the angle $TOH = NOH$; now B is the middle of the arch TN, therefore OH passes through B; and in the same manner it appears that I is in the line OC produced, &c. Now because OT bisects the arch AB, it is perpendicular to the chord AB (6, 2); therefore GH is parallel to AB (2, 2, and 18, 1), and HI to BC, therefore the angle GHO = ABO, and IHO = CBO, and hence GHI = ABC; and in like manner it appears that HIK = BCD, &c.; therefore the angles of the circumscribed polygon are equal to those of the inscribed polygon. And because of the parallels, GH : AB = OH : OB, and HI : BC = OH : OB, therefore GH : AB = HI : BC; but AB = BC; therefore GH = HI. For the same reason HI = IK, &c., therefore the polygon is regular, and similar to the inscribed polygon.

SECT. VI.—OF THE QUADRATURE OF THE CIRCLE.

Axiom.

Fig. 119.

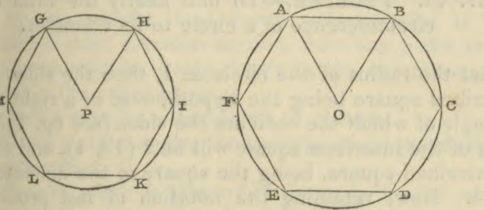


If ABC be an arch of a circle, and AD, CD be two tangents at its extremities, intersecting each other in D; the sum of the tangents AD, DC is greater than the arch ABC.

Cor. Hence the perimeter of any polygon described about a circle, is greater than the circumference of the circle.

Prop. I. Theorem.—Equilateral polygons, ABCDEF, GHIKLM, of the same number of sides inscribed in circles are similar, and are to one another as the squares of the radii of the circles.

Fig. 120.

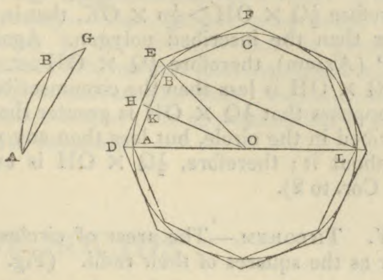


As each of the polygons is by hypothesis equilateral, it will also be equiangular (Schol. 22, 5). Let us suppose, for example, that the polygons are hexagons; then, as the sum of the angles is the same in both, viz. eight right angles (25, 1), the angle A will be one sixth part of eight right angles, and the angle G will be the same; therefore A = G; in like manner B = H, C = I, &c., and as the figures are equilateral, AB : GH = BC : HI = CD : IK, &c. therefore (2, Def. 4) the figures are similar. Draw AO, BO, GP, HP to the centres of the circles; then, because the angle AOB is the same part of four right angles that the arch AB is of the whole circumference, and the angle GPH the same part of four right angles that GH is of the whole circumference (13, 2), the angles AOB, GPH are each the same part of four right angles; therefore they are equal; the isosceles triangles AOB, GPH are therefore similar (22, 4), and consequently AB : GH = AO : GP; therefore (9 and 27, 4) polygon ABCDEF : polygon GHIKLM = $AO^2 : GP^2$.

Prop. II. Theorem.—A circle being given, two similar polygons may be found, the one inscribed in the circle, and the other described about it, which shall differ from each other by a space less than any given space.

Let AG be the side of a square equal to the given space; and let ABG be such an arch of the given circle, that AG is its chord. Bisect the fourth part of the circumference (5, 5), then bisect one of its halves, and proceed in this manner till, by repeated bisections, there will at length be found an arch AB less than AG. As the arch thus found will be contained in the circumference a certain number of times exactly, its chord AB is the side of a regular figure inscribed in the circle; apply lines in the circle, each equal to AB, thus forming the regular figure ABC, &c., and describe a regular figure DEF, &c. of the same number of sides about the circle. Then the excess of the circumscribed figure above the inscribed figure shall be less than the square upon AG. For draw lines from D and E to O the centre, these lines will pass through A and B (24, 5); also, a line drawn from O, to H the point of contact of the line DE, will bisect AB, and be perpendicular to it; and AB will be parallel to DE. Draw the diameter AL, and join BL, which will be parallel to HO (18, 4). Put P for the circumscribed polygon, and p for the inscribed polygon; then, because the triangles ODH, OAK are evidently like parts of P and p, $P : p = ODH : OAK$ (1, 3); but the triangles ODH, OAK being similar, $ODH : OAK = OH^2 : OK^2$ (25, 4); and on account of the similar triangles OAK, LAB, OA^2, or $OH^2 : OK^2 = LA^2 : LB^2$ (20, and 9, 4); therefore $P : p = LA^2 : LB^2$, and by division and inversion, $P : P - p = LA^2 : LA^2 - LB^2$, or AB^2; but LA^2, that is, the square described about the circle, is greater than the equilateral polygon of eight sides described about the circle, because it contains that polygon, and for the same reason the polygon of eight sides is greater than the polygon of sixteen sides, and so on; therefore $LA^2 > P$, and as it has been proved that $P : P - p = LA^2 : AB^2$, of which proportion the first term P is less than the third LA^2; therefore (2, 3) the second $P - p$ is less than the fourth AB^2; but $AB^2 < AG^2$, therefore $P - p < AG^2$.

Fig. 121.



Cor. 1. Because the polygons P and p differ from one another more than either of them differs from the circle, the difference between each of them, and the circle, is less than the given space, viz. the square of AG. And therefore, however small any space may be, a polygon may be inscribed in the circle, and another described about it, each of which shall differ from the circle by less than the given space.

Cor. 2. A space which is greater than any polygon that can be inscribed in a circle, but which is less than any polygon that can be described about it, is equal to the circle itself.

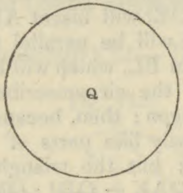
Prop. III. Theorem.—The area of any circle is equal to a rectangle contained by the radius, and a straight line equal to half the circumference. (Fig. 121.)

Let ABC, &c. be any equilateral polygon inscribed in the circle, and DEF, &c. a similar polygon described about it; draw lines from the extremities of AB and DE, a side of each polygon, to O the centre; and let OKH be perpendicular to these sides. Put P for the perimeter of the polygon DEF, &c. and p for the perimeter of the polygon ABC, &c. and n for the number of the sides of each. Then, because $n \times \frac{1}{2}\text{DE} = \frac{1}{2}\text{P}$, $n \times \frac{1}{2}\text{DE} \times \text{OH} = \frac{1}{2}\text{P} \times \text{OH}$, but $n \times \frac{1}{2}\text{DE} \times \text{OH} = n \times$ triangle DOE $=$ polygon DEF, &c.; therefore, $\frac{1}{2}\text{P} \times \text{OH} =$ polygon DEF, &c.; and in like manner it appears that $\frac{1}{2}p \times \text{OK} =$ polygon ABC, &c. Now let Q denote the circumference of the circle, then, because $\frac{1}{2}\text{Q} > \frac{1}{2}p$, and $\text{OH} > \text{OK}$, therefore $\frac{1}{2}\text{Q} \times \text{OH} > \frac{1}{2}p \times \text{OK}$, that is, $\frac{1}{2}\text{Q} \times \text{OH}$ is greater than the inscribed polygon. Again, because $\frac{1}{2}\text{Q} < \frac{1}{2}\text{P}$ (Axiom), therefore $\frac{1}{2}\text{Q} \times \text{OH} \angle \frac{1}{2}\text{P} \times \text{OH}$, that is, $\frac{1}{2}\text{Q} \times \text{OH}$ is less than the circumscribed polygon. Thus it appears that $\frac{1}{2}\text{Q} \times \text{OH}$ is greater than any polygon inscribed in the circle, but less than any polygon described about it; therefore, $\frac{1}{2}\text{Q} \times \text{OH}$ is equal to the circle (2 Cor. to 2).

Prop. IV. Theorem.—The areas of circles are to one another as the squares of their radii. (Fig. 120, 122).

Let ABCDEF and GHIKLM be equilateral polygons of the same number of sides inscribed in the circles, and OA, PG their radii; and let Q be such a space, that $\text{AO}^2 : \text{GP}^2 =$ circle ABE : Q; then, because $\text{AO}^2 : \text{GP}^2 =$ polygon ABCDEF : polygon GHIKLM, and $\text{AO}^2 : \text{GP}^2 =$ circle ABE : Q, therefore polygon ABCDEF : polygon GHIKLM $=$ circle ABE : Q; but circle ABE $>$ polygon ABCDEF, therefore Q $>$ polygon GHIKLM: that is, Q is greater than any polygon inscribed in the circle GHL. In the same manner it is demonstrated that Q is less than any polygon described about the circle GHL; therefore Q is equal to the circle GHL (2). And because $\text{AO}^2 : \text{GP}^2 =$ circle ABE : Q, therefore $\text{AO}^2 : \text{GP}^2 =$ circle ABE : circle GHL.

Fig. 122.



Cor. I. The circumferences of circles are to one another as their radii. Put M for the circumference of the circle ABE and N for the circumference of GKL; then, circle ABE : circle GHL $= \text{AO}^2 : \text{GP}^2$; but $\frac{1}{2}\text{M} \times \text{AO} =$ circle ABE, also $\frac{1}{2}\text{N} \times \text{GP} =$ circle GHL (3), therefore $\frac{1}{2}\text{M} \times \text{AO} : \frac{1}{2}\text{N} \times \text{GP} = \text{AO}^2 : \text{GP}^2$, and by alternation $\frac{1}{2}\text{M} \times \text{AO} : \text{AO}^2 = \frac{1}{2}\text{N} \times \text{GP} : \text{GP}^2$, therefore (3, 4), $\frac{1}{2}\text{M} : \text{AO} = \frac{1}{2}\text{N} : \text{GP}$; and again, by alternation, $\frac{1}{2}\text{M} : \frac{1}{2}\text{N} = \text{AO} : \text{GP}$, therefore $\text{M} : \text{N} = \text{AO} : \text{GP}$.

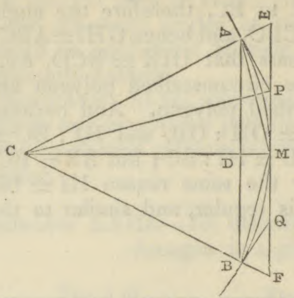
Cor. 2. A circle described with the hypothenuse of a right-angled triangle as a radius, is equal to two circles described with the other two sides as radii. Let the sides of the triangle be a, b and the hypothenuse h, and let the circles described with these lines as radii be A, B, and H.

$$\begin{aligned} &\text{Because } \text{A} : \text{H} = a^2 : h^2 \\ &\text{and } \text{B} : \text{H} = b^2 : h^2, \\ &\text{therefore } \text{A} + \text{B} : \text{H} = a^2 + b^2 : h^2 \ (10, 3); \\ &\text{but } a^2 + b^2 = h^2 \ (13, 4), \text{ therefore } \text{A} + \text{B} = \text{H}. \end{aligned}$$

Prop. V. Problem.—Having given the area of a regular polygon inscribed in a circle, and also the area of a similar polygon described about it; to find the areas of regular inscribed and circumscribed polygons, each of double the number of sides.

Let AB be the side of the given inscribed polygon, and EF parallel to AB that of the similar circumscribed polygon, and C the centre of the circle; if the chord AM, and the tangents AP, BQ be drawn, the chord AM shall be the side of the inscribed polygon of double the number of sides; and PQ or 2PM that of the similar circumscribed polygon. Put A for the area of the polygon, of which AB is a side, and B for the area of the circumscribed polygon; also a for the area of the polygon of which AM is a side, and b for the area of the similar circumscribed polygon; then A and B are by hypothesis known, and it is required to find a and b.

Fig. 123.



I. The triangles ACD, ACM, which have a common vertex A, are to one another as their bases CD, CM; besides, these triangles are to one another as the polygons, of which they form like parts, therefore $\text{A} : a = \text{CD} : \text{CM}$. The triangles CAM, CME, which have a common vertex M, are to each other as their bases CA, CE; they are also to one another as the polygons a and B, of which they are like parts; therefore, $a : \text{B} = \text{CA} : \text{CE}$; but because of the parallels DA, ME, $\text{CD} : \text{CM} = \text{CA} : \text{CE}$; therefore, $\text{A} : a = a : \text{B}$; therefore the polygon a, which is one of the two required, is a mean proportional between the two known polygons A and B, so that $a = \sqrt{\text{A} \times \text{B}}$.

II. The triangles CPM, CPE, having the same altitude CM, are to one another as PM to PE. But as CP bisects the angle MCE, $\text{PM} : \text{PE} = \text{CM} : \text{CE}$ (19, 4) $= \text{CD} : \text{CA} = \text{A} : a$; therefore $\text{CPM} : \text{CPE} = \text{A} : a$; and consequently $\text{CPM} + \text{CPE}$, or $\text{CME} : \text{CPM} = \text{A} + a : \text{A}$, and $\text{CME} : 2\text{CPM} = \text{A} + a : 2\text{A}$; but CME and 2CPM, or CMPA, are to one another as the polygons B and b, of which they are like parts; therefore $\text{A} + a : 2\text{A} = \text{B} : b$. Now the polygon a has been already found, therefore by this last proportion the polygon b is determined; that is, $b = \dfrac{2\text{A} \times \text{B}}{\text{A} + a}$.

Prop. VI. Problem.—To find nearly the ratio of the circumference of a circle to its diameter.

Let the radius of the circle $= 1$, then the sides of the inscribed square being the hypothenuse of a right-angled triangle of which the radii are the sides (see fig. 115), the area of the inscribed square will be 2 (13, 4), and the circumscribed square, being the square of the diameter, will be 4. Now, retaining the notation of last problem, if we make $\text{A} = 2$, and $\text{B} = 4$, the formulæ $a = \sqrt{\text{A} \times \text{B}}$, $b = \dfrac{2\text{A} \times \text{B}}{\text{A} + a}$ give us $a = 2{\cdot}8284271$, &c. the area of the inscribed octagon, and $b = 3{\cdot}31337085$, &c. the area of the circumscribed octagon. By substituting these numbers in the formula, instead of A and B, we shall obtain the areas of the inscribed and circumscribing polygons of 16 sides; and thence we may find those of 32 sides, and so on, as in the following table:

No. of Sides.	Ins. Polygons.	Circ. Polygons.
4	2·0000000	4·0000000
8	2·8284271	3·3137085
16	3·0614674	3·1825979
32	3·1214451	3·1517249
64	3·1365485	3·1441184
128	3·1403311	3·1422236
256	3·1412772	3·1417504
512	3·1415138	3·1416321
1024	3·1415729	3·1416025
2048	3·1415877	3·1415951
4096	3·1415914	3·1415133
8192	3·1415923	3·1415928
16384	3·1415925	3·1415927
32768	3·1415926	3·1415926

Hence it appears that the area of a regular polygon of 32768 sides inscribed in the circle, and of a similar polygons described about it, differ so little from each other that the numbers which express them are the same as far as the eighth decimal place. And as the circle is greater than the one polygon, and less than the other, its area will be nearly 3·1415926. But the area is the product of the radius and the half of the circumference; therefore the radius being unity, half the circumference is 3·1415926 nearly; and the radius is to half the circumference, or the diameter is to the circumference, nearly as 1 to 3·1415926.

Scholium. In this way the ratio of the diameter to the circumference may be found to any degree of accuracy; but neither by this, nor any other method yet known, can the ratio be exactly determined.

Archimedes, by means of inscribed and circumscribed polygons of 96 sides, found that the diameter is to the circumference as 7 to 22 nearly, which ratio is nearer to the truth than can be expressed by any smaller numbers; and Metius found it to be more nearly as 113 to 355. Both of these expressions are convenient on account of the smallness of the numbers, but later mathematicians have carried the approximation to a much greater degree of accuracy. Thus, it has been found that the diameter being 1, the circumference is greater than 3·1415926535897932, but less than the same number having its last figure increased by unity; and some have even had the patience to carry the approximation as far as the 150th place of decimals.

PART II.—GEOMETRY OF SOLIDS.

SECT. I.—OF PLANES AND SOLID ANGLES.

Definitions.

I. A straight line is *perpendicular*, or at right angles, to a plane, when it is perpendicular to every straight line which it meets in that plane. The plane is also perpendicular to the line.

II. A line is *parallel* to a plane when they cannot meet each other, although both be produced. The plane is also parallel to the line.

III. Parallel planes are such as cannot meet each other, though produced.

IV. It will be demonstrated (Theor. 3) that the common section of two planes is a straight line; this being premised, the *inclination* of two planes is the angle contained by two straight lines drawn perpendicular to the line which is their common section, from any point in it, the one perpendicular being drawn in the one plane, and the other in the other plane.

This angle may be either acute or obtuse.

V. If it be a right angle, the two planes are perpendicular to each other.

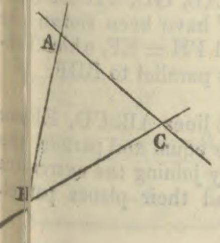
VI. A *solid angle* is that which is made by the meeting of more than two plane angles, which are not in the same plane, in one point. Thus the solid angle V is formed by the plane angles AVB, BVC, CVD, DVA. (Fig. 133.)

Theorem I.—One part of a straight line cannot be in a plane and another part above it.

For from the definition of a plane (Sect. 1, Part 1), it is manifest, that if a straight line coincide with a plane in two points, it must be wholly in the plane.

Theorem II.—Two straight lines which cut each other in a plane determine its position; that is, the plane can coincide with these lines only in one position.

Fig. 124.

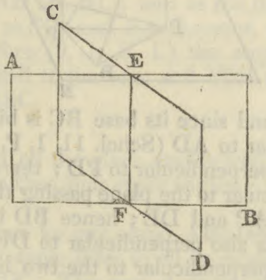


Let the straight lines AB, AC cut each other in A; conceive a plane to pass through AB, and to be turned about that line, till it pass through the point C; and this it can manifestly do only in one position; then, as the points A and C are in the plane, the whole line AC must be in the plane; therefore there is only one position in which the plane can coincide with the same two lines AB, AC.

Cor. Therefore a triangle ABC, or three points A, B, C, not in a straight line, determine the position of a plane.

Theorem III.—If two planes AB, CD intersect each other; their intersection is a straight line.

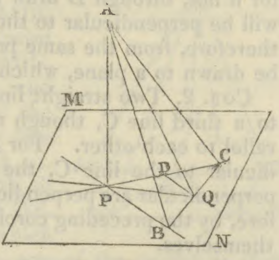
Fig. 125.



Let E and F be two points in the line of common section, and let a straight line EF be drawn between them; then the line EF must be in the plane AB (Def. 1), and the same line must also be in the plane CD; therefore it must be the common section of them both.

Theorem IV.—If a straight line AP be perpendicular to two straight lines PB, PC at P, the point of their intersection; it will also be perpendicular to the plane MN, in which these lines are.

Fig. 126.



Draw any other line PQ in the plane MN, and from Q, any point in that line, draw QD parallel to PB; make DC = DP; join CQ, meeting PB in B; and join AB, AQ, AC. Because DQ is parallel to PB, and PD = DC; therefore BQ = QC, and BC is bisected in Q. Hence in the triangle BAC,

$$AB^2 + AC^2 = 2AQ^2 + 2BQ^2 \ (16, 4),$$

and in the like manner, in the triangle PBC,

$$PB^2 + PC^2 = 2PQ^2 + 2CQ^2;$$

therefore, taking equal quantities from equal quantities, that is, subtracting the two last quantities, which are put equal to each other, from the two first, and observing, that as APB, APC are by hypothesis right-angled triangles, $AB^2 - BP^2 = AP^2$, and $AC^2 - CP^2 = AP^2$, we have

$$AP^2 + AP^2 = 2AQ^2 - 2PQ^2,$$

and therefore $AP^2 = AQ^2 - PQ^2$, or $AP^2 + PQ^2 = AQ^2$; therefore the triangle APQ is right-angled at P (Schol. 15, 4, Part 1), and consequently AP is perpendicular to the plane MN (Def. 1).

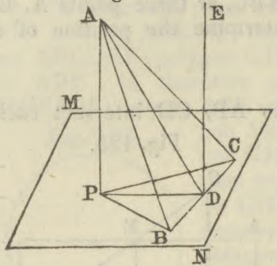
Cor. 1. The perpendicular AP is shorter than any oblique line AQ, therefore it measures the distance of the point A from the plane.

Cor. 2. From the same point P in a plane no more than one perpendicular can be drawn. For if it be possible that there can be two perpendiculars, conceive a plane to pass through them, and to intersect the plane MN in the straight line PQ; then these perpendiculars will be in the same plane, and both perpendicular to the same line PQ, at the same point P in that line, which is impossible.

It is also impossible that from a point without a plane two perpendiculars can be drawn to the plane; for if the straight lines AP, AQ could be two such perpendiculars, then the triangle APQ would have two right angles, which is impossible.

Theorem V.—If a straight line AP be perpendicular to a plane MN, every straight line DE parallel to AP is perpendicular to the same plane.

Fig. 127.



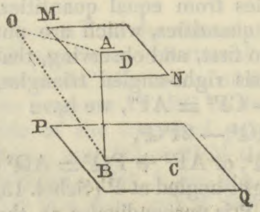
Let a plane pass through the parallel lines AP, DE, and intersect the plane MN in the line PD; through D draw BC at right angles to PD; take $DC = DB$, and join PB, PC, AB, AC, AD. Because $DB = DC$, therefore $PB = PC$ (Cor. 5, 1, Part I.); and because AP is perpendicular to the plane MN, so that APB, APC are right angles, $AB = AC$, therefore ABC is an isosceles triangle; and since its base BC is bisected at D, BC is perpendicular to AD (Schol. 11, 1, P. I.); but by construction BC is perpendicular to PD; therefore (4) BC or BD is perpendicular to the plane passing through the lines AD and PD, or AP and DE; hence BD is perpendicular to DE, but PD is also perpendicular to DE (19, 1, P. I.), therefore DE is perpendicular to the two lines DP, DB; and therefore it is perpendicular to the plane MN passing through them.

Cor. 1. Conversely, if the straight lines AP, DE be perpendicular to the same plane MN, they are parallel; for if not, through D draw a parallel to AP; this parallel will be perpendicular to the plane MN (by the theorem), therefore, from the same point D two perpendiculars may be drawn to a plane, which is impossible (4).

Cor. 2. Two straight lines A and B which are parallel to a third line C, though not in the same plane, are parallel to each other. For suppose a plane to be perpendicular to the line C, the lines A and B parallel to this perpendicular are perpendicular to the same plane; therefore, by the preceding corollary, they are parallel between themselves.

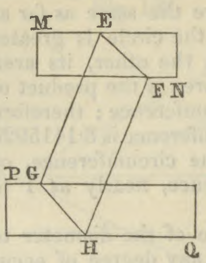
Theorem VI.—Two planes MN, PQ, perpendicular to the same straight line AB, are parallel to each other.

Fig. 128.



For, if they can meet each other, let O be a point common to both, and join OA, OB; then the line AB, which is perpendicular to the plane MN, must be perpendicular to AO, a line drawn in the plane MN from the point in which AB meets that plane. For the same reason AB is perpendicular to BO; therefore OA, OB are two perpendiculars drawn from the same point O, to the same straight line AB, which is impossible.

Fig. 129.



Theorem VII.—The intersections EF, GH of two parallel planes MN, PQ with a third plane FG, are parallel.

For if the lines EF, GH, situated in the same plane, are not parallel, they must meet if produced; therefore the planes MN, PQ, in which they are, must also meet, which is contrary to the hypothesis of their being parallel.

Theorem VIII.—Any straight line AB, perpendicular to MN one of two parallel planes MN, PQ, is also perpendicular to PQ the other plane. (Fig. 128.)

From B draw any straight line BC in the plane PQ, and let a plane pass through the lines AB, BC, and meet the plane MN in the line AD, then AD will be parallel to BC (7); and since AB is perpendicular to the plane MN, it must be perpendicular to the line AD, therefore it is also perpendicular to BC (19, 1, P. I.); hence (Def. 1) the line AB is perpendicular to the plane PQ.

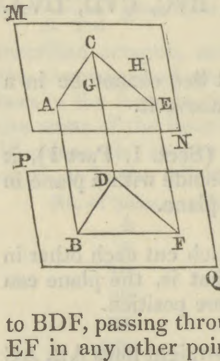
Theorem IX.—Parallel straight lines EG, FH, comprehended between two parallel planes MN, PQ, are equal. (Fig. 129.)

Let a plane pass through the lines EG, FH, and meet the parallel planes in EF and GH; then EF and GH are parallel (7) as well as EG and FH; therefore EGHF is a parallelogram, and $EG = HF$.

Cor. Hence two parallel planes are everywhere at the same distance from each other. For if EG and FH be perpendicular to the two planes, they are parallel (1 Cor. 5); therefore they are equal.

Theorem X.—If two straight lines CA, EA, meeting one another, be parallel to two other lines DB, FB, that meet one another, though not in the same plane with the first two; the first two and the other two shall contain equal angles, and the plane passing through the first two shall be parallel to the plane passing through the other two.

Fig. 130.



Take $AC = BD$, $AE = BF$, and join CE, DF, AB, CD, EF. Because AC is equal and parallel to BD, the figure ABDC is a parallelogram; therefore CD is equal and parallel to AB. For a similar reason EF is equal and parallel to AB; therefore also CE is equal and parallel to DF (Cor. 5, and 28, 1, P. I.); therefore the triangles CAE, DBF are equal (10, 1, P. I.), hence the angle $CAE = DBF$.

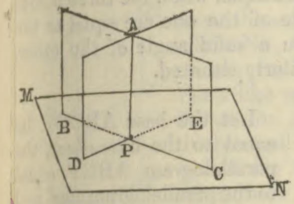
In the next place, the plane ACE is parallel to the plane BDF: for suppose that the plane parallel to BDF, passing through the point A, meets the lines CD, EF in any other points than C and E (for example in G and H), then (9) the three lines AB, GD, FH are equal; but the three lines AB, CD, EF have been shown to be equal; therefore $CD = GD$, and $FH = EF$, which is absurd, therefore the plane ACE is parallel to BDF.

Theorem XI.—If three straight lines AB, CD, EF, not situated in the same plane, are equal and parallel; the triangles ACE, BDF formed by joining the extremities of these lines are equal, and their planes parallel. (See fig. 130.)

For since AB is equal and parallel to CD, the figure ABDC is a parallelogram; therefore the side AC is equal and parallel to BD. In like manner it may be shown that the sides AE, BF are equal and parallel; also CE, DF; therefore the triangles CAE, BDF are equal. It may be demonstrated, as in last proposition, that their planes are parallel.

Theorem XII.—If a straight line AP be perpendicular to a plane MN; any plane APB, passing through AP, shall be perpendicular to the plane MN.

Fig. 131.



Let BC be the intersection of the planes AB, MN; if in the plane MN the line DE be drawn perpendicular to BP, the line AP, being perpendicular to the plane MN, shall be perpendicular to each of the straight lines BC, DE; therefore the angle APD is a right angle; now PA and PD are drawn in the planes AB, MN perpendicular to their common section, therefore (5 Def.) the planes AB, MN are perpendicular to each other.

Scholium. When three straight lines, such as AP, BP, DP, are perpendicular to each other, each is perpendicular to the plane of the two other lines.

Theorem XIII.—If the plane AB be perpendicular to the plane MN, and if in the plane AB a straight line PA be drawn perpendicular to BP, the common intersection of the planes; then shall PA be perpendicular to the plane MN. (Fig. 131.)

For, if in the plane MN, a line PD be drawn perpendicular to PB, the angle APD shall be a right angle, because the planes are perpendicular to each other; therefore the line AP is perpendicular to the two lines PB, PD, and therefore it is perpendicular to their plane MN.

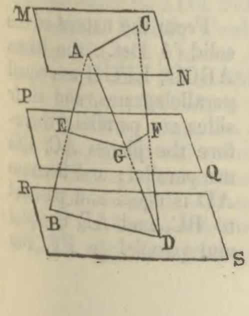
Cor. If the plane AB be perpendicular to the plane MN, and from any point P, in their common intersection, a perpendicular be drawn to the plane MN; this perpendicular shall be in the plane AB; for if it is not, a perpendicular AP may be drawn in the plane AB to the common intersection BP, which will be at the same time perpendicular to the plane MN; therefore, at the same point P, there may be two perpendiculars to a plane NM, which is impossible (4).

Theorem XIV.—If two planes AB, AD be perpendicular to a third; their common intersection AP is perpendicular to the third plane. (Fig. 131.)

For, if through the point P a perpendicular be drawn to the plane MN, this perpendicular shall be in the plane AB, and also in the plane AD (Cor. 12); therefore it is at their common intersection AP.

Theorem XV.—If two straight lines be cut by parallel planes; they shall be cut in the same ratio.

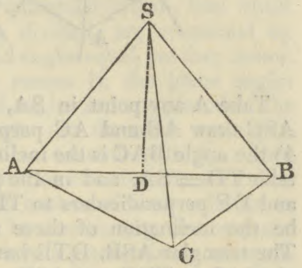
Fig. 132.



Let the line AB meet the planes MN, PQ, RS, in A, E, B; and let CD meet them in C, F, D, then shall $AE : EB = CF : FD$. For draw AD meeting the plane PQ in G, and join AC, EG, GF, BD; the lines EG, BD being the common sections of the plane of the triangle ABD and the parallel planes PQ, RS, they are parallel (7); and in like manner it appears, that AC, GF are parallel; therefore $AE : EB \; (= AG : GD) = CF : FD$.

Theorem XVI.—If a solid angle be contained by three plane angles; the sum of any two of these is greater than the third.

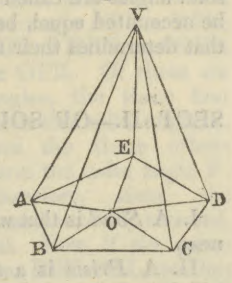
Fig. 133.



It is evidently only necessary to demonstrate the theorem, when the plane angle which is compared with the sum of the other two is greater than either of them; for, if it were equal to or less than one of them, the theorem would be manifest; therefore let S be a solid angle formed by three plane angles ASB, ASC, BSC, of which ASB is the greatest. In the plane ASB make the angle $BSD = BSC$; draw any straight line ADB, and having taken $SC = SD$, join AC, BC; the triangles BSC, BSD, having two sides, and the included angle of the one equal to two sides, and the included angle of the other, each to each, are equal (5, 1, P. I.), therefore $BD = BC$; now $AB \angle AC + BC$, therefore, taking BD from the first of these unequal quantities, and BC from the second, we get $AD \angle AC$; and as the triangles ASD, ASC have $SD = SC$, and SA common to both, and $AD \angle AC$, therefore (9, 1, P. I.) the angle $ASD \angle ASC$; and, adding DSB to the one, and CSB to the other, $ASB \angle ASC + BSC$.

Theorem XVII.—The sum of all the plane angles which form any solid angle is less than four right angles.

Fig. 134.



Let the solid angle V be cut by any plane ABCDE; from a point O taken in this plane, draw to all its angles the lines OA, OB, OC, OD, OE. The sum of all the angles of the triangles AVB, BVC, &c. formed about the vertex V is equivalent to the sum of the angles of a like number of triangles AOB, BOC, &c. formed about the point O. Now at B the angle ABC, which is the sum of OBA and OBC, is less than the sum of the angles VBA, VBC (16); in like manner at C, $OCB + OCD \angle VCB + VCD$, and so on with all the angles of the polygon ABCDE. Hence, in the triangles of which the common vertex is O, the sum of the angles at their bases is less than the sum of the angles at the bases of the triangles which have their vertex at V; therefore the sum of the angles about the point O is greater than the sum of the angles about the point V. But the sum of the angles about O is equal to four right angles, therefore the sum of the plane angles which form the solid angle about the vertex V is less than four right angles.

Scholium. This demonstration supposes that the solid angle is convex, or that it lies all on one side of the plane of any one of its faces. If it were otherwise, the sum of the solid angles would be unlimited.

Theorem XVIII.—If each of two solid angles be contained by three plane angles equal to one another, each to each; the planes in which the equal angles are, have the same inclination to one another.

Let the angle ASB = DTE, the angle ASC = DTF, and the angle BSC = ETF; the two planes ASB, ASC shall have to each other the same inclination as the two planes DTE, DTF.

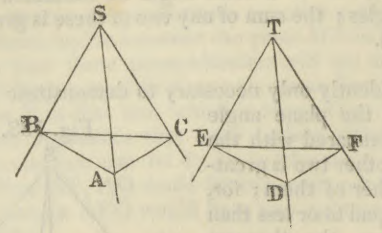


Fig. 135.

Take A any point in SA, and in the two planes ASB, ASC draw AB and AC perpendiculars to AS, then (Def. 4) the angle BAC is the inclination of these planes; again, take TD = SA, and in the planes TDE, TDF draw DE and DF perpendiculars to TD, and the angle EDF shall be the inclination of these other planes; join BC, EF. The triangles ASB, DTE have the side AS=DT, the angle SAB = TDE and ASB = DTE, therefore the triangles are equal, and thus AB = DE, and SB = TE. In like manner it appears that the triangles ASC, DTF are equal, and therefore that AC = DF, and SC = TF. Now the triangles BSC, ETF, having BS = TE, SC = TF, and the angle BSC = ETF, are also equal, and therefore BC = EF; but it has been shown that AB = DE, and that AC = DF; therefore the triangles BAC, EDF are equal, and consequently the angle BAC = EDF; that is, the inclination of the planes ASB and ASC is equal to the inclination of the planes DTE and DTF. In the same manner it may be proved that the other planes have the same inclination to one another.

Scholium. If the three plane angles which contain the solid angles are equal, each to each; and if the angles are also *disposed in the same order* in the two solid angles, then these angles when applied to one another will coincide and be equal. But if the plane angles be *disposed in a contrary order*, the solid angles will not coincide, although the theorem is equally true in both cases. In this last case, the solid angles are called *Symmetrical angles*, and they must be accounted equal, because they are equal in every thing that determines their magnitude.

SECT. II.—OF SOLIDS BOUNDED BY PLANES.

Definitions.

I. A *Solid* is that which has length, breadth, and thickness.

II. A *Prism* is a solid contained by plane figures, of which two that are opposite are equal, similar, and parallel; and the others are parallelograms.

To construct this solid, let ABCDE be any polygon, fig. 136; if in a plane parallel to ABC there be drawn straight lines FG, GH, HI, &c. equal and parallel to the sides AB, BC, CD, &c. so as to form a polygon FGHIK equal to ABCDE, and straight lines AF, BG, CH, &c. be drawn, joining the vertices of the homologous angles in the two planes; the planes or faces ABGF, BCHG, &c. thus formed will be parallelograms; and the solid ABCDEFGHIK contained by these parallelograms and the two polygons is the prism itself.

III. The equal and parallel polygons ABCDE, FGHIK are called the *Bases* of the prism; and the distance between the bases is its *Altitude*.

IV. When the base of a prism is a parallelogram, and consequently the figure has all its faces parallelograms; it is called a *parallelopiped*. A parallelopiped is *rectangular*, when all its faces are rectangles.

V. A *Cube* is a rectangular parallelopiped contained by six equal squares.

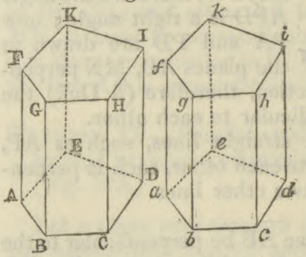
VI. A *Pyramid* is a solid contained by several planes, which meet in the same point V, and terminate in a polygonal plane ABCDE. Fig. 134.

VII. The polygon ABCDE is called the *Base* of the pyramid; the point V is its *Vertex;* and a perpendicular let fall from the vertex upon the base is called its *Altitude*.

VIII. Two solids are *similar* when they are contained by the same number of similar planes, similarly situated, and having like inclinations to one another.

Theorem I.—Two prisms are equal when the three planes which contain a solid angle of the one are equal to the three planes which contain a solid angle of the other, each to each, and are similarly situated.

Fig. 136.



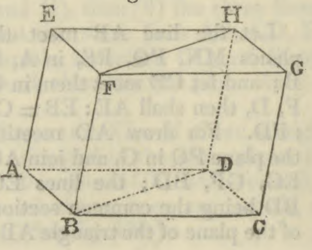
Let the base ABCDE be equal to the base *abcde*, the parallelogram ABGF equal to the parallelogram *abgf*, and the parallelogram BCHG equal to the parallelogram *bchg*; the prism ABCI shall be equal to the prism *abci*.

For let the base ABCDE be applied to its equal the base *abcde*, so that they may coincide with each other; then, because the three plane angles which form the solid angle B are equal to the three plane angles which form the angle *b*, each to each, viz. ABC = *abc*, ABG = *abg*, and GBC = *gbc*, and because these angles are similarly situated, the solid angles B and *b* are equal (15, 1), therefore the side BG shall fall upon the side *bg;* and because the parallelograms ABGF, *abgf* are equal, the side FG shall fall upon its equal *fg;* in like manner it may be shown that GH falls upon *gh*, therefore the upper base FGHIK coincides entirely with its equal *fghik*, and the two solids coincide with each other, or occupy the same space, therefore the prisms are equal.

Cor. Two right prisms which have equal bases and equal altitudes are equal to one another. If the equal angles of the lower bases follow each other in the same order, then the three planes which contain each solid angle of the one prism will be respectively equal to the three planes which contain a solid angle of the other prism, and will be similarly situated; and when the one solid angle is applied to the other, these planes will coincide, and the prisms will exactly coincide. If the equal angles of the lower base follow each other in a contrary order, then, by inverting one of the prisms, so that its upper may become its lower base, the angles of the two bases will follow each other in the same order; so that in either case the prisms coincide and are equal.

Theorem II.—In any parallelopiped, the opposite planes are equal and parallel.

Fig. 137.

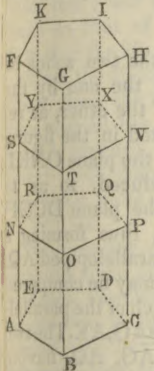


From the nature of the solid (4 Def.), the bases ABCD, EFGH are equal parallelograms, and their sides are parallel; therefore the planes AC, EG are parallel; and because AD is equal and parallel to BC, and AE is equal and parallel to BF, the ngle DAE = CBF, and the plane DAE is parallel to the plane CBF (10, 1); therefore also the parallelogram DAEH is equal to the parallelogram CBFG. It may in ike manner be demonstrated that the opposite parallelograms ABFE, DCGH are equal and parallel.

Cor. Any two opposite faces of a parallelopiped may be aken for its bases.

Theorem III.—In every prism ABCDE-FGHIK, the sections NOPQR, STVXY, made by parallel planes, are equal polygons.

Fig. 138.

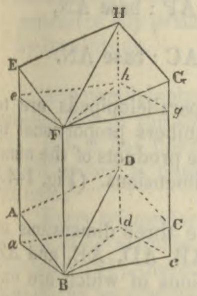


Because the parallel planes NOPQR, STVXY are cut by a third plane NOST; the sections NO, ST are parallel; and these lines are included between the parallels NS, OT, which are sides of the prism; therefore NO is equal to ST. For a like reason the sides OP, PQ, QR, &c. of the section NOPQR are respectively equal to the sides TV, VX, XY, &c. of the section STVXY. And besides, these equal sides being also parallel, the angles NOP, OPQ, &c. of the first section are respectively equal to the angles STV, TVX, &c. of the second section. Therefore the two sections NOPQR, STVXY are equal polygons.

Cor. Every section of an upright prism, by a plane parallel to the base, is equal to that base.

Theorem IV.—If a parallelopiped AG be cut by a plane passing through BD, FH, the diagonals of two of the opposite planes; it will be cut into two equivalent prisms ABDHEF, GHFBCD equal to one another.

Fig. 139.



Through B and F, the extremities of one of the sides, draw the planes B*adc*, F*ehg*, perpendicular to BF, to meet the three other sides of the solid in *a*, *d*, *c*, and in *e*, *h*, *g*. These sections are equal (3), because the planes are perpendicular to FB, and therefore parallel. They are also parallelograms (7, 1), because *a*B, *dc*, the opposite sides of the same section, are the intersections of two parallel planes ABFE, DCGH by the same plane. For a like reason, the figure B*ae*F is a parallelogram, as also the other lateral faces BFGC, *cdhg*, *adhe* of the solid B*adc*-F*ehg*. Therefore this solid is a prism (Def. 2), and it is a right prism, because BF is perpendicular to the plane of the base.

From the constitution of the figure, the right prism B*h* is divided into two right triangular prisms *a*B*d*-*e*F*h*, *c*B*d*-*g*F*h*, and it is now to be proved that the oblique triangular prism ABCD-EFGH is equal to the right triangular prism *a*B*d*-*e*F*h*. Since these two prisms have a common part ABD-*efh*, it is only necessary to prove that the remainders, viz. the solids B*a*AD*d*, F*e*FH*h* are equivalent to each other.

Because BAEF, B*ae*F are parallelograms, therefore AE = BF = *ae*; hence A*a* = E*e*. In like manner it may be proved that D*d* = H*h*. Conceive now that F*eh*, the base of the solid F*eh*, is placed on B*ad*, the base of the solid B*a*AD*d*; then, the point *e* falling on *a*, and *h* on *d*; the lines *e*E, *h*H will coincide with their equals *a*A, *d*D, because they are perpendicular to the same plane. Therefore, the two solids will coincide entirely, the one with the other; and hence it follows that the oblique prism BAD-FEH is equivalent to the right prism B*ad*-F*eh*.

In the same manner it may be demonstrated that the oblique prism BCD-FGH is equal to the right prism B*cd*-F*gh*. But the two prisms are equal (Cor. to 1), since they have the same altitude, BF and their bases are equal, they being halves of the same parallelogram; therefore the two triangular prisms BAD-FEH, BCD-FGH, which are equivalent to them, are also equivalent to each other.

Cor. Every triangular prism ABD-EFH is half a parallelopiped AG, having the same solid angle A with the same edges AB, AD, AE.

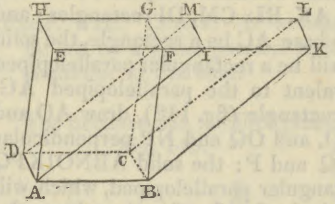
Scholium. Although the triangular prisms, into which the oblique parallelopiped is divided, are contained by equal planes, and have their solid angles equal, yet they cannot be made to coincide. The reason is, the plane angles about the corresponding solid angles are not placed in the same order. These solid angles are therefore symmetrical, and cannot be brought to coincide (18, 1). Two prisms, or two solids of any kind so constituted, are called *symmetrical solids*. An exact notion of their relation to each other may be acquired, by considering that any object, and its image reflected from a plane mirror, are symmetrical figures. They resemble each other exactly; but every part is placed in a reverse order; thus, the reflected image of a right hand is a left hand.

In symmetrical solids every circumstance on which the magnitude of each depends is the very same in both; hence it might be assumed, as an axiom in the geometry of solids, that they are equivalent.

Theorem V.—If two parallelopipeds AG, AL have a common base ABCD, and have their upper bases EFGH, IKLM in the same plane, and between the same parallels EK, HL; the two parallelopipeds are equivalent to each other.

There may be three cases, according as EI is greater or smaller than EF, or equal to it; but the demonstration is the same for them all. In the first place we shall prove that the triangular prism AEI-DHM is equal to the triangular prism BFK-CGL.

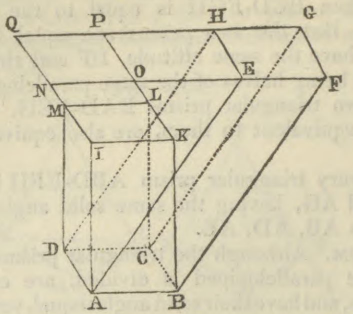
Fig. 140.



Since AE is parallel to BF, and HE to GF, the angle AEI = BFK, HEI = GFK, and HEA = GFB. Of these six angles, the three first form the solid angle E, and the three others form the solid angle F; therefore, since the plane angles are equal each to each, and similarly situated, the solid angles E and F are equal. Now, if the prism AEI-DHM be applied to the prism BFK-CGL, so that their bases AEI, BFK, which are equal, may coincide with each other; then, because the solid angle E is equal to the solid angle F, the side EH shall fall upon FG, and this is all that is necessary to prove that the two prisms coincide entirely; for the base AEI and the edge EH determine the prism AEM, and the base BFK and the edge FG determine the prism BFL (1); therefore the prisms are equal. Now, if from the solid AEL, the prism AEM be taken away, there will remain the parallelopiped AIL; and if from the same solid AEL, the prism BFL be taken away, there will remain the parallelopiped AEG; therefore the parallelopipeds AIL, AEG are equivalent to each other.

Theorem VI.—Two parallelopipeds upon the same base, and having the same altitude, are equivalent to one another.

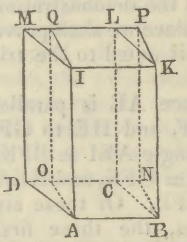
Fig. 141.



Let ABCD be the common base of the two parallelopipeds AG, AL, which, because they have the same altitude, will have their upper bases in the same plane. Then, because EF and AB are equal and parallel, as also IK and AB, EF is equal and parallel to IK (Cor. 2, 5, 1); for a similar reason GF is equal and parallel to LK. Let the sides EF, HG, as also the sides LK, IM, be produced, so as to form by their intersections the parallelogram NOPQ; it is manifest that this parallelogram is equal to each of the bases EFGH, IKLM. Now, if we suppose a third parallelopiped, which, with the same lower base ABCD, has for its upper base NOPQ, this third parallelopiped will be equivalent to the parallelopiped AG (4); for the same reason the third parallelopiped will be equivalent to the parallelopiped AL · therefore the two parallelopipeds AG, AL, which have the same base and the same altitude, are equivalent to one another.

Theorem VII.—Any parallelopiped may be changed into a rectangular parallelopiped having the same altitude, and an equivalent base. (Fig. 141 and 142.)

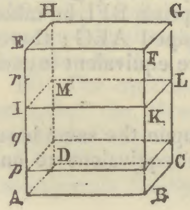
Fig. 142.



At the points A, B, C, D (fig. 141) let AI, BK, CL, DM, be drawn perpendicular to the plane ABCD, and terminating in the plane of the upper base; then, IK, KL, LM, MI, being joined, a parallelopiped AL will thus be formed, which will manifestly have its lateral faces AK, BL, CM, DI rectangles; and if the base AC be a rectangle, the solid AL will be a rectangular parallelopiped equivalent to the parallelopiped AG. But if ABCD be not a rectangle (fig. 142), draw AO and BN perpendicular to CD, and OQ and NP perpendicular to DC, meeting ML in Q and P; the solid ABNOIKPQ will manifestly be a rectangular parallelopiped, which will be equal to the parallelopiped AL; for they have the same base ABKI, and the same altitude, viz. AO; therefore the rectangular parallelopiped AP is equivalent to the parallelopiped AG (fig. 141), and they have the same altitude, and the base ABNO of the former is equivalent to the base ABCD of the latter.

Theorem VIII.—Two rectangular parallelopipeds AG, AL, which have the same base ABCD, are to each other as their altitudes AE, AI.

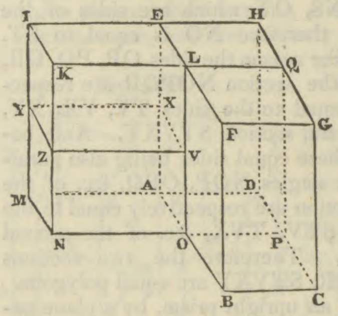
Fig. 143.



Suppose that the altitudes AE, AI are to each other as the numbers m and n, so that AE contains m such equal parts pq, &c. as AI contains n. Let AE and AI be divided into m and n equal parts respectively, and let planes pass through the points of division parallel to the base ABCD; thus the parallelopiped AG will be divided into m solids, which will also be parallelopipeds having equal bases (3) and equal altitudes, therefore they will be equal among themselves; and in like manner the parallelopiped AL will be divided into n equal solids; and as each of the solids in AG is equal to each of the solids in AL, the parallelopiped AG will contain m such equal parts as the parallelopiped AL contains n; therefore the parallelopiped AG will be to the parallelopiped AL as the number m to the number n, that is, as AE the altitude of the former to AI the altitude of the latter.

Theorem IX.—Two rectangular parallelopipeds AG, AK, which have the same altitude AE, are to each other as their bases ABCD, AMNO.

Fig. 144.



Let the two solids be placed, the one by the side of the other, as represented in the figure, and let the plane ONKI, be produced, so as to meet the plane DCGH in PQ, thus forming a third parallelopiped AQ, which may be compared with each of the parallelopipeds AG, AK. The two solids AG, AQ, having the same base ADHE, are to each other as their altitudes AB, AO (8); and, in like manner, the two solids AQ, AK having the same base AOLE, are to each other as their altitudes AD, AM; that is,

$$\text{solid AG} : \text{sol. AQ} = \text{AB} : \text{AO},$$
$$\text{sol. AQ} : \text{sol. AK} = \text{AD} : \text{AM};$$

but $\text{AB} : \text{AO} = \text{base AC} : \text{base AP}$ (3, 4, Part 1.)

and $\text{AD} : \text{AM} = \text{base AP} : \text{base AN}$,

therefore,

$$\text{sol. AG} : \text{sol. AQ} = \text{base AC} : \text{base AP},$$
$$\text{sol. AQ} : \text{sol. AK} = \text{base AP} : \text{base AN},$$

therefore, *ex æquo*,

$$\text{sol. AG} : \text{sol. AK} = \text{base AC} : \text{base AN}.$$

Theorem X.—Two rectangular parallelopipeds are to each other as the products of numbers proportional to their bases and altitudes, or as the products of the numbers which express their three dimensions. (Fig. 144.)

Let AG be a parallelopiped, the three dimensions of which are expressed by the lines AB, AD, AE, and AZ another parallelopiped the dimensions of which are expressed by the lines AO, AM, AX. Let the two solids AG, AZ be so placed, that their surfaces may have a common angle BAE; produce such of the planes as are necessary, so as to form a third parallelopiped AK, having the same altitude as the parallelopiped AG. By the last proposition,

$$\text{sol. AG} : \text{sol. AK} = \text{base AC} : \text{base AN},$$

and by the last theorem but one,

$$\text{sol. AK} : \text{sol. AZ} = \text{AE} : \text{AX};$$

but, considering the bases AC, AN as measured by numbers, as also the altitudes AE, AX, by 1 of Sect. III. Part I.

$$\text{base AC} : \text{base AN} = \text{AE} \times \text{base AC} : \text{AE} \times \text{base AN},$$
$$\text{and AE} : \text{AX} = \text{AE} \times \text{base AN} : \text{AX} \times \text{base AN},$$

therefore,

$$\text{sol. AG} : \text{sol. AK} = \text{AE} \times \text{base AC} : \text{AE} \times \text{base AN},$$
$$\text{sol. AK} : \text{sol. AZ} = \text{AE} \times \text{base AN} : \text{AX} \times \text{base AN},$$

therefore, *ex æquo*,

$$\text{sol. AG} : \text{sol. AZ} = \text{AE} \times \text{base AC} : \text{AX} \times \text{base AN};$$

which proportion, by substituting for the bases AC, AN their numerical values $AB \times AD$ and $AO \times AM$, becomes sol. AG : sol. $AZ = AB \times AD \times AE : AO \times AM \times AX$.

Scholium. Hence it appears that the product of the base of a rectangular parallelopiped by its altitude, or the product of its three dimensions, may be taken as its numerical measure; and it is upon this principle that all other solids are estimated. When two parallelopipeds are compared by means of their bases and altitudes, their bases must be considered as measured by the same superficial unit, and their altitudes by the same linear unit; thus, if P and Q denote two parallelopipeds, and the base of P contain three such equal spaces as that of Q contains four; and the altitude of P contains two such equal lines as that of Q contains five, then $P : Q = 3 \times 2 : 4 \times 5 = 6 : 20$.

If all the dimensions of each solid be used in comparing them, then, the same linear unit must be employed in estimating all the dimensions of both solids; thus, if the length, breadth, and height of the solid P be 4, 3, and 6 linear units, respectively; and those of Q, 7, 2, and 5, of the same units; then $P : Q = 4 \times 3 \times 6 : 7 \times 2 \times 5 = 72 : 70$.

As lines are compared by considering how often each contains some other line taken as a measuring unit, and surfaces, by considering how often each contains a square whose side is that unit; so solids may be compared, by considering how often each contains a cube, the side or edge of which is the same linear unit. Accordingly, the dimensions of the parallelopipeds P and Q being as above, the proportion $P : Q = 72 : 70$ may be considered as indicating that P contains 72 such equal cubes as Q contains 70.

The magnitude of a solid, its bulk, or its extension, constitutes its *solidity*, or its *content;* thus, we say, that the solidity or the content of a rectangular parallelopiped is equal to the product of its base by its altitude, or to the product of its three dimensions.

Theorem XI.—The solidity of any parallelopiped, or in general of any prism, is equal to the product of its base by its altitude.

1. Any parallelopiped is equivalent to a rectangular parallelopiped of the same altitude, and an equivalent base (7); and it has been shown that the solidity of such a parallelopiped is equal to the product of its base by its altitude.

2. Every triangular prism is the half of a parallelopiped of the same altitude, but having its base double that of the prism (3); therefore the solidity of the prism is half that of the parallelopiped, or it is half the product of the base of the parallelopiped by its altitude, that is, it is equal to the product of the base of the prism by its altitude.

3. Any other prism may be divided into as many triangular prisms as there can be triangles in the polygon which forms its base; but the solidity of each prism is equal to the product of its base by their common altitude; therefore the solidity of the whole prism is equal to the product of the sum of all their bases by the common altitude, or it is equal to the product of the base of the prism, which is the sum of them all, by its altitude.

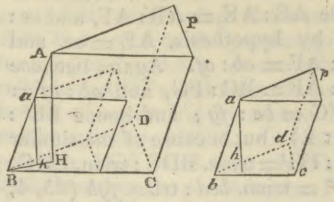
Cor. Two prisms having the same altitude are to each other as their bases; and two prisms having the same base are to each other as their altitudes.

Note. The cube of a line AB is expressed thus; $AB \times AB \times AB$, but more commonly by AB^3.

Theorem XII.—Similar prisms are to one another as the cubes of their homologous sides.

Let P and *p* be two prisms, of which BC, *bc* are the homologous sides; the prism P is to the prism *p* as a cube on the line BC to a cube on *bc*.

Fig. 145.



From A and *a*, homologous angles of the two prisms, draw AH, *ah* perpendicular to their bases BCD, *bcd*. Join BH; take $Ba = ba$, and in the plane BHA draw *ah* perpendicular to BH; then *ah* shall be perpendicular to the plane CBD (13, 1), and equal to *ah*, the altitude of the other prism; for if the solid angles B and *b* were applied the one to the other, the planes which contain them, and consequently the perpendiculars *ah*, *ah* would coincide (Schol. 18, 1).

Now, because of the similar triangles ABH, *abh*, and the similar figures AC, *ac*,

$$AH : ah = AB : ab = BC : bc;$$

and because of the similar bases,

$$\text{base } BCD : \text{base } bcd = BC^2 : bc^2 \text{ (25, 4, Part I.)}$$

From these two proportions, by considering all the quantities, as expressed by numbers (by 11, 3, Part I.),

$$AH \times \text{base } BCD : ah \times \text{base } BCD = BC^3 : bc \times BC^2,$$
$$ah \times \text{base } BCD : ah \times \text{base } bcd = bc \times BC^2 : bc^3,$$

therefore, *ex æquo*,

$$AH \times \text{base } BCD : ah \times \text{base } bcd = BC^3 : bc^3.$$

But $AH \times$ base BCD expresses the content of the prism P; and $ah \times$ base *bcd* expresses that of the other prism *p;* therefore

$$\text{prism } P : \text{prism } p = BC^3 : bc^3.$$

Cor. Similar prisms are to one another in the triplicate ratio of their homologous sides. Let S and *s* denote the homologous sides of two similar prisms P and *p*. It is manifest that

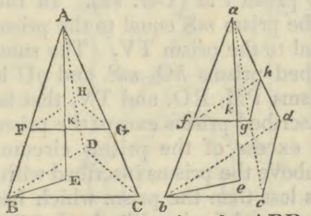
$$S^3,\ S^2s,\ Ss^2,\ s^3,$$

are four continual proportionals; therefore (Def. 11, Sect. III. Part I.), the ratio of S^3, the first, to s^3, the last, is the triplicate of the ratio of S^3, the first, to S^2s, the second; now, by the proposition, $P : p = S^3 : s^3$, and the ratio of S^3 to S^2s is the same as the ratio of S to *s;* therefore, the ratio of P to *p* is triplicate of the ratio of S to *s*.

Prop. XIII. Theor.—If a triangular pyramid A-BCD be cut by a plane parallel to its base, the section FGH is similar to the base.

For because the parallel planes BCD, FGH are cut by a third plane ABC, the sections FG, BC are parallel (7, 1). In like manner it appears that FH is parallel to BD; therefore the angle HFG is equal to the angle DBC (10, 1.) And because the triangle ABC is similar to the triangle AFG, and the triangle ABD is similar to the triangle AFH, we have

Fig. 146.



$$BC : BA = FG : FA, \text{ and } BA : BD = FA : FH.$$

Therefore, *ex æquali*, $BC : BD = FG : FH$; now the angle DBC has been shown to be equal to the angle HFG; therefore the triangles DBC, HFG are equiangular (20, 4, Part I.)

Prop. XIV. Theor.—If two triangular pyramids A-BCD, *a-bcd*, which have equivalent bases and equal altitudes, be cut by planes that are parallel to the bases, and at equal distances from them; the sections FGH, *fgh* will be equal. (Fig. 146.)

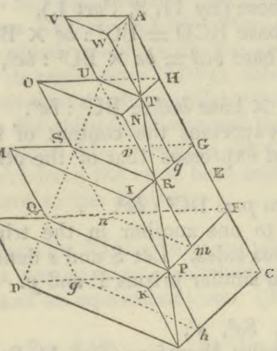
Draw AKE, *ake* perpendicular to the bases BCD, *bcd*, meeting the cutting planes in K and *k*; then, because of the parallel planes, we have $AE : AK = AB : AF$, and $ae : ak = ab : af$ (15, 1); but, by hypothesis, $AE = ae$, and $AK = ak$; therefore, $AB : AF = ab : af$. Again, because of similar triangles, $AB : AF = BC : FG$, and $ab : af = bc : fg$; therefore $BC : FG = bc : fg$; and hence $BC^2 : FG^2 = bc^2 : fg^2$ (23, 4, Part I.); but because of the similar triangles BDC, FHG, $BC^2 : FG^2 =$ trian. BDC : trian. FHG, and in like manner $bc^2 : fg^2 =$ trian. *bcd* : trian. *fgh* (25, 4, Part I.), therefore

trian. BCD : trian. FGH = trian. *bcd* : trian. *fgh*.

Now, trian. BCD = trian. *bcd* (by hypothesis), therefore the triangle FHG is equal to the triangle *fhg*.

Theorem XV.—A series of prisms of the same altitude may be circumscribed about any pyramid ABCD, such, that the sum of the prisms shall exceed the pyramid by a solid less than any given solid Z.

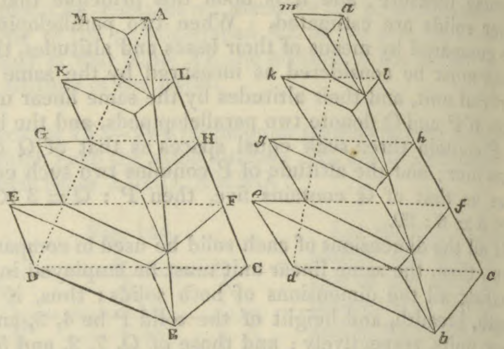
Fig. 147.



Let Z denote a prism standing on the same base with the pyramid, viz. the triangle BCD, and having for its altitude the perpendicular drawn from a certain point E in the line AC upon the plane BCD. It is evident that CE multiplied by a certain number *m* will be greater than AC; divide CA into as many equal parts as there are units in *m*, and let these be CF, FG, GH, HA, each of which will be less than CE. Through each of the points F, G, H, let planes be made to pass parallel to the plane BCD, making with the sides of the pyramid the sections FPQ, GRS, HTU, which will be all similar to one another, and to the base BCD (13). From the point B draw in the plane of the triangle ABC the straight line BK parallel to CF, meeting FP produced in K. In like manner, from D draw DL parallel to CF, meeting FQ in L; join KL, and it is plain that the solid KBCDLF is a prism. By the same construction let the prisms PM, RO, TV be described. Also let the straight line IP, which is in the plane of the triangle ABC, be produced till it meet BC in *h*; and let the line MQ be produced till it meet DC in *g*. Join *hg*, then *h*C*g* QFP is a prism; and is equal to the prism PM (Cor. 11). In the same manner is described the prism *m*S equal to the prism RO, and the prism *q*U equal to the prism TV. The sum, therefore, of all the inscribed prisms *h*Q, *m*S, and *q*U is equal to the sum of the prisms PM, RO, and TV, that is, to the sum of all the circumscribed prisms except the prism BL; wherefore, BL is the excess of the prisms circumscribed about the pyramid above the prisms inscribed within it. But the prism BL is less than the prism which has the triangle BCD for its base, and for its altitude the perpendicular from E upon the plane BCD, which prism is, by hypothesis, equal to the given solid Z; therefore the excess of the circumscribed above the inscribed prisms is less than the solid Z. But the excess of the circumscribed prisms above the inscribed is greater than their excess above the pyramid ABCD, because ABCD is greater than the sum of the inscribed prisms; much more therefore is the excess of the circumscribed prisms above the pyramid less than the solid Z. A series of prisms of the same altitude has therefore been circumscribed about the pyramid ABCD exceeding it by a solid less than the given solid Z.

Prop. XVI. Theor.—Pyramids that have equal bases and altitudes are equal to one another.

Fig. 148.

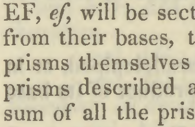


Let A-BCD, *a-bcd* be two pyramids that have equal bases BCD, *bcd*, and equal altitudes; viz. the perpendiculars drawn from the vertices A and *a* upon the planes BCD, *bcd*, the pyramid A-BCD is equal to the pyramid *a-bcd*.

For if they are not equal, let Z represent the solid which is equal to the excess of one of them, *a-bcd*, above the other A-BCD; and let a series of prisms CE, FG, HK, LM, of the same altitude be circumscribed about the pyramid A-BCD, so as to exceed it by a solid less than Z, which is always possible (15); also let a series of prisms, *ce*, *fg*, *hk*, *lm*, equal in number to the other, and of the same altitude, be circumscribed about the pyramid *a-bcd*. And because the pyramids have equal altitudes, and the number of prisms described about each is the same, the altitudes of the prisms will be all equal, and the bases of the corresponding prisms in the two pyramids, as EF, *ef*, will be sections of the pyramids at equal distances from their bases, therefore they are equal (14), and the prisms themselves are equal (1), and the sum of all the prisms described about the one pyramid is equal to the sum of all the prisms described about the other pyramid. To abridge, put P and *p* to denote the pyramids A-BCD, and *a-bcd* respectively, and Q and *q* to express the sums of the prisms described about them. Then, because by hypothesis $Z = p - P$, and by construction $Z > Q - P$, therefore $p - P > Q - P$, hence *p* must be greater than Q; but Q is equal to *q*, therefore *p* must be greater than *q*, that is, the pyramid *p* is greater than *q*, the sum of the prisms described about it, which is impossible; therefore the pyramids P, *p* are not unequal, that is, they are equal.

Theorem XVII.—Every prism having a triangular base may be divided into three pyramids that have triangular bases, and that are equal to one another.

Fig. 149.



Let ABC, DEF be the opposite bases of a triangular prism. Join AE, EC, CD; and because ABED is a parallelogram, of which AE is the diameter, the triangle ADE is equal to the triangle ABE; therefore the pyramid of which the base is the triangle ADE and vertex the point C, is equal to the pyramid of which the base is the triangle ABE, and vertex the point C. But the pyramid of which the base is the triangle ABE and vertex the point C, that is, the pyramid ABCE, is equal to the pyramid DEFC (16), for they have equal bases, viz. the triangles ABC, DFE, and the same altitude, viz. the altitude of the prism ABCDEF. Therefore, the three pyramids ADEC, ABEC, DFEC are equal to one another; but these pyramids make up the whole prism ABCDEF; therefore, the prism ABCDEF is divided into three equal pyramids.

Cor. 1. From this it is manifest that every pyramid is the third part of a prism which has the same base and the same altitude with it; for if the base of the prism be any other figure than a triangle, it may be divided into prisms having triangular bases.

Cor. 2. Pyramids having equal altitudes are to one another as their bases; because the prisms upon the same bases, and of the same altitude, are to one another as their bases.

SECT. III.—OF CYLINDERS, CONES, AND THE SPHERE.

Definitions.

I. A *Cylinder* is a solid figure described by the revolution of a right-angled parallelogram about one of its sides, which remains fixed.

The *Axis* of the cylinder is the fixed straight line about which the parallelogram revolves.

The *Bases* of the cylinder are the circles described by the two revolving opposite sides of the parallelogram.

II. A *Cone* is a solid figure described by the revolution of a right-angled triangle about one of the sides containing the right angle, which side remains fixed.

The *Axis* of the cone is the fixed line about which the triangle revolves.

The *Base* of the cone is the circle described by that side containing the right angle which revolves.

III. A *Sphere* is a solid figure described by the revolution of a semicircle about a diameter.

The *Axis* of a sphere is the fixed line about which the semicircle revolves.

The *Centre* of a sphere is the same with that of the semicircle.

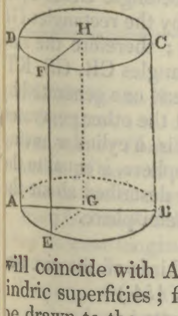
The *Diameter* of a sphere is any straight line which passes through the centre, and is terminated both ways by the superficies of the sphere.

IV. *Similar* cones and cylinders are those which have their axes and diameters of their bases proportional.

Theorem I. If from any point E in the circumference of the base of a cylinder ABCD, a perpendicular EF be drawn to the plane of the base AEB; the straight line EF is wholly in the cylindric superficies.

Let GH be the axis, and AGHD the rectangle, which by its revolution describes the cylinder. Because HG is perpendicular to AG in every position of the revolving rectangle, it is perpendicular to the plane of the circle described by AG; and because AD, the line which describes the cylindric superficies, is parallel to GH, it is also perpendicular to the plane of that circle (5, 1). Now when by the revolution of the rectangle AGHD the point A coincides with the point E, the line EF will coincide with AD, and thus will be wholly in the cylindric superficies; for otherwise two perpendiculars might be drawn to the same plane, from the same point, which is impossible (2 Cor. 4, 1).

Fig. 150.

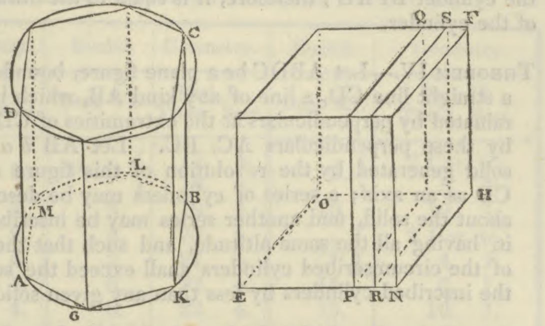


Theorem II.—A cylinder and a parallelopiped having equivalent bases, and the same altitude, are equal to one another.

Geometry of Solids.

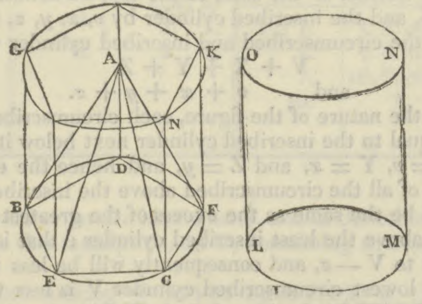
Let ABCD be a cylinder and EF a parallelopiped having equivalent bases, viz. the circle AGB and the parallelogram EH, and having also equal altitudes; the cylinder ABCD is equal to the parallelopiped EF. If not, let them be unequal; and first let the cylinder be less than the parallelopiped EF; and from the parallelopiped EF let there be cut off a part EQ by a plane PQ parallel to NF, equal to the cylinder ABCD. In the circle AGB inscribe the polygon AGKBLM that shall differ from the circle by a space less than the parallelogram PH (1 Cor. 2, 6, P. I.), and cut off from the parallelogram EH a part OR equal to the polygon AGKBLM, then it is manifest that the parallelogram OR is greater than the parallelogram OP, therefore the point R will fall between P and N. On the polygon AGKBLM let an upright prism be constituted of the same altitude with the cylinder, which will therefore be less than the cylinder, because it is within it (1); and if through the point R a plane RS parallel to NF be made to pass, it will cut off the parallelopiped ES equal to the prism AGBC, because its base is equal to that of the prism, and its altitude is the same. But the prism AGBC is less than the cylinder ABCD, and the cylinder ABCD is equal to the parallelopiped EQ, by hypothesis; therefore, ES is less than EQ, and it is also greater, which is impossible. The cylinder ABCD therefore is not less than the parallelopiped EF; and in the same manner it may be shown not to be greater than EF, therefore they are equal.

Fig. 151.



Theorem III.—If a cone and cylinder have the same base and the same altitude; the cone is the third part of the cylinder.

Fig. 152.



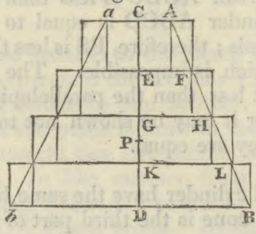
Let the cone ABCD and the cylinder BFKG have the same base, viz. the circle BCD, and the same altitude, viz. the perpendicular from the point A upon the plane BCD; the cone ABCD is the third part of the cylinder BFKG. If not, let the cone ABCD be the third part of another cylinder LMNO having the same altitude with the cylinder BFKG; but let the bases BCD, LIM be unequal, and first let BCD be greater than LIM. Then, because the circle BCD is greater than the circle LIM, a polygon may be inscribed in BCD that shall differ from it less than LIM does (1 Cor. 2, 6, P. I.), and which therefore will be greater than

LIM. Let this be the polygon BECFD, and upon BECFD let there be constituted the pyramid ABECFD, and the prism BCFKHG. Because the polygon BECFD is greater than the circle LIM, the prism BCFKHG is greater than the cylinder LMNO, for they have the same altitude, but the prism has the greater base. But the pyramid ABECFD is the third part of the prism BCFHG (17, 1); therefore it is greater than the third part of the cylinder LMNO. Now the cone ABECFD is by hypothesis the third part of the cylinder LMNO; therefore, the pyramid ABECFD is greater than the cone ABCD, and it is also less, because it is inscribed to the cone, which is impossible. Therefore the cone ABCD is not less than the third part of the cylinder BFKG. And in the same manner, by circumscribing a polygon about the circle BCD, it may be shown, that the cone ABCD is not greater than the third part of the cylinder BFKG; therefore, it is equal to the third part of the cylinder.

Theorem IV.—Let ABDC be a plane figure, bounded by a straight line CD, a line of any kind AB, which is terminated by perpendiculars at the extremities of CD, and by these perpendiculars AC, BC. Let AB $b\,a$ be a solid generated by the revolution of this figure about CD as an axis; a series of cylinders may be described about the solid, and another series may be inscribed in it, having all the same altitude, and such that the sum of the circumscribed cylinders shall exceed the sum of the inscribed cylinders by less than any given solid S.

Let S denote a solid which is a cylinder, having Bb for the diameter of its base, and DP for its height. Suppose the fixed axis CD to be divided into a number of equal parts DK, KG, GE, EC, each less than DP. In the plane of the figure ABDC, draw perpendiculars EF, GH, KL to meet the line AB in F, H, L. Construct the inscribed rectangles AE, FG, HK, LD, also the circumscribed rectangles CF, EH, GL, KB. By the rotation of the plane figure about the axis CD, these rectangles will evidently generate a series of cylinders inscribed in the solid, and another series described about it. Let the circumscribed cylinders, reckoned from the bottom of the solid to the top, be denoted by V, X, Y, Z, and the inscribed cylinder by v, x, y, z, then the sums of the circumscribed and inscribed cylinder will be

Fig. 153.



$$V + X + Y + Z,$$

and $$v + x + y + z.$$

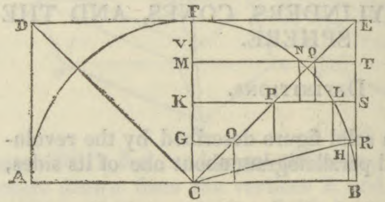
Now by the nature of the figure, each circumscribed cylinder is equal to the inscribed cylinder next below it; therefore $X = v$, $Y = x$, and $Z = y$, and hence the excess of the sum of all the circumscribed above the inscribed cylinders will be the same as the excess of the greatest circumscribed above the least inscribed cylinder; that is, it will be equal to $V - z$, and consequently will be less than V; but the lowest circumscribed cylinder V is less than the solid S, because it has the same base (viz. the circle having for its diameter B b), and a less altitude KD, by construction; therefore the excess of the series of circumscribed above the series of inscribed cylinders is less than the given solid S.

Cor. The difference between the solid AB ba and either of the two series of cylinders will be less than the greatest circumscribed cylinder: For the solid AB ba is greater than the one series of cylinders and less than the other; therefore it will differ from either series by a quantity less than the difference between the two.

Theorem V.—If a cone and hemisphere have equal bases and altitudes, and if a series of cylinders be described about the cone, and another series be inscribed in the hemisphere, and the cylinders have all the same altitude; the sum of the two series will be equal to a cylinder having the same base and altitude as the hemisphere.

Let AFB be a semicircle, and CFDA, CFEB, squares described on the radius CF, and let CE be the diagonal of one of the squares BF: Let CF be divided into any number of equal parts CG, GK, KM, MF; and let perpendiculars be drawn through the points of division, meeting the diagonal CE, in the points O, P, Q; the quadrantal arc BF in the points H, L, N; and the side of the square in the points R, S, T; construct the rectangles CO, GP, KQ, ME, which will circumscribe the triangle CFE; construct also the rectangles CH, GL, KN, which will be inscribed in the quadrant CFB. Suppose now the plane of the square to revolve about its side CF as an axis; the triangle CFE will then generate a cone, which will have DE for the diameter of its base, and C for its vertex; the quadrant CFB will generate a hemisphere, having for its base a circle of which AB is a diameter; and the square CBEF will generate a cylinder, having the same base and altitude as the hemisphere: also, the rectangles described about the triangle CFE will manifestly generate a series of cylinders circumscribing the cone; the rectangles inscribed in the quadrant will generate a series of cylinders inscribed in the hemisphere; and the rectangles CR, GS, KT, ME will generate a series of cylinders which will compose a cylinder having the same base and altitude as the hemisphere.

Fig. 154.



The triangles CFE, CGO are manifestly similar, and $CF = FE$; therefore $CG = GO$. In like manner, it may be proved that $CK = KP$ and that $CM = MQ$.

Join CH, and because CGH is a right-angled triangle, a circle described with CH as a radius will be equal to two circles described with CG and GH as radii (2 Cor. 4, 6, Part I.), but $CG = GO$, and $CH = GR$; therefore a circle described with GR as a radius will be equal to two circles described with GO and GH as radii; hence again it follows, that the cylinder generated by the rectangle CR will be equal to both the cylinders generated by the rectangles CO and CH, for they have all the same altitude, and the base of the first is equal to the sum of the bases of the other two. It may be demonstrated in the same manner that the cylinder generated by the rectangle GS is equal to the sum of the cylinders generated by the rectangles GP and GL, and the same of all the rest; therefore the sum of the cylinders generated by the rectangles CR, GS, KT, ME is equal to the two series of cylinders, one generated by the rectangles CO, GP, KQ, ME, and the other generated by the rectangles CH, GL, KN; that is, a cylinder having the same base and altitude as the hemisphere, is equal to the sum of the two series of cylinders, one described about the cone, and the other described in the hemisphere.

Theorem VI.—Every sphere is two thirds of the circumscribing cylinder. (Fig. 154.)

Let a figure be constructed exactly as is last proposition; and to abridge, let C denote the cone, c the series of cylinders described about it, H the hemisphere, h the cylinders described in it, and K the cylinder having the same base and altitude as the hemisphere, or cone. Moreover, put d

or the difference between the cone and its circumscribed cylinders, and d' for the difference between the hemisphere and its inscribed cylinders; then we have

$$C + d = c, \text{ and } H = h + d',$$

and adding equals to equals,

$$C + H + d = c + h + d'.$$

But $c + h = K$ (5); therefore, $C + H + d = K + d'$, nd $C + H + d - d' = K$, also $C + H = K + d' - d$. Hence it appears that the difference between $C + H$ and K is equal to the difference between d and d'. Now d is ess than the cylinder generated by the rotation of the rectngle ME (Cor. to Prop. 4), and d' is less than the cylinder enerated by the rectangle CR, which is equal to ME; herefore the difference between d and d' must be less than the same rectangle; hence the difference between $C + H$ and K is less than the cylinder generated by the revolution of the rectangle ME, or is less than a cylinder having the same base as the cone, and the line FM for its altitude. From this we may infer, that $C + H$ is exactly equal to K; for if there can be any difference, let it be a cylinder having the same base as the cone, and its altitude equal to FV; then FM must be greater then FV; but the number of parts into which FC is divided may be so great that FM may be less than FV; therefore $C + H$ cannot be unequal to K; and since $C + H = K$, and $C = \frac{1}{3}K$ (3), therefore $H = \frac{2}{3}K$; that is, the hemisphere is two thirds of its circumscribing cylinder; and taking the doubles of these, the whole sphere is two thirds of its circumscribing cylinder.

Table showing the Theorem of the foregoing Treatise, that corresponds to each of the principal Propositions in the first Six and in the Eleventh and Twelfth Books of Euclid's *Elements*.

Euclid.	Geometry.
Book I.	Part I. Theor. Sect.
Prop. 4.	5. 1.
5.	11. 1.
6.	12. 1.
8.	10. 1.
13.	1. 1.
14.	3. 1.
15.	4. 1.
16.	23. 1.
17.	24. 1.
18. 19.	13. 1.
20.	7. 1.
21.	8. 1.
24. 25.	9. 1.
26.	6. 1.
27. 28.	22. 1.
29.	21. 1.
30.	20. 1.
32.	23. 24. 1. 25.
33.	28. 1.
34.	26. 1.
35. 36.	1. 4.
37. 38.	2 Cor. to 2. 4.

Euclid.	Geometry.
Book I.	Part I. Theor. Sect.
Pr. 41.	2. 4.
47.	13. 4.
48.	Scholium 15. 4.
Book II.	Theor. Sect.
Pr. 4.	10. 4.
5. 6.	12. 4.
7.	11. 4.
12.	15. 4.
13.	14. 4.
Book III.	Theor. Sect.
Pr. 2.	3. 2.
3.	6. 2.
10.	Cor. to 7. 2.
11. 12.	12. 2. 11. 2.
14.	8. 2.
15.	2. 2. 8. 2.
16.	9. 2.
20.	14. 2.
21.	15. 2.
22.	16. 2.
26. 27.	13. 2.

Euclid.	Geometry.
Book III.	Part I. Theor. Sect.
Pr. 28. 29.	4. 2.
31.	17. 2.
32.	18. 2.
35.	28. 4.
36.	29. 4. 30. 4.
Book V.	Theor. Sect.
Pr. 4.	7. 3.
12.	12. 3.
15.	1. 3.
16.	3. 3.
17.	5. 3.
18.	4. 3.
22.	8. 3.
23.	9. 3.
24.	10. 3.
Book VI.	Theor. Sect.
Pr. 1.	Cor. to 5. 4. Cor. to 6. 4.

Euclid.	Geometry.
Book VI.	Part I. Theor. Sect.
Pr. 2.	17. 4. 18. 4.
3.	19. 4.
4.	20. 4.
5.	21. 4.
6.	22. 4.
8.	23. 4.
14. 15.	Cor. 24. 4.
16. 17.	8. 4.
19.	25. 4.
20.	26. 4. 27. 4.
31.	1 Cor. to 27. 4.
33.	31. 4.
Book XI.	Part. II. Theor. Sect.
Pr. 1.	1. 1.
2.	2. 1.
3.	3. 1.
4.	4. 1.
6.	1 Cor. to 5. 1.
8.	5. 1.

Euclid.	Geometry.
Book XI.	Part II. Theor. Sect.
9.	2 Cor. to 5. 1.
10.	10. 1.
13.	2 Cor. to 4. 1.
14.	6. 1.
15.	10. 1.
16.	7. 1.
17.	15. 1.
18.	12. 1.
19.	14. 1.
20.	16. 1.
21.	17. 1.
A.	18. 1.
24.	12. 2.
25.	9. 2.
28.	4. 2.
29.	5. 2.
30. 31.	6. 2.
32.	9. 2.
33.	12. 2.
Book XII.	Part II. Theor. Sect.
Pr. 1.	1. 6. of Part I.
2.	4. 6. of Part I.
7.	16. 2. of Part II.
10.	3. 3.

(R.)

GEORGE I. II. III. and IV. kings of Great Britain. See BRITAIN.

GEORGE, or *Knights of* ST GEORGE, has been the denomination of several military orders, of which that of the Garter is one of the most illustrious.

King GEORGE'*s Islands* are two islands in the South Seas, ying in west longitude 144. 56. and south latitude 14. 28. ee POLYNESIA.

GEORGE, ST, or GEORGE *of Cappadocia*, a name by which everal orders, both military and religious, are denominated. It took its rise from a saint or hero famous throughut all the East, called by the Greeks Μεγαλομαρτυς, or the Great Martyr.

On some medals of the emperors John and Manuel Comneni may be seen the figure of St George armed, holding a sword or javelin in one hand, and in the other a buckler, with this inscription, an O, containing therein A, and ΓΕ$\overset{\text{P}}{\underset{\text{O}}{—}}$ΓΙΟC, making Ο ΑΓΙΟΣ ΓΕΟΡΓΙΟΣ, or the Holy George. He is generally represented on horseback, being supposed to have frequently engaged in combat in that manner. He is highly venerated throughout Armenia, Muscovy, and all the countries which adhere to the Greek ritual; from the Greek his worship has long ago been received into that of the Latin church; and England and Portugal have both chosen him as their patron saint.

Great difficulties have been raised about this saint or hero, whose very existence has been called in question. Dr Heylin, who wrote most largely concerning him, con-

George.

cluded by giving him up entirely, and supposing him only a symbolical device; whilst Dr Pettingal turned him into a mere Basilidian symbol of victory. But Mr Pegg, in a paper in the *Archæologia*, attempted to restore the hero; and, finally, Mr Gibbon sunk him into an Arian bishop in the reigns of Constantius and Julian.

GEORGE *the Cappadocian* was so surnamed, according to some, from his parents or education, and was born at Epiphania, in Cilicia, in a fuller's shop. From this obscure and servile origin he raised himself by the talents of a parasite; and the patrons whom he had assiduously flattered procured for their worthless dependent a lucrative commission or contract to supply the army with bacon. His employment was mean, and he rendered it infamous. He accumulated wealth by the basest arts of fraud and corruption; but his malversations were so notorious that he was at length compelled to escape from the pursuit of justice. After this disgrace, in which he appears to have saved his fortune at the expense of his character, he embraced, with real or affected zeal, the profession of Arianism. From the love or the ostentation of learning, he collected a valuable library of history, rhetoric, philosophy, and theology; and the choice of the prevailing faction promoted George of Cappadocia to the throne of Athanasius. His conduct in this station is represented by historians as polluted by cruelty and avarice, and his death is considered as a just punishment for the enormities of his life, amongst which Mr Gibbon seems to rank his enmity to the gods.

The immediate occasion of his death, however, as narrated by ecclesiastical writers, does not appear calculated to add any stain to his memory. There was in the city of Alexandria a place in which the heathen priests had been accustomed to offer human sacrifices. This place, as being of no use, Constantius gave to the church of Alexandria, and George the bishop issued orders that it should be cleared in order to build a Christian church on the spot. In doing this they discovered an immense subterranean cavern, in which the heathen mysteries had been performed, and where there were many human skulls. These, and other things which they found in the place, the Christians brought out and exposed to public ridicule. Provoked at this exhibition, the heathens suddenly took arms, and rushing upon the Christians, killed many of them with swords, clubs, and stones; some also they strangled, and several they crucified. The Christians, therefore, proceeded no farther in clearing the temple; but the heathens, pursuing their advantage, seized the bishop whilst he was in the church, and threw him into prison. The next day they dispatched him; and then fastening the body to a camel, they dragged it about the streets all day, and in the evening burned the corpse and the camel together. This fate, according to Sozomen, the bishop owed in part to his haughtiness whilst in favour with Constantius; and some think that the friends of Athanasius were concerned in this murder; but the former ascribes it chiefly to the inveteracy of the heathens, whose superstitions he had been active in abolishing.

This George, the Arian bishop of Alexandria, was a man of letters, and had a valuable library, which Julian ordained to be seized for his own use. In his orders concerning the collection, he says that many of the books were on philosophical and rhetorical subjects, though many of them related to the doctrine of the impious Galileans, as he affected to call the Christians. "These books," says he, "I could wish to have utterly destroyed; but lest books of value should be destroyed along with them, let those also be carefully sought for."

But Mr Gibbon gives a different version of the affair of George's murder, which he relates with different circumstances. "The Pagans," says he, "excited his devout avarice; and the rich temples of Alexandria were either pillaged or insulted by the haughty prelate, who exclaimed, in a loud and threatening tone, 'How long will these sepulchres be permitted to stand?' Under the reign of Constantius, he was expelled by the fury, or rather by the justice, of the people; and it was not without a violent struggle that the civil and military powers of the state could restore his authority, and gratify his revenge. The messenger who proclaimed at Alexandria the accession of Julian, announced the downfall of the archbishop. George, with two of his obsequious ministers, Count Diodorus, and Darcontius, master of the mint, was ignominiously dragged in chains to the public prison. At the end of twenty-four days, the prison was forced open by the rage of a superstitious multitude, impatient of the tedious forms of judicial proceedings. The enemies of gods and men expired under their cruel insults; the lifeless bodies of the archbishop and his associates were carried in triumph through the streets on the back of a camel; and the inactivity of the Athanasian party was esteemed a shining example of evangelical patience. The remains of these guilty wretches were thrown into the sea; and the popular leaders of the tumult declared their resolution to disappoint the devotion of the Christians, and to intercept the future honours of these martyrs, who had been punished, like their predecessors, by the enemies of their religion. The fears of the Pagans were just, and their precautions ineffectual. The meritorious death of the archbishop obliterated the memory of his life. The rival of Athanasius was dear and sacred to the Arians, and the seeming conversion of these sectaries introduced his worship into the bosom of the Catholic church. The odious stranger, disguising every circumstance of time and place, assumed the mask of a martyr, a saint, and a Christian hero; and the infamous George of Cappadocia has been transformed into the renowned St George of England, the patron of arms, of chivalry, and of the Garter."

Knights of ST GEORGE. See GARTER. There have been various other orders under this denomination, most of which are now extinct, particularly one founded by the Emperor Frederick III. in the year 1470, to guard the frontiers of Bohemia and Hungary against the Turks; and another, called St George of Alfama, founded by the kings of Aragon; and another in Austria and Carinthia.

Religious of ST GEORGE. Of these there were different orders and congregations, particularly canons regular of St George in Alga, at Venice, established by authority of Pope Boniface IX. in the year 1404. The foundation of this order was laid by Bartolomeo Colonna, who preached in 1396 at Padua, and some other villages in the state of Venice. Pope Pius V. in 1570, gave these canons precedence over all other religious orders.

ST GEORGE, a fort and town of Asia, in the peninsula on this side the Ganges, and on the coast of Coromandel, belonging to the British. It is otherwise called *Madras*, and by the natives *Chilipatam*. See MADRAS.

ST GEORGE'S, the largest of the Bermuda or Summer Islands. Long. 65. 10. W. Lat. 32. 30. N.

Cross of ST GEORGE, a red cross in a field argent, forming part of the British standard.

GEORGE, LAKE, a lake in the state of New York, North America. It lies to the south of Lake Champlain, and communicates with it. Lake George is a romantic and beautiful sheet of water, about thirty-seven miles in length, and from one to four or five miles in breadth. It is remarkable for the transparency of its waters, which contain an abundance of excellent fish. The lake is in general very deep, and interspersed with numerous islands, one of which, Diamond Island, formerly possessed a fort.

GEORGE'S CHANNEL, a dangerous passage in the Eastern Seas, between the great Nicobar Island and the others.

Georgia.

The danger in this passage arises from the rapidity with which the tide runs, which is at the rate of about five miles an hour, and from rocks, so that it is not safe for any vessel to enter it.

GEORGETOWN, the chief town of Prince of Wales' Island, which is well built, having spacious streets running at right angles. It is bounded on the north and east by the sea, and on the west by a high road.

GEORGETOWN, a post-town and port of entry in Washington county, district of Columbia, in North America. It is situated on the north-eastern bank of the Potomac, about two hundred miles from its mouth, and three from Washington, the capital. It possesses several public buildings, institutions, places of public worship, schools, and the like, and is a place of considerable trade. In consequence of the difficulties of navigation occasioned by a bar about three miles below the town, a considerable part of the produce is sent to Alexandria for exportation. Georgetown College is a Catholic institution, under the direction of the incorporated Catholic clergy of Maryland. The population of this town in 1830 amounted to 8441.

GEORGETOWN, a post-town, port of entry, and capital of Georgetown district, in South Carolina. It is situated on the west side of Winyaw Bay, about sixty miles north-north-east of Charleston. It enjoys some trade, and possesses the usual public buildings, together with a population of about 2000.

GEORGIA, or GRUSIA. This extensive tract of country, which is situated between the Black and the Caspian Seas, now forms a province of Russia by the encroachments of that power on the side of Persia. It is diversified by great inequalities of surface; but contains many fertile and beautiful valleys, which are finely contrasted with the mountainous character of the regions of Caucasus. The hills are clothed with the finest woods, consisting of oak, ash, chestnut, beech, and elm. Some vines grow perfectly wild, producing the finest grapes; and the wines produced have always, according to the report of Sir R. K. Porter, been esteemed for softness, lightness, and delicacy of taste. The valleys are extremely fertile, producing cotton, as well as the finest European fruit trees, and abundance of hemp, flax, rice, millet, barley, and wheat. The country is copiously watered by the rivers which flow from the mountains, and produce great variety of delicious fish. Pheasants, wild fowl of every kind, antelopes, deer, sheep, with all sorts of domestic cattle, are found in the valleys. In the mountains are found mines of gold, silver, and other minerals. The habits of the people are such as might be expected in their low state of civilization. A struggle for independence was long maintained by the Georgians against the inroads of Persia. But it was at last reduced into a province of that vast monarchy, and it was afterwards the arena of the Persian and Russian wars, by which the country was ravaged; and the people, far from being naturally industrious, appeared to despise every pursuit which required labour. They neglected agriculture, and were often engaged in intestine wars, or in forays on their neighbours for the sake of plunder; and were frequently exposed, in consequence, to severe retaliation from the Lesghees, a barbarous tribe, subsisting, like most of the mountain tribes of Asia, by pillage. But about the year 1800 it was reduced into a province of the Russian empire; and, under the iron rule of that despotic power, order has been re-established, the traveller has been protected from robbery, commerce and agriculture begin to be followed, and a favourable revolution appears to have taken place in the habits and manners of the people. Sir R. K. Porter, who has given an interesting account of these newly-conquered provinces, mentions that the different European governors have generally endeavoured to conciliate the people and the nobles, and that the country being now effectually guarded from the destructive inroads of plundering banditti or foreign enemies, the nobles begin to feel the importance of the station they hold in the country; whilst they have been still further countenanced by the distribution of medals and orders of distinction amongst the leading men, with titles also and commissions of military rank in the Russian armies. The Georgians are tall and well formed. The Georgian noble is distinguished by a sombre cast of visage, which, though stern, is of a fine contour, and harmonizes well with the minuteness of his figure, and the style of his dress, which consists of an under garment of fine pink cloth worn as a shirt, but leaving the neck entirely bare; a vest of cloth with sleeves sitting easy on the arm; a tunic descending over this to the knees, opening before, and bound round with a white sash, to which is attached the sword; trousers to the knees; whilst a sort of stocking, and a close-laced half boot, complete this picturesque costume. The Georgian women equal the men in grace, and are famed all over the East. Their dress is cumbersome and overloaded with ornament, and the face painted so as entirely to injure its expression. Under its gallant prince Heraclius, Georgia rose to the dignity of a separate kingdom. This country originally included nearly the whole northern declivity of the Caucasus, extending from the Black Sea to the Caspian. It is now divided into the four provinces of Cartuel, Kaket or Kacheti, Kisik called sometimes Tomchet, and Georgian Armenia. The inhabitants consist chiefly of Christians of the Greek communion; to which are added Jews, Tartars, Armenians, and Russians. The chief rivers are the Kur and the Araxes, which fall into the Caspian. The chief, and indeed the only place of any consequence, is Tiflis, which, under the protecting policy of Russia, has rapidly grown up into a considerable mart of eastern commerce, and is on the increase. The inhabitants are not estimated at more than 320,000.

GEORGIA, one of the United States of North America, is situated between 30. 19. and 35. north latitude, and 3. 52. and 8. 47. west longitude. It is bounded on the north by Tennessee and North Carolina, on the north-east by South Carolina, on the south-east by the Atlantic, on the south by Florida, and on the west by Alabama. In length it extends 300 miles, having an average breadth of about 200 miles, and containing about 58,000 square miles. For nearly 100 miles along the sea-shore there is a broad maritime belt of level country. Along the coast there are a number of islands; whilst the numerous rivers, creeks, and inlets of the sea overflow the swamps or marshes with which they are bordered at almost every return of the tide. These swamps, however, constitute the rice plantations. Beyond the sea-marshes commences an extensive belt of pine barrens, extending from sixty to ninety miles from the sea, and closely resembling those of South Carolina. Beyond this belt the country becomes diversified with hills and mountains, and possesses a strong rich soil, called technically *mulatto soil.* This region is bounded on the west by a chain of hills called the Blue Ridge, which here swells into elevations about 1500 feet in height. An extensive track of table-land now succeeds, possessing a black soil of great fertility, in which pines and evergreens are more rare, their place being supplied by black walnut and other forest trees, which indicate a rich soil.

The principal rivers are, the Savannah, Ogeechee, Alatamaha, Satilla, Oakmulgee, Oconee, St Mary's Flint, Chatahoochee, Tallapoosa, and Coosa. Tides flow up the Savannah for twenty-five miles, and the largest vessels can approach within three miles of the city of Savannah, eighteen miles from the ocean. The Ogeechee river pursues a south-east course through the state for 200 miles. A canal from the Savannah to the Ogeechee has been finished, and it is in contemplation to extend it to the Ala-

Georgia. tamaha, which will make in all seventy-two miles. The latter river is a broad and deep stream, having numerous branches.

Amongst the mineral productions of Georgia may be mentioned copper and iron ores, the latter being found in great abundance. The gold region extends in a broad belt through this state; and it is conjectured that gold would be found much more abundantly in the high lands of Georgia and Alabama than in the eastern section of the gold region.

In front of the broad belt of salt marsh which skirts the sea-shore, there is a chain of islands of great value for their capability of yielding sea-island cotton, and as retreats, during the sickly months, for the low country planters. The soil of these islands is rich, and covered with pine, hickory, and live oak, in their natural state. The names of the principal of these are, Tybee, Assaw, Ossabaw, St Catherine's, Cumberland, Jekyl, Sapelo, and St Symon's.

The climate is similar to that of South Carolina; indeed in a variety of its features Georgia resembles that state. The low countries have their sickly season, and the planters are compelled to fly in summer to retreats amongst the high pine woods. The districts central to the rice swamps are invariably insalubrious. In some portions of Georgia the temperature approaches the tropical more than it does in any part of South Carolina, and these districts are accordingly better adapted to the cultivation of the sugarcane, the olive, and sweet orange. The hilly and western parts of the state are as healthy as any part of America. Winter may be said to commence in the middle of December, and to end in the middle of February.

The staple production of the country is cotton, of which both the black-seeded and sea-island kinds are reared. The product next in importance is rice, with which grain the swamps are sowed. Indigo and tobacco are also cultivated to some extent, but sugar and wine are only produced in small quantities. The cultivation of silk has been successfully attempted, and the quality is said to be excellent. The forests afford an abundant supply of fine timber, consisting chiefly of oak, pine, hickory, mulberry, and cedar. Melons grow in high perfection, and figs are also common. Oranges, limes, citrons, pears, peaches, and a few other fruits of mild climates, are likewise cultivated. The exports, consisting chiefly of cotton, rice, deer skins, timber, &c. amounted in 1828 to 4,981,376 dollars. The tonnage was at that period 13,959 tons.

Savannah is the commercial capital of Georgia. It is situated on the western bank of the river of the same name, at about eighteen miles from its estuary. It stands upon a low sandy plain, and contains twelve public buildings and eight churches. There are ten public squares planted with trees, amongst which the beautiful China trees are conspicuous. Savannah is a place of considerable trade, and occasionally exports annually 120,000 bales of cotton, besides large amounts of rice and tobacco. The exports of rice were, in 1826, 11,455 tierces, and of tobacco 170 hogsheads. The town is defended by two forts, and the entrance to the river is indicated by a lighthouse on Tybee Island. The population was, in 1830, 7473. Augusta is a handsome town, situated on the western bank of the Savannah, about 127 miles above Savannah. It is well laid out, and chiefly built of brick. Being midway between the upper and lower country, it constitutes a central emporium of business; no town of the same size enjoys more. There is a communication by means of steam-boats between it and Savannah. The population in 1830 amounted to 6696. Milledgeville is situated on the western bank of the Oconee, 300 miles, by the curves of the river, from the ocean. Its situation is elevated and pleasant, and it is central to a fertile and populous country. It contains several public buildings, two or three churches, and about 3000 inhabitants. Athens, which also lies on the west bank of the Oconee, is the seat of the university of Georgia. The names of the other principal towns or villages are, Waynesborough, Louisville, Georgetown, Warrenton, Dublin, Laudersville, Sparta, Eatonton, Greensburgh, Madison, Jefferson, Clarksborough, Watkinsville, Marion, Darien, Hinton, Monticello, Sunbury, and St Mary's.

The legislature of Georgia, which is called the general assembly, consists of a senate and a house of representatives. It meets on the first Monday of November. The members are chosen by the counties, each county sending one senator, and from one to four representatives, according to the amount of its population. In various parts of the state a number of negroes are employed by government in working on roads, rivers, &c. The university at Athens is a well-built edifice, furnished with a respectable library, and an assortment of philosophical apparatus. The funds amount to 136,000 dollars. According to a Gazetteer of Georgia, there are about eighty incorporated academies in this state, sixty-four of which have been brought into operation. The average number of pupils in each is forty-seven, making in all 3008. In the northern and southern sections of the state there are probably five common schools in each county, forty counties, thirty pupils each, 6000; in the middle section say seven common schools in each county, twenty-five counties, 5250; total number of pupils in the academies and common schools, 14,258. The state possesses academy and poor-school funds to a considerable amount. In 1792 an act was passed by which every county was allowed to purchase the value of L.1000 of confiscated property; in each county 1000 acres of land were granted for the support of schools, and also a fund of 250,000 dollars to be vested in stocks for the same purpose. The prevailing religious denominations of Georgia are the baptists and methodists.

The first settlement of this state was made at Savannah by General Oglethorpe in the year 1733. The native Indians of this state having been more disposed to adopt the arts and modes of civilized life than in others, the white inhabitants have gradually acquired a superiority over the lands. The greater portions of two considerable tribes, the Cherokees and Creeks, reside within the chartered limits of Georgia. Those of the former tribe in particular have made very considerable advancement in civilization. They possess good houses, live in villages, pursue agriculture, and have 1277 slaves. They have amongst them carpenters and blacksmiths, and the women spin and weave, and make butter and cheese. The number of these Indians is about 15,000, and they have increased within the last six years. Their form of government is similar to that of the country in which they live. Numerous missionary establishments have been fixed amongst them, in the schools of which, according to the Gazetteer formerly referred to, 500 children are learning the English language. Georgia is divided into seventy-eight counties, and the population in 1830 amounted to 516,504, of which number between the third and the half are slaves.

GEORGIC, a poetical composition upon the subject of husbandry, containing rules clothed in a pleasing dress, and embellished with all the beauties and elegancies of poetry. The word is formed from the Latin *georgicus*, which is merely the Greek γεωργικος, from γη, *terra*, earth, and εργαζομαι, *opero*, I work or labour, from εργον, *opus*, work.

GEPIDÆ, GEPIDES, or GEPIDI, in *Ancient Geography*, according to Procopius, were a Gothic people, or a branch of that race, some of whom, in the migration of the Goths, settled in an island at the mouth of the Vistula, which they called *Gepidos*, after their own name, which signifies lazy or slothful; whilst others established themselves in Dacia, and called their settlement there *Gepidia*.

GERA, a city, the capital of the principality of Reuss. It stands in a beautiful valley on the river Elster, and has several public buildings, 850 houses, with 9050 inhabitants. It is a place of considerable manufacturing industry in linen, woollen, and cotton goods, and in brewing and distilling. Long. 12. 58. 41. E. Lat. 50. 23. 32. N.

GERARD, Alexander, eldest son of the reverend Gilbert Gerard, minister of Chapel-Garioch, in the county of Aberdeen, was born at that place on the 22d of February 1728. He received the rudiments of his education at the parish school of Foveran, where he made rapid progress; but his father having died when he was only ten years of age, his mother soon afterwards removed with her family to Aberdeen, and young Gerard was sent to the grammar-school of that city, where he attended for two years. At the end of this period, being deemed fit for the university, he was entered as a student in Marischal College, where he also distinguished himself by assiduity and proficiency in his studies; and, after passing through the usual academical course of four years, comprehending the study of Latin, Greek, mathematics, and philosophy, he was admitted to the degree of master of arts. He then commenced the study of theology, which he prosecuted in the universities of Aberdeen and Edinburgh; and in 1748, when he had little more than completed his twentieth year, he became a licensed preacher in the church of Scotland. In 1750 he was chosen assistant to Mr David Fordyce, professor of philosophy in Marischal College; and two years afterwards, upon the death of Mr Fordyce, who had been drowned on the coast of Holland, Gerard was appointed to succeed him. At this period it was the practice in Marischal College, as it continued to be in King's College, for the same professor to carry forward a class of students, during three successive years, through all the branches of philosophy which were then taught in the college, namely, logic, ontology, pneumatics, morals, politics, and natural philosophy; and, in point of fact, Mr Gerard conducted one class through this extensive course, the mathematics and the Greek being taught by separate professors. But about the year 1754 this system, which differed but little from that of tutors in the English universities, was abandoned, and, in Marischal College, each professor was restricted to one department of science. In vindication of the new plan of academical study, Gerard wrote an able pamphlet, which was printed by appointment of the college, and appears to have satisfied every one as to the propriety of the change which had been introduced. The department assigned to Gerard, in consequence of this distribution, was that of moral philosophy and logic, the duties of which he discharged with unwearied assiduity and distinguished success. He also became a member of a literary society at Aberdeen, consisting of Doctors Blackwell, Gregory, Reid, Campbell, Beattie, and other persons less known to the world as authors, which met regularly every fortnight during the winter, when the members communicated their sentiments with the utmost freedom, and received mutual improvement from the interchange of ideas in their literary discussions. From the stimulus thus given may be said to have originated Reid's *Inquiry into the Human Mind*, Gregory's *Comparative View*, Gerard's *Essay on Genius*, Beattie's *Essay on Truth*, and Campbell's *Philosophy of Rhetoric*. In September 1759, Gerard was ordained a minister of the Church of Scotland; the following year he was appointed professor of divinity in Marischal College, and minister of the Greyfriars' church in Aberdeen; and, about the same time, he was created doctor in divinity. He continued to perform the duties attached to these offices till the year 1771, when he resigned his professorship in Marischal College, as well as his church living, and was removed to the theological chair in King's College, which he held till the period of his death, in the beginning of 1795. This event happened on his birthday, the 22d of February, when, having suffered much from a schirrous tumor, he expired without a groan, in the sixty-seventh year of his age. Dr Gerard's attainments were solid rather than brilliant; the effect of close and almost incessant study aided by a sound judgment, rather than the inspirations of strong and original genius. In all the relations of life he was alike estimable and exemplary. As a clergyman, his conduct was marked by prudence, propriety, and diligence in the discharge of his ministerial duties; as a professor, his principal aim was to avoid imposing on his pupils any favourite system of opinions, and, instead of encouraging dogmatism, the parent of intolerance, to impress them with a sense of the importance of the ministerial office, to teach them the proper manner of discharging its various duties, and to enable them, by a knowledge of the Scriptures, and an acquaintance with the principles of sound biblical criticism, to form a just and impartial judgment respecting controverted subjects. Possessing large stores of theological learning, he was not more judicious in selecting his topics than successful in his manner of treating them; and he had the merit of introducing a new, and, in many respects, better plan of theological education than that which had been previously followed. As a writer, he does not rank very high. He is clear, sensible, judicious, and well informed; almost never striking, forcible, eloquent, or original. His *Essay on Genius* is more valuable for its facts than its opinions, and seldom evinces that nice, delicate, and refined discrimination without which it is impossible for any writer, whatever his talents or judgment may otherwise be, to distinguish and render perceptible to others the various shades and gradations of genius. In domestic life Dr Gerard was amiable and exemplary; steady and disinterested in his friendships; hospitable, benevolent, and unassuming in the intercourse of society; uniting with the sobriety of the Christian pastor the good breeding of the gentleman, and the cheerfulness, affability, and ease of the agreeable companion. Dr Gerard's works are, 1. An Essay on Taste, to which the gold medal was, in 1756, adjudged by the Philosophical Society of Edinburgh; 2. Dissertations on the Genius and Evidences of Christianity, 1766; 3. An Essay on Genius, 1774; 4. Two volumes of Sermons, 1780, 1782; 5. A part of his theological course, entitled The Pastoral Care, published in 1799, by his son Dr Gilbert Gerard, who succeeded him as professor of divinity in King's College.

GERARDE, John, a surgeon in London, and the greatest botanist of his time, was many years chief gardener to Lord Burghley, who was himself a great lover of plants, and had the best collection of any nobleman in the kingdom, amongst which were a great number of exotics introduced by Gerarde. In 1597 the latter published his *Herbal*, which was printed at the expense of J. Norton, who procured from Frankfort the same blocks in wood which were used in the herbal of Tabernæmontanus. In 1663, Thomas Johnson, an apothecary, published an improved edition of Gerarde's book, which met with such approbation in the university of Oxford that they conferred upon him the degree of doctor of physic. The descriptions in the *Herbal* are plain and familiar; and both these authors have laboured more to make their readers understand the characters of the plants than to inform them that they themselves understood Greek and Latin. The *Herbal* of Gerarde is now considered only as a literary curiosity. The figures in general express very accurately the characters of the plants which they are intended to represent.

GERGONG, or Ghergong, a city of Assam, and formerly the principal town of that country, situated on the Dekhow river, one of the numerous tributary streams of the

Brahmapootra. It occupied formerly a very large space, every house being surrounded by a garden, and the rajah's palace being encompassed by a stockade of bamboos and a wet ditch; so that the city covered a space of nearly ten miles. The city, palaces, and fort are now a heap of ruins. Long. 94. 40. E. Lat. 26. 55. N.

GERMAIN-EN-LAYE, St, a city of France, in the department of the Seine and Oise, and arrondissement of Versailles, twelve miles from Paris. It is built on a slope rising from the river Seine. In the environs are some fine woods surrounding a park, in which is the royal palace, the birthplace of Louis XIV., and where our King James II. held his court after his loss of the British crown. The city contains about 12,000 inhabitants, some of whom are employed in tanneries and hosiery, and many in cultivating garden vegetables for the supply of the metropolis. Long. 2. 7. 35. E. Lat. 48. 50. 37. N.

GERMAINS, St, a borough and market-town of Cornwall, in the hundred of East Cornwall, 227 miles from London. It was at one time, from 981 to 1049, the see of a bishop, and the ancient cathedral is still used as the parish church: the ruins of the episcopal palace may also be traced near the town. Two members are returned to parliament, chosen by the inhabitants within the borough, which is of very contracted limits. There is a market on Friday, but it is thinly attended. The population amounted in 1801 to 2030, in 1811 to 2139, in 1821 to 2404, and in 1831 to 2586.

GERMAN, in matters of genealogy, signifies whole, entire, or own. *Germani, quasi eadem stirpe geniti.* Hence *brother-german* denotes a brother both by the father's and mother's side, in contradistinction to uterine brothers, who are so only by the mother's side; or brothers consanguinean, who are so by the father's side alone. *Cousins-german* are those in the first or nearest degree, being the children of brothers or sisters. Amongst the Romans we find no instance of marriage between cousins-german before the time of the Emperor Claudius, when they were very frequent. Theodosius prohibited such marriages under very severe penalties, including even fine and proscription.

GERMANIA. See Germany.

GERMANICUS, the son of Drusus and Antonia the younger, born 16 B. C. and died 19 A. D., who seems to have inherited all the virtues of his father, and to have been distinguished, in a profligate and selfish age, for strictly honourable conduct, and a kind regard to the feelings of others. He was a particular favourite of Augustus, who caused him to be adopted (4 A. D.) into the family of his uncle Tiberius, and gave him the command of eight legions on the banks of the Rhine (7 A. D.). Here he remained till the death of Augustus (14 A. D.), regulating the affairs of Gaul, and keeping in check the restless and warlike Germans beyond the Rhine. He was engaged in collecting the revenue in Gaul when the news of the emperor's demise reached him, and he does not appear to have hesitated a moment as to the course which his duty called on him to pursue. Though urged by his personal friends, and not ignorant of the strong party which the popular conduct of his family had secured to him, he refused to contest the crown with his uncle Tiberius. On the contrary, he hurried to the armies in Germany to employ his influence in inducing them to submit to the authority of Tiberius, and upon his arrival found that the armies of both the Upper and Lower Rhine had refused to take the oath of allegiance, and wished to proclaim himself emperor. It required all his firmness and prudence to extricate himself from the difficulties in which he found himself involved, and he only succeeded in quelling the sedition by forging an imperial rescript, granting them all that they demanded. The appearance of deputies from the senate caused the sedition again to break out; but he contrived to induce the less violent part of the soldiers to seize the ringleaders and put them to death. (Tacit. *Ann.* i. 31–35.) He then led his troops against the Marsi and Catti, to give them an opportunity of atoning for their conduct, and laid waste the country inhabited by these tribes. The next year Arminius, who possessed great influence with his countrymen, induced them to revolt. The Cherusci, one of the most powerful nations of Germany, and all the surrounding tribes, prepared to make an incursion into the Roman territory; but Germanicus, becoming acquainted with their intentions, anticipated them in their movements, and boldly penetrated into their country. Defeating the Bructeri near the spot where Verus and his legions had fallen, he pursued Arminius; but the battle which he fought was doubtful. Next year he determined to save his army from the risks and fatigues of a march through a thickly-wooded and difficult country, by building a fleet and conducting it along the coast. He was successful in this proceeding, and landed his army at the mouth of the river Amisia, *Ems.* He defeated the united forces of the Germans in two battles; but as he was returning to the Rhine he was overtaken by a tempest, and many of his vessels were lost. Tiberius, suspicious of his intentions, and jealous of his popularity, took this opportunity of withdrawing him from the scene of his glory. On his return to Rome he enjoyed the honour of a triumph for all the victories he had gained over the Germans. (Tacit. *Ann.* i. 51–71; ii. 6–26.)

Germanicus was too formidable a subject and too virtuous a character not to excite unmingled fear in the mind of the suspicious Tiberius; and as the tyrant did not dare to cut him off in presence of the Roman people, he sent him into honourable banishment, by giving him the command of the province of Asia. Thither the emperor had also sent Piso, who was devoted to his interests, and the uncompromising enemy of Germanicus, a person, in short, who would stop at nothing to rid himself of his opponent. At Antioch Germanicus was taken ill, and died after a short illness, the innocent victim of Piso and his master Tiberius. He was deeply regretted by the Roman people, who regarded him as likely to bring back the halcyon days of the Augustan age. It will readily be imagined that he was a patron of literature and the sciences; and he was himself an author, having translated the Phenomena of Aratus, and written epigrams, several of which have been preserved. They have been published in a work entitled *Carmina Familiæ Cæsareæ*, Coburg, 1715. His life has been written by Beaufort, Leyden, 1741.

GERMANO, St, a city of the province Terra di Lavoro, in the kingdom of Naples. It stands at the foot of the mountain on which the magnificent convent of Monte Cassino is built. It contains 4839 inhabitants. It is remarkable as the spot where the battle was fought, in 1815, in which Nugent scattered and destroyed the army of Murat.

GERMANTOWN, a post-town of North America, in the state of Pennsylvania, and county of Philadelphia. It is pleasantly situated about seven miles north of Philadelphia, the capital. Most of the houses are built in one continuous line of street, which is about two miles in length. This place possesses considerable manufactures, and a population of about 5000.

GERMANY.

This name was given by the Romans to a country inhabited by various small tribes, under different names, and probably of different origins, but who were so nearly similar in manners, language, and religion, as to lead those further advanced in civilization to confound them all under one common denomination. Under that denomination was comprehended not only the country now called Germany, but Denmark, Norway, Sweden, Finland, Livonia, and Prussia. The name is said to be derived from two words, *Ghar man* or *Wehr-man*, meaning war-man or warrior, which is also the signification of two other words, *Ale man*, of the same import. They were by themselves called Teutones, from one of their national divinities, Teut, or, as is sometimes said, Thuiskon, who seems to have been the general object of veneration, and from whom the name is derived which is now assumed by all the people who call their country Teutchland or Deutchland.

The Rhine on the west, and the Vistula on the east, were considered, at the most remote periods, as the boundaries of Germany; whilst on the north it extended along the ocean and the Baltic Sea, and on the south was terminated by the river Danube. But such boundaries were by no means definite; for many German tribes inhabited the southern banks of the Rhine as far as the Scheldt. Between the Rhine and the Moselle were the Ubii; and higher up, but beyond the latter river, were the Treviri, and then the Triboci, the Neimetes, and the Vangiones. The Mediomatrici were planted along the Moselle, near the site of the present city of Metz; and above them, on the Rhine, in the present Swiss canton of Basil, were the Raurici or Rauraci. The ancient nations of Vindelicia were settled between the sources of the Rhine and of the Danube. Noricum was inhabited by several tribes between the rivers Drave and Danube, and comprehended the provinces now known by the names of Austria, Styria, Carinthia, Tyrol, and Bavaria. Beyond the Danube, to the westward of the Marcomanni, the country was occupied by the Hermunduri, and extended to the north along the Hercynian Mountains to the river Sala. A nation beyond the Hercynian Mountains, known then as the Boiohemum, and in modern times as Bohemia, were in contact with the Quadii, whose territory, now called Moravia, touched, on its southern part, the Danube. These two tribes, with the Marcomanni, and some smaller clans, were comprehended under the general name of Suevi, a people who at a subsequent period forced their way into Spain, and established themselves in that peninsula as a warlike and independent nation. The Suevi were a powerful nation, who extended themselves along the Hercynian Forest, through which they penetrated, and occupied a tract of land extending from the Vistula to the Elbe. Among their possessions were the divisions which subsequently obtained the names of Saxony, Brandenburg, Lusatia, and Silesia. One subdivision of them, called the Semnones, grew sufficiently powerful to seize some of the richest provinces of Gaul; whilst another, the Æstii, possessed the borders of the Baltic Sea, whence they drew much amber, of which they made use in traffic with the surrounding tribes. These last, according to Tacitus, were worshippers of the mother of the gods, and relied on her for protection. They are said to have been more industrious than the rest of the Germans in the cultivation of their lands, and at a very early period produced corn. Their amber was reported to have been obtained by diving in the rivers and the sea. This substance was then highly estimated; and at a subsequent period, in the reign of Nero, a Roman knight is stated to have purchased for that emperor, of the Æstii, at one time thirteen thousand pounds weight, amongst which was a single piece weighing thirteen pounds. At a still later period, a letter is found in Cassiodorus, in which Theodoric, king of the Goths, gives thanks to the Æstii for a present of amber, and in return assures them of his friendship and protection.

In the interior of Germany, the Cimbri and the Saxons were possessed of the country north of the Elbe; whilst on the south side of that stream the Chauci were the masters of the district through which the Weser flows, and were in contact with the two smaller tribes of the Cherusci and Chamavi. The Frisii were distinguished as the Upper and the Lower, and were separated from the Chauci by the river Ems, and from each other by a branch of the Rhine; whilst beyond the Yssel were some migratory tribes, the Bruckteri and the Marsi. The Uspetes were established on the river Luppia, now the Lippe; and beyond that stream were the Usipetes, who were celebrated for changing their residence, and were thence to be found in other districts. The Teucteri were settled on the Rhine, in the country of the Menopii; and next to them the Jubones, near the modern Juliers. The Catti or Cotti inhabited parts of Hesse and Thuringia, extending from the Hartz Mountains to the Rhine and the Weser. Their southern neighbours were the Sedusi, bordering on Suabia, where they came in contact with the Marcomanni, who have been already mentioned.

Such are the best accounts which can be collected from Cæsar, Tacitus, and Ptolemy, respecting the localities of the various tribes who inhabited Germany before the period of the intercourse between them and the Romans. It has been justly remarked, that whilst modern nations are fixed and permanent societies, connected amongst themselves by laws and government, and bound to their native soil by arts and agriculture, the German tribes were only voluntary and fluctuating associations of soldiers, almost of savages; and the same territory often changed its inhabitants in the course of conquest or of emigration. A victorious state often communicated its own name to a vanquished people. Sometimes crowds of volunteers flocked from all parts to the standard of a victorious leader; his camp became their country, and some event soon gave a new but general name to the mixed community. Thus the distinctions of ferocious invaders were perpetually varied by themselves, and naturally confounded the astonished subjects of the Roman empire.

It is probable that the accounts of the numbers of the German people, as transmitted by early writers, are grossly exaggerated. In great and civilized states, millions of subjects pursue their peaceful avocations in silence and obscurity; but in a state of rude republicanism, or of civil commotions, almost every member of the community is called into active exertion; and thus, with their irregular divisions, their restless motions, their profusion of kings and warriors, and numerous contests, they present to our minds an appearance of numbers very far beyond the reality, which is still further strengthened by the most splendid appellations being frequently and repeatedly applied to inconsiderable objects. When the Romans first became acquainted with Germany, about the year 640 from the building of their capital, or more than 100 years before the commencement of the Christian era, the natives had advanced but a few steps from the savage state. Even in the subsequent age, as Tacitus affirms, they were so ignorant of the use of letters as to be unable to transmit from one generation to another any annals of their country, or any knowledge of the agreeable or useful arts of life. In an extent very far surpassing modern Germany, Ptolemy speaks of ninety towns or cities; whilst Tacitus asserts, as a well-known fact, that in his time they had no cities, and that they affected to despise the buildings constructed by Roman industry, as places of confinement rather than of security. Their dwellings were not even contiguous, nor formed into villages, but each of these barbarians fixed his independent dwelling on any spot which a plain, a wood, or a stream of good water, invited him to settle on; and in constructing his hut, neither stone, brick, nor tiles were employed. Built of timber, they were very low, and covered with straw, having a hole to allow of the emission of the smoke.

The clothing was of the simplest kind, notwithstanding the inclemency of the climate in a territory covered with woods, and not ameliorated by cultivation. In the more northern parts scanty garments of furs were used; and in the south some coarse linen, spun and woven by the females. Their food consisted chiefly of wild animals, or of the flesh of their large herds of cows and of horses, which were nearly in the state of their original wildness. A small quantity of corn was the only produce of the soil; the use of gardens, orchards, and artificial meadows, was unknown; nor could any great improvement in agriculture have existed, where a new division of the land took place annually, and a great part lay waste and without any tillage. The Germans seem to have learned the process of brewing or of distillation, as they made intoxicating liquors from wheat and barley, in the use or abuse of which they indulged to the greatest excess in social meetings and public assemblies. Drinking and gambling were their highest gratifications. They gloried in passing whole days and nights at the table; and the blood of guests, often of friends and relations, stained their drunken assemblies. The desperate gamester often staked his person and his liberty on the cast of a dice, and then patiently submitted to the decision, and was sold into slavery by his more fortunate competitor.

Notwithstanding the grossness of manners amongst the German tribes, the females were held in high estimation; and whilst the men were brave, the women were chaste. Polygamy was not in use excepting amongst the princes; and amongst them only for the sake of multiplying their alliances. Divorces were prohibited by manners rather than by laws. Adulteries were punished as rare and inexpiable crimes; nor was seduction justified by example and fashion. The unpolished wives of the Germans partook of few of those gratifications which tend to inflame the passions, and their fidelity was in some measure secured by the exposure to which they were subject in the open huts, and by poverty, solitude, and the painful cares of domestic occupation. Besides these restraints, the Germans treated their women with esteem and confidence, consulted them on every occasion of importance, and fondly believed that in their breasts resided a sanctity and wisdom more than human. Some of these interpreters of fate, such as Velleda in the Batavian war, governed, in the name of the deity, the fiercest nations of Germany. The rest of the sex were respected as the free and equal companions of soldiers, associated even by the ceremony of marriage to a life of toil, of danger, and of glory. In their great invasions, the camp of the barbarians was filled with a multitude of women, who remained firm and undaunted amidst the sound of arms, the various forms of destruction, and the honourable wounds of their sons and husbands. Fainting armies of Germans have more than once been driven back upon the enemy by the generous despair of the women, who dreaded death much less than servitude. If the day was irrecoverably lost, they well knew how to deliver themselves and their children, with their own hands, from an insulting victor. Heroines of such a description may claim admiration, but they can scarcely inspire the passion of love. They who attempt to imitate the sterner virtues of man must lose the attractive softness of their own sex, which is their principal charm. Conscious pride taught the German matrons to suppress every tender emotion which stood in competition with honour; and the first honour of the sex has ever been that of chastity.

The Germans were a warlike people, notwithstanding which their government was a species of democracy, although a few of the tribes on the shores of the Baltic acknowledged the authority of kings; but such kings owed their power as frequently to their valour or their eloquence as to their descent; and with all of them the power was tempered by the prevalence of popular assemblies. The assembly of the warriors of the tribe was convened at stated seasons, or on sudden emergencies. When a youth had attained the age of manhood, he was introduced into the general council of his countrymen, solemnly invested with a shield and a spear, and adopted as an equal and worthy member of the commonwealth. In such assemblies, the trial of public offences, the election of magistrates, and the great affairs of peace or war, were determined by independent votes. Sometimes these important questions were previously considered and prepared in a committee or select council of the principal chieftains. The magistrates might deliberate and persuade, but the people only could resolve and execute; and hence the resolutions were for the most part hasty and violent. They too often turned away with indignant contempt from the remonstrances of justice and policy, and signified by a hollow murmur their dislike of such timid councils. But when a popular orator proposed to vindicate the meanest citizen from either foreign or domestic injury, or called upon his countrymen to follow some enterprise of danger and of glory, the applause of the assembly was displayed by a loud clashing of shields and spears; for the Germans always assembled in arms, and it was to be dreaded lest an irregular multitude, inflamed by faction and strong liquors, should use their arms to enforce as well as to declare their furious resolutions.

A general of the tribe was elected on occasions of danger; and if the danger was pressing and extensive, several tribes concurred in the choice of the same general. The bravest warrior was named to lead his countrymen into the field by his example rather than by his commands; but this power, however limited, was still invidious. It expired with the war, and in time of peace the German tribes acknowledged not any supreme chief. Princes were, however, appointed in the general assembly, to administer justice, or rather to compose differences, in their respective districts. In the choice of these magistrates, as much regard was shown to birth as to merit. To each was assigned by the public a guard and a council of a hundred persons; and the first of the princes appears to have enjoyed a pre-eminence of rank and honour which sometimes tempted the Romans to compliment them with the regal title.

The comparative view of the powers of the magistrates, in two remarkable instances, is alone sufficient to represent the whole system of German manners. The disposal of the landed property within their district was absolutely vested in their hands, and they distributed it every year according to a new division. At the same time they were not authorized to punish with death, to imprison, or even to strike, a private citizen.

The Germans respected only those duties which they imposed on themselves. The most obscure soldier resisted with disdain the authority of the magistrates. "The noblest youths," says Tacitus, "blushed not to be numbered amongst the faithful companions of some renowned chief, to whom they devoted their arms and service. A noble emulation prevailed among the companions to obtain the first place in the esteem of their chief, among the chiefs to acquire the greatest number of valiant companions. The glory of such heroes diffused itself beyond the narrow limits of their own tribe. Presents and embassies solicited their friendship, and the fame of their arms often ensured victory to the party they espoused. In the hour of danger it was shameful for the chief to be surpassed in valour by his companions, and shameful for the companions not to equal the valour of their chief. To survive his fall in battle was indelible infamy. The chiefs combated for victory, the companions for the chief. The noblest warriors, whenever their native country was sunk in the laziness of peace, maintained their numerous bands in some distant scene of action, to exercise their restless spirit, and to acquire renown by voluntary dangers. Gifts worthy of soldiers, the warlike steed, the bloody and ever-victorious lance, were the rewards which the companions claimed from the liberality of their chief. The rude plenty of his hospitable board was the only pay which he could bestow, or they would accept. War, rapine, and the freewill offerings of his friends, supplied the materials of this munificence." This institution, however it might accidentally weaken the several republics, invigorated the general character of the Germans, and even ripened amongst them all the virtues of which barbarians are susceptible; the faith, valour, and hospitality so conspicuous long afterwards in the ages of chivalry.

The religion of the Germans was as gross as that of other nations in the same low stage of civilization. They adored the sun and the moon, the fire and the earth, together with those imaginary deities who were supposed to preside over the most important occupations of human life. They were persuaded that, by some ridiculous arts of divination, they could discover the will of the superior beings, and that human sacrifices were the most precious and acceptable offering to their altars. They seem to have adopted no images as visible objects of worship, nor to have constructed any edifices for the celebration of religious rites. Their only temples were dark and ancient groves, consecrated by the reverence of successive generations. Their secret gloom, the imagined residence of an invisible power, by presenting no distinct object of fear or worship, impressed the mind with a still deeper sense of religious horror; and the priests, rude and illiterate as they were, had been taught by experience the use of every artifice which could preserve and fortify impressions so well suited to promote their own interest.

The German priests had assumed a jurisdiction even in temporal concerns which the magistrate could not venture to exercise; and the haughty warrior submitted to the lash of correction, when it was inflicted, not by any human power, but by the immediate order of the god of war. Thus the defects of civil policy were sometimes supplied by the interposition of ecclesiastical authority. The latter was constantly exerted to maintain silence and decency in the popular assemblies, and was sometimes extended to a more enlarged concern for the national welfare. A solemn procession was occasionally celebrated in what are now the countries of Mecklenburg and Pomerania. The unknown symbol of the earth, covered with a thick veil, was placed on a carriage drawn by cows; and in this manner the goddess, whose common residence was in the island of Rugen, visited several adjacent tribes of her worshippers. During her progress the sound of war was hushed, quarrels were suspended, arms laid aside, and the restless Germans had an opportunity of tasting the blessings of peace and of harmony. The truce of God, so often and so ineffectually proclaimed by the clergy of the eleventh century, was an obvious imitation or continuation of this ancient custom.

But the influence of religion was far more powerful to inflame than to moderate the fierce passions of the Germans. The consecrated standards, long preserved in the groves of superstition, were placed in the front of the battle; and the hostile army was devoted with dire execrations to the gods of war and of thunder. With the Germans cowardice was the most unpardonable of sins. A brave man was the worthy favourite of the martial deities. He who had lost his shield was banished alike from the civil and the religious assemblies of his countrymen. Some of the northern tribes seem to have embraced the doctrine of transmigration; others imagined a gross paradise of immortal drunkenness. All agreed that a life spent in arms, and a glorious death in battle, were the best preparations for a happy futurity, either in this or another world.

That singular order of men, the bards, have attracted to them the attention of all who have attempted to investigate the antiquities of the Celts, the Scandinavians, and the Germans. It is not easy, however, to calculate the enthusiasm of arms and glory which they kindled in the breasts of their audience. It was in the hour of battle, or in the feast of victory, that the bards celebrated the glory of the heroes of ancient days, the ancestors of those warlike chieftains who listened with transport to their artless but animated strains. The view of arms and of danger heightened the effect of the military song; and the passions which it tended to excite, the desire of fame, and the contempt of death, were the habitual sentiments of a German mind.

Such is the description of the manners, characters, and propensities of the ancient Germans, as delineated by Tacitus, and by which, in spite of their climate, their want of learning and the arts, and the absence of fixed laws, they were formed into a people of military heroes, and enabled to carry on formidable hostilities, during more than two centuries, with the mighty power of the Romans.

The early history of the Germans, like that of all nations who had no written records, is involved in much obscurity. The first knowledge of their transactions was that of the invasion of the country by the Gauls, commanded by Segovesus, king of the Celtæ; whilst his brother Bellovesus marched with another army into Italy; both of which divisions are said to have been directed by the flight of birds. Segovesus crossed the Rhine, and gained a settlement near the Hercynian Forest. The Germans, however, soon acted on the offensive, and expelled the Gauls, and, by the assistance of the Belgæ, one of their most warlike tribes, gained possession of some territory to the west of the Rhine, where they were enabled to fix and maintain themselves so firmly as never to be driven out, and whence they extended themselves to the sea-coasts of Britain, and even drove its inhabitants into the interior. The Germans and the Gauls, thus brought into contact with each other, continued to hold vacillating intercourse, sometimes at war, at other times in alliance in opposition to the power of the conquering and disciplined Romans. The Germans, under the name of Cimbri, then invaded the territory of Rome, and spread such terror, that Marius, by a deviation from the law, was appointed consul to command an army against them. After various marches during some years, in 102 before Christ, Marius, with an army of 52,000 men, attacked the barbarians on the banks of the Rhone, and, though they are said to have mustered 300,000 foot and 15,000 horse, completely defeated them, with a loss of 150,000 killed and 60,000 prisoners. Many, preferring death to slavery, underwent military execution; and a few were scattered over Gaul, or crossed the Danube, and so escaped to their own country.

After Julius Cæsar had completed the subjugation of Gaul, and extended his conquest to the Rhine, he first became acquainted with the German name. Ariovistus, the leader of a tribe that dwelt to the south of the Danube, attempted to fix his establishment in Gaul, but was defeated by Cæsar, and, with the loss of 80,000 men, was driven across the Rhine, though two tribes of his followers remained on the west side of that river; and the fugitives who returned augmented the numbers of the German tribe of the Marcomanni. Cæsar built a bridge over the Rhine, and twice passed that river at the head of his army, not with the view of permanent conquest, but to secure his province of Gaul against the attacks of the barbarians; and he also took many of the Germans into his pay, first in the war with the Gauls, and afterwards in the civil contest with Pompey. The civil wars, which occupied first Cæsar and Pompey, and afterwards Mark Antony and Brutus and Cassius, left the Germans opportunities to attempt incursions. The confederation of the Segambri passed the Rhine, and having repelled the attack of Agrippa, settled themselves on the western side of that river; but a few years afterwards they were defeated by Lollius the legate of Augustus, when, 14 years before Christ, Drusus, the son-in-law of the emperor, constructed several fortresses along that river, to prevent the incursions of the Germans. He proceeded with success, and penetrated as far as the Elbe. He died in the year 8 before Christ, and was succeeded by Tiberius, who during his command not only sustained the power which Drusus had acquired, but extended it towards the north; and, by intrigues among the natives, as much as by his force, induced many of the tribes to solicit peace, and excited others to enter into the military service of Rome. The body-guard of Augustus was composed of German volunteers, amongst whom was the distinguished noble whose name has descended to posterity, being sometimes called Hermanus, and at others Arminius, who received the privileges of a Roman citizen and the dignity of a Roman knight. He was the son of Sigmer, a prince of the Cherusci, and had been educated in Rome, and early appointed an officer in the army of Augustus, but is said never to have lost the relish for the customs of his ancestors, nor his zeal for the independence of his country; and during the course of his instruction in arts and in arms he warmly cherished the hope of adapting these instructions to the purpose of freeing his country from the Roman yoke. He felt a confidence that all the discipline of the Roman armies would be unable in a fair field to resist the raw bravery of his unpolished countrymen.

The best legions of Rome were intrusted to the command of Quintilius Varus, with the superintendence of the territories on the right bank of the Rhine, which had been added by Drusus to the Roman dominion. He was confident in the power of his military superiority, and thought, in addition to that, to secure obedience by changing the customs and principles of the Germans, and thus converting them into useful subjects. For this purpose he took with him a great number of civil officers, lawyers, and men of letters, to introduce the new order of things. These measures roused the jealousy of a people enamoured of their freedom, and disseminated the seeds of insurrection amongst all the tribes situated between the Rhine and the Elbe. Arminius availed himself of this spirit to form alliances in opposition to Varus, amongst all the military leaders of the districts. It happened most opportunely for the purpose of Arminius, that, in the year 9 A. D., a general revolt broke out on the Roman frontiers of Dalmatia and Pannonia. It is doubtful if this was connected with the plans of Arminius, but it helped to strengthen the confederacy which had been entered into by those tribes which were in possession of the country bounded by the Rhine, the Saale, and the Elbe. This confederacy was not broken up by the treason of one of the chiefs, Segestes, the leader of the Catti, who communicated to the Roman commander the plan and the detail of the intended insurrection, which was received by Varus with the contempt which reliance upon the numbers and discipline of his troops had inspired. Arminius redoubled his assiduities to remove suspicion, if any existed, of his fidelity to the Roman cause, and succeeded, by pointing the attention of Varus to some irruptions which, at the instigation of the confederacy, had broken out on the banks of the Weser. These small but concerted disturbances were intended to inveigle the Roman commander to advance into the interior of the country; and the leaders of the German troops in the pay of Rome, who were involved in the confederacy with Arminius, by the display of unbounded zeal and obedience, agreed in urging the Roman commander not to wait for further displays of resistance, but to advance with his three legions and the auxiliaries, and to extinguish the rebellion in its focal point. In vain did Segestes repeat his warnings. Nothing could shake the confidence of Varus in Arminius, and the confederates and the Romans plunged deeper and deeper into the heart of the country, where the snares had been laid for their destruction. Near the sources of the river Lippe, in the country of the Bructeri, after a long and wearisome march through woods and morasses, the Romans saw themselves enclosed on every side in a hollow surrounded by hills whose summits were all occupied by the natives. At this moment intelligence arrived that Arminius with the rear division, consisting of stipendaries, which he commanded, had declared against the Romans, and had been the moving spring of the whole operations. Varus saw clearly destruction before him; for though discipline and courage might prolong the contest, it could inspire no hopes of a successful issue.

Three days of suffering and ineffectual hostilities compelled the Romans to submit. Varus chose death rather than disgrace. Three Roman eagles were taken; and a limit was thus set to the advances of the Romans towards the north, which they were never afterwards enabled to pass. The Germans disgraced their victory by useless cruelties. Some of the men of letters and artists who were taken had their hands cut off, and others were blinded. The site of this memorable event cannot be clearly ascertained by any records, but it is generally placed by the antiquarians of Germany near the sources of the rivers Lippe and Ems, not far from where now stands the small city of Detmold. The event occurred in the ninth year of our era.

When Arminius had thus restored the ancient freedom to his country, he destroyed the fortresses which the Romans had constructed on the Rhine, the Elbe, and the Weser, and exerted himself to rouse the military spirit of the Germans, and taught them to rely on that spirit rather than on the strongest fortifications. A civil war soon broke out amongst the natives themselves, and the party opposed to Arminius was headed by Segestes. That prince applied to the Romans for assistance, and was aided by their general Germanicus, when he was surrounded by the troops of Arminius. His deliverance was effected with but little loss on either side; but the wife of Arminius was taken prisoner by Segestes, and on being carried before the Roman general, maintained a spirit and dignity which is highly applauded by Tacitus. The treachery of Segestes animated the exertions of Arminius, and he was offered assistance by his uncle Inguiomar, a leader of a tribe, and celebrated as a warrior. Arminius attempted also to gain to his party his brother Flavius, who like himself had been educated in Italy, but who resolutely maintained his fidelity to the Roman power. Arminius desired a meeting with Flavius, and they saw and conversed with each other across the river Weser. The expostulations and the inducements of Arminius were ineffectual; the brothers became exasperated against each other, and would have proceeded to feats of arms if they had not been separated by the stream, and at length been borne away from the scene by their respective partisans.

Germanicus the Roman commander once more attacked the army of Arminius, and gained a splendid but useless victory on the plain of Idistavius, on the banks of the Weser; but having excited the suspicious jealousy of the Emperor Tiberius, the necessary succours were withheld, and Arminius was soon enabled again to make head against the Romans, and caused them to suspend their attempts on the freedom of Germany. This temporary tranquillity, however, gave rise to an intestine war.

Marobodus, a leader of the Marcomanni, but who had been educated in the court of Augustus, was enabled by his address and his power to unite many tribes of the Suevi in a confederacy with his own nation, which collectively assumed the name of the Marcomanni. At the head of this powerful league he attacked and conquered the nation of the Boii, seated in the south of Bohemia and a part of Franconia, and founded a formidable state, which extended over the Hermundurins, the Quadi, the Longobards, and the Semnones, and could bring into the field 70,000 warriors. Augustus had given orders to Tiberius to suppress with twelve legions the power of Marobodus, but a general insurrection of the Dalmatian tribes compelled him to conclude a peace which secured to him no benefit. The subsequent disasters of the Romans in Western Germany suspended all attacks on the Marcomanni, who continued to excite insurrections in the south of Germany.

Two great powers were thus formed, the Marcomanni and the Cherusci, the one under Marobodus and the other under Arminius. Between these, dissensions speedily arose. On one side the Longobards and the Semnones, wearied by the oppressions of Marobodus, deserted his party and united with the Cherusci; and on the other side Inguiomer, the uncle of Arminius, from jealousy of his nephew, was induced to pass from his party to that of the Marcomanni. After a war between these two confederations, which was carried on with all that systematic regularity which the two commanders had learned in the Roman legions, the Cherusci remained conquerors. Tiberius, instead of giving that aid to Marobodus which he eagerly asked, left him exposed during two years to the attacks of Catualda the Goth, who compelled him to abandon his territory and seek refuge amongst the Romans; and Catualda was soon exposed to the same fate by the hostilities of the Hermundurins, who had obtained the lead among the confederates which were headed by Arminius.

The death of Arminius occurred in the year 21 A. D., at the age of thirty-seven years, during the twelve last of which he had gloriously and happily conducted the affairs of his country with the applause of his followers, to whom, after his death, he continued an object of the highest veneration. He was indeed suspected of designs to introduce royalty and to assume the kingly dignity, but it is now impossible to confirm or refute the charge which has been brought against his memory.

After the death of their leader, the Cherusci, owing to internal disputes, gradually lost the rank they had held, and at length allowed the Romans to nominate a king of their country, who assumed the name of Italicus, and was the last branch of the family of Arminius. Under him they quarrelled with their allies the Longobards, and soon sunk down into an insignificant tribe, inhabiting the district to the south of the Hartz Mountains. About the same time, in the west of Germany, the Catti raised themselves to a state of some consideration, and, whilst the Romans were occupied in suppressing an insurrection of the Frisii, seized the fortresses constructed on the Rhine. They were assailed by Galba, and induced to cede the territory included between the Lahn, the Maine, and the Rhine, to the Romans, who parcelled it out among the most meritorious of their warriors. In the year 58 the Catti and the Hermunduri contended for the salt springs on the river Saale in Franconia. The numerous followers of Marobodus and of Catualda had established themselves about the same time on the Danube, between the rivers Gran and Morava, and there, under Vannius, whom they had received as a king from the Romans, founded a new kingdom, which was soon felt to be oppressive to the people. Although Vannius had found allies in the Sarmatian Jaziges, yet he could not resist the confederacy formed against him by the Hermunduri, Lygerii, and the Western Quadi, but fled from his kingdom and took refuge with the Romans, when he was succeeded by his nephew Sido, who had performed some important services for the Emperor Vespasian. In the west the Batavians, by an obstinate struggle, shook the Roman power, which was only retained by extraordinary exertions. About this period began the war which finally terminated in the downfall of Rome. The Suevi were attacked by the Lygerii, and applied for aid to Domitian, who sent them a hundred horse soldiers, the smallness of which number was deemed an affront, and induced them to form a confederacy with the Jaziges, which threatened Dacia and Pannonia. Domitian was defeated, but Trajan proved more successful; but afterwards war broke out more fiercely under Antoninus Philosophus. The barbarians disquieted the empire on two sides without cessation. On one side small but numerous hordes of the Goths arrived in Dacia to establish themselves by force of arms; but these were removed by having a still better country pointed out to them in a southern direction. But the more terrific hostilities were those carried on by the Marcomanni, who had combined with the Hermunduri and the Quadi. Marcus Aurelius contended with them during his whole life; and Commodus purchased a peace with them in 180 A. D. At the same time the Catti laid waste Rhætia and Gaul, and the Cherusci drove the Longobards back on the Elbe, and advanced themselves under the name of Franks. About the year 220 A. D. new tribes of Germans assailed the falling empire. The Visigoths, the Gepides, and Herulians, attacked the Romans in Dacia; whilst about the same time a new race called the Alemanni, a mixed tribe, of Sclavonic origin, made their appearance in Southern Germany, in opposition to whom was constructed the celebrated *Vallum Romanorum*, the traces of which are still visible from Jaxthausen to Ohringen. The power of Rome gradually sunk, partly from the constant and increasing hostilities of the Germans and other barbarous tribes, and partly from internal dissensions. As that empire was weakened, the Franks advanced to Spain, and under Probus conquered also the Batavian peninsula. Thus the Franks and Alemanns remained the most powerful of the German nation. The former of these lost the Batavian territory to the Saxons, and the latter were humbled before the Romans in the last victory obtained by that mighty people. At the beginning of the fifth century the barbarians assailed the empire on every side. The Vandals, Suevi, and Alani became masters of Gaul and Spain. They were followed by the successful Burgundians and the Western Goths; to the Burgundians succeeded the Franks, to the Western Goths succeeded the Eastern Goths, and to them the Lombards. Then began that stream of emigration which poured from the north to the south, and, as a conquering power, became the founders of the subsequent European kingdoms. A new change was given to the face of Europe by those vast emigrations of people, mostly Germans, though some came from countries farther eastward than Germany, which gradually overspread and subdued the west, introduced new forms of society, and framed languages, which, with but little variation, have continued till the present time. The new states, formed out of what had previously been portions of the Roman empire, though often at war with each other, and differing in smaller matters, chiefly arising from difference of soil and climate, were united in one similar system of policy and domestic government, and had those common habits strengthened by the providential introduction of the Christian religion, to which, though varying in some points of faith, they all in process of time professed adherence. We have here space only for a slight sketch of the history of those emigrations the beneficial effects of which we now enjoy, and to which, during a period of more than a thousand years, Europe has been indebted for the great advancement in the arts and the policy of civilization which has raised it above the other portions of the habitable globe.

These emigrations, which thus revolutionized Europe, began from the Frozen Ocean, extended themselves to the Atlantic Sea, and stretched over a portion of Northern Africa. They continued from the year 375, when the Huns first broke into Europe, till 568, when the Lombards had completed their conquest of the Roman empire. The causes of these excursions of whole tribes were various, arising in some cases from excessive population, in others from the pressure of more remote tribes, and in all from the charms of the beautiful and well-cultivated provinces which the Romans had gradually added to their dominions. At a more early period single tribes in small parties had changed their domicils, and thereby prepared the way for the greater emigrations. The constant conquests of the too extended empire began in the middle of the third century to make it totter under its own weight. Some powerful emperors, indeed, especially Constantine and Theodosius, suspended its fall; but others, under the pressure of circumstances, and from short-sighted policy, had taken parties of the barbarians into their pay, and, as a reward for their military services, had granted them lands to establish themselves on, on the frontiers of the empire. In this way settlements were granted to the Franks in Belgian Gaul, and to the Alani, the Vandals, and the Goths, in Dacia, Pannonia, and Thrace.

Many individuals of skill and courage were appointed to offices of high power and trust, and two of them, Ruffin and Stilicho, to the command of armies. The consequence of this was, that as they improved in education, they became fully acquainted with the weakness of the Roman government, and accustomed themselves to consider it as a prey, on which in due time they might seize.

The first movement towards the emigrations was given from the farthest part of Northern Asia, where a wild and warlike tribe, probably of Mongul or Kalmuck origin, were settled on the confines of China. These, expelled from their own settlements about the end of the first century, extended themselves towards the west, and drove the Alani, a tribe from Caucasus, out of Asiatic Sarmatia, and also dislodged the Western Goths, who were settled in ancient Dacia, and in the district between the Dniester, the Danube, and the Vistula. A portion of the Alani, after long wanderings, arrived on the Danube in what is now Hungary; connected themselves there with the Vandals, an original north German colony, who had been planted there about one hundred years, and, together, pressed forward into Germany, where they further strengthened themselves by a union with the Suevi, another German tribe which had been settled on the Upper Danube. These three populations, thus united, pressed forward to the Rhine, passed that river into Gaul, captured Mayence, Strasburg, and other flourishing cities, and devastated the whole country.

After these united people had in a few years spread desolation over a great part of Gaul, they pressed on towards the Pyrenees, and entered Spain. They subdued nearly the whole of that country about the year 411, divided it by lot amongst themselves, and left a very small portion of it only in the possession of the Roman garrisons. They however retained their former discipline and courage, and formed an alliance with some of the Western Goths who had penetrated into Spain, and attacked the conquerors. The Alani, who had founded a kingdom in Lusitania, now Portugal, were completely overcome in 418; and the remnant of them, after their defeat, received protection from the Vandals; and hence from that time their name is no more to be found. They carried on the war with the Romans, and thereby gained the ascendency over them, when, in 427, they formed the resolution to pass over into Africa. The kingdom founded there by Genseric, after maintaining itself a hundred and five years, was at last subdued by Belisarius, the general of the Greek emperor Justinian. The Suevi, who after the departure of the Vandals remained in Spain, extended and maintained their power till they were defeated and scattered by the Western Goths in 584. The Huns, with whom these movements had originated, established themselves in 377 in Pannonia, whence, conducted by their king Attila, they made a wasting campaign in Gaul; but that leader having met with a signal defeat in 451, turned towards Italy, and could scarcely be induced to spare Rome itself and to quit Italy. After his death in 453 the kingdom of the Huns disappeared, its inhabitants having been scattered and lost among the tribes of the Goths and Gepides.

The most dangerous enemies of the Romans were the Goths, to whom reference has before been made. They were a tribe of Germans originally established in East Prussia, on the shores of the Baltic, but had extended themselves through Poland, to the Black Sea, and had spread themselves over the Roman provinces on the Danube. In the third century, Rome found it necessary, or at least convenient, to allow of their establishment in Dacia. This powerful nation, the first amongst the Germans who embraced the Christian religion, was divided into two branches. The Eastern Goths were established on the river Don and the Black Sea, and the Western Goths between the Dniester, the Danube, and the Vistula. As they were assailed by the advancing Huns, and compelled to abandon their settlements about the year 375, the Romans conceded to them other settlements in the interior of their empire. The Western Goths, under their king Alaric, attacked the Romans in Italy in 403, several times assailed Rome itself, and conquered and plundered it in 410. His successor Ataulf led his followers into Gaul in 411, and from thence into Spain, where was erected the largest Gothic kingdom, which from 624 comprehended the whole of the Peninsula, with a part of France and some portions of Africa, and was only terminated in 711, by the victory of the invading Moors at the battle of Xeres.

The Eastern Goths had been settled by the Romans in the country of Mœsia, now known by the names of Bulgaria and of Servia. Odoacer, the chief of two German tribes, the Heruli and the Rugieri, who had served under the Roman standards, became the master of Rome and of all Italy. But he was subdued by Theodoric king of the Western Goths, who thus succeeded to supreme power in Italy in the year 493.

Though Theodoric was one of the greatest characters of his age, the kingdom he founded proved but of short duration. The Emperor Justinian, after his successes in Africa, attacked the power of the Goths, and by his generals, first Belisarius and afterwards Narses, once more, in 554, restored Italy to the dominion of the Greek empire. The Gothic sovereigns then disappeared, and in a few years no trace of them remained except their name, which has been applied to a peculiar style of architecture.

A few years after the fall of the Gothic kingdom, the reater part of Italy fell under the power of the Longo- ards or Lombards. According to some accounts, they ere a tribe from Scandinavia, but according to others, a ranch of the great German family of the Suevi, who in arlier times had inhabited those parts on the Elbe which re now known as Luneburg, and who had, after various xcursions, been settled in Pannonia about 527. They dvanced from thence, in 568, towards Italy, and under eir king Alboin made a conquest of nearly the whole eninsula; a feat which was easily effected, owing to its esolate and depopulated condition. The chief opposition ey encountered was from the city of Pavia, which, af- r a siege of three years, was captured in 572, and made e capital of the kingdom. Lombardy flourished during vo centuries, till it fell under the power of the Emperor harlemagne in the year 774.[1]

The history of Germany between the years 560 and 70 is wholly destitute of the materials necessary to ame a consecutive narrative. The only writer of the eriod was Gregory bishop of Tours, and his attention was holly engrossed by the events of the Frank kingdom hich had sprung up in Gaul, and had begun to decline, e manners, laws, and customs of which he has faithfully presented. The only part of his voluminous work which lates to Germany, is an account of an alliance formed be- veen the Bavarians and Longobards, which offended the ranks, and proved the cause of hostile movements, which, owever, were speedily and pacifically terminated in 589. rom the death of Dagobert in 632, the dominions of the rankish kings of the Merovingian race were gradually iminished. One portion after another fell into the hands f great lay or ecclesiastical feudatories; but these cir- umstances seem to have had little effect on the German ibes. They scarcely interfered in the Frankish contests; nd though not without internal controversies and conten- ons, these were of local and temporary importance only, nd seldom produced extensive or calamitous convulsions. reparations for defence against the Franks were carried n; some fortresses were constructed, and military disci- line was maintained. But the most distinguished feature f the century, was the spread of the Christian faith. A aint from Ireland, with his assistants, laboured amongst e German tribes with great diligence and success. The ross of Christ had been planted among them, and publicly cknowledged as their standard; but the remains of hea- enism, with its superstitions, were cherished by the reat mass of the rude people, and the sacred rites of e Druids were performed in their hallowed groves.

St Columba indeed found almost everywhere Christian riests, but their knowledge was slight, many of their ce- monies were idolatrous, their faith was wavering, and, hat to the Irish saint was most annoying, their depen- ence on the see of Rome slightly if at all acknowledged.

The success of the Irish missionaries is much lauded y the monkish writers of the ages that followed their xertions; and whatever effect they may have produced pon the manners and morals of the Germans, it must be cknowledged that they were successful in bringing that eople into that close connection with the great head of e Christian church, which became, in a succession of nturies, under the guidance of Providence, one of the eans of their advancement in civilization.

During the same period was laid the foundation of ose small sovereign states which successively grew up Germany under ecclesiastical and lay chiefs, who bore e titles of archbishops, bishops, abbots, princes, dukes, counts, margraves, landgraves, and barons. These, in process of time, had the indirect choice of the emperor, who assumed the title of Chief of the Holy Roman Empire, and was elected to that dignity by princes called electors, who were independent, though nominally the household officers of the reigning emperor. The emperor Charlemagne was the real founder of the holy Roman empire, although that name was not given to it until a later period. He was of the race of the Frankish kings, the son of Pepin and the grandson of Charles Martel, and, jointly with his brother Carloman, ascended the throne of Gaul in 768. He was one of those extraordinary characters calculated to change the face of the civilized world. The history of his actions, during a long and glorious reign of forty-seven years, would relate his transactions in France, Spain, Italy, and Germany, but must here be restricted to those which relate to the last of those countries. (See article FRANCE.) The death of Carloman in 771 gave him the sole command of France, and his authority extended over Italy and a portion of Germany. He wished to obtain more power in that direction, and resolved to attack the Saxons, and made religion one of the pretexts for his attempt. The Saxons were a pagan people settled in Holstein and Westphalia, between the Weser and the Elbe, and, like all people in a barbarous state, thought themselves warranted by this independence in making incursions on their neighbours. They were frequently defeated, and made treaties of peace, which they soon broke, and thus continued until they were completely subdued in 803, when Charlemagne settled some of them in Flanders, and others in Switzerland, whilst the country was occupied by a Vandal tribe from Mecklenburg.

This long resistance of so weak a power was owing to the enlistments of the troops of Charlemagne being but for one year, and to the other wars in which he was engaged with the Lombards, the Danes, and the Saracens, as well as with some of the feudatories in his patrimonial dominions. He had long nourished the desire to become emperor of the West, and had negotiated a treaty of marriage with Irene, empress of Constantinople, which would have led to a general union of all Christendom under one head, but which was frustrated by the death of that princess. He was, however, in the year 800, crowned in Rome, by Pope Leo III. and acknowledged as emperor of the West in all the extensive dominions he had obtained. He reigned as emperor fourteen years, and died in 814, at Aachen or Aix-la-Chapelle in Germany, which had been early selected as his favourite residence.

The German empire may be dated from the treaty of Verdun in 843, by which the Frankish kingdom was divided. Lorraine was added to it in 924. Otto the Great brought the kingdom of Italy in 961, and the imperial dominions in that country in 962, into close connection with the empire of Germany, which then for the first time received the appellation of the Holy Roman Empire. But the Italian states were rather feudatories than subjects of that empire, and this slight bond was in a few years dissolved. Bohemia was a part of the empire under Otto, and continued to be so considered until a later period. For a short time the kings of Denmark owned allegiance on account of Jutland, and the king of Poland on account of Silesia, a state of things which continued till 1355. Hungary was also a part of the empire from 1045 till the reign of Henry IV. Prussia likewise, the possession of the Teutonic order, stood in the same relation to the empire from 1230 to 1525, and Livonia from 1205 to 1556.

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[1] See Luden's *Geschichte des Deutschen Volkes*, 2 und 3 theil; also Sartorius *De occupatione et divisione agrorum Romanorum per barba- Germanicæ stirpis*, &c. 1812.

The Emperor Conrad II., in 1033, united a part of the kingdom of Lower Burgundy with the empire, which thus comprehended Franche-Comté, Dauphiné, the Lyonnois, West Switzerland, Provence, and Savoy. These portions were, however, one after another separated from it; and in 1648, when Switzerland and the United Netherlands were declared independent, none of them remained to the empire but Savoy, Mompelgard, and the bishopric of Basil. The principles which regulated the intercourse of the emperor with the several princes, and of those princes with each other, were grounded, not, as in other states, on charters granted by the chief, but on resolutions adopted at various times amongst the several states in general assemblies. The most memorable of these resolutions were, 1*st*, that of internal peace in 1495; 2*dly*, the Golden Bull, so called from having a seal of gold appended to it. This was agreed to under the Emperor Charles IV. in 1356, and confirmed at two subsequent diets or assemblies, which were held at Nuremburg and Metz. The chief object of it was to secure to the several states the right of independent voting in the election of an emperor. 3*dly*, The treaty of Passau in 1552, or rather that concluded in consequence of it at Augsburg in 1555. This treaty established religious peace, and conferred on the several sovereigns who had embraced the Lutheran religion the free exercise of it in their dominions; and to the subjects the right to change their religion, and to leave the dominions without permission from the princes. 4*thly*, The treaty of Westphalia, concluded in 1648, which extended freedom of religion to those who had embraced the reformed or Calvinistic religion, as well as to the Lutherans.

Germany was divided, in 1500, under the Emperor Maximilian I. into six circles, viz. Franconia, Bavaria, Suabia, Upper Rhine, Westphalia, and Saxony. These were increased in 1512 to ten, by adding to them the circles of Austria and Burgundy, and forming two circles out of that of Saxony, and two out of that of the Rhine. But Lausatia, Silesia, Bohemia, Moravia, and other countries, though encompassed by the empire, were nevertheless not included in it. Each of these circles had at its head an ecclesiastical and a lay prince, who assembled the states of the circle, communicated between the emperor and them, and called their attention to the civil or military affairs of the body. Besides these, each circle had a military chief, generally denominated the field-marshal, who commanded the forces, and had the care of providing subsistence, arms, and other stores. In the assembly of the states a majority decided every question; but the decision required to be conformable to the general laws of the empire.

After the reformation of religion at the treaty of Westphalia, the circles were divided into Catholic, Protestant, and mixed. The circles of Austria, Bavaria, and Burgundy belonged to the first; to the second appertained Saxony; and to the third the remainder.

The imperial dignity was retained by the family of Charlemagne till the year 888. After that time it was elective, although for a long period there was a general adherence to the family which had been once chosen. At the commencement, the emperor was elected by the whole of the princes, whether lay or ecclesiastical; but during an interregnum, which lasted from 1197 to 1272, the highest or arch-princes, called *kurfursten*, assumed the exclusive right of electing, and by a subsequent union amongst themselves, at the election of Charles IV. in 1356, secured the power they claimed. Frankfort was the place of election to which the Archbishop of Mentz summoned the princes or their ambassadors who were allowed to vote; but none of them was to be attended by more than two hundred followers, of whom only fifty were permitted to be armed. All strangers, even sovereigns, and the ambassadors of foreign potentates, were commanded to leave the city on the day of election. After the choice had been concluded, the person chosen, or his representative for him, required to take the prescribed oaths to maintain the golden bull and the several capitulations. He was then led into St Bartholomew's Church, and declared emperor. At an early period the pope was requested to crown the emperor; but in 1338 it was ordered by Louis the Bavarian, that the dignity and power should be assumed without the ceremony of papal assent or consecration. The coronation was fixed by Charlemagne to be performed at Aix-la-Chapelle; but it was afterwards enacted at Frankfort, whence the standards and jewels used on the occasion were removed, part to Nuremburg, and part to Aix-la-Chapelle.

It became usual, during the lifetime of an emperor, to choose a successor to the imperial dignity; and the person so chosen was designated king of the Romans. This institution first arose in 1220, when Henry VII., a son of the Emperor Frederick II., was elected. He was bound to take oaths similar to those enjoined upon the emperor; but during his lifetime he was forbidden to mingle in the public business of the empire. In case of the death, of the minority, or of a protracted absence of the emperor, the golden bull had provided that the Prince of Saxony should exercise vicariate power in Saxony and Westphalia, and the Prince of Alsace similar power in Franconia, Suabia, and the Rhenish circles. They could call assemblies, collect and control the finances, and administer justice; but they had no power to grant imperial dignities or feudal estates. In neither of the circles of Austria or Bavaria was any provision made for the exercise of this vicariate power.

The states of the empire, or general assembly, consisted of the clergy and laity, who held their property direct from the empire. The first comprehended the archbishops, bishops, prelates, abbots, abbesses, and the masters of the Teutonic and St John's orders; the second included arch-princes, dukes-princes, landgraves, margraves, burgraves, graffs or counts, and the free imperial cities. After the peace of Westphalia, the states were divided into the Catholic and the Protestant portions, who on many subjects deliberated and resolved separately. Whilst the inferior princes exercised the executive and legal authority within their own states, those greater affairs which related to the empire in general, and to the respective connection of one sovereignty with another, were brought under the notice of the general assembly, in which the emperor presided either personally or by his commissary, who was always a prince of the empire, and who was attended by an assessor. The assembly was divided into three benches or colleges, in which every thing was decided by a majority of voices; but at a subsequent sitting they were united, and then the majority of the three benches determined the final resolution. Many subjects were intrusted to the examination of imperial deputations or committees. The power of making war or concluding peace belonged to the assembly, but was sometimes intrusted solely to the emperor, though only in pressing emergencies. The emperor had originally the power of nominating to the ecclesiastical dignities; but the popes gradually so intruded their authority, as to reduce the monarch's power to almost a shadow. After the peace of Westphalia, the empire was divided between the three religions. In the Catholic states, the pope and the bishops had usurped the judicial power, and administered it according to the canon law. In the Protestant parts, all the juridical power of the church was abolished, and the affairs of religion were left to the management of consistories chosen from among the subjects, in most cases on the nomination of the princes.

The power of coining money appertained originally to e emperor, but was gradually obtained by several of the iefs of the respective states; but the fineness and the eight of the coin were directed by the authority of the nperor and the general assembly. The tolls on certain vers and roads, the regulation of the great fairs of Frank- rt, Brunswick, and Leipsic, and the conveyance of letters post, as well as providing post-horses, were the regalia the emperor; and the latter were granted hereditarily to e prince of taxes, whose successors, even to the present y, have some power and some profit connected with em. The degrees in the universities were conferred in e name of the emperor; and, through a prince named by n, called the Pfabzgrave, the doctors, licentiates, advo- es, solicitors, notaries, and other legal officers, were ad- tted to practise their professions in the courts of law.

The finances of Germany, viewed as one empire, were ler the direction of the general assembly. The contri- ions were called Roman months, each of which amount- to a force of 20,000 infantry and 4000 cavalry; and the nber of these months which were granted to the em- or was adapted to the occasion that required them. ese were divided among the several states, and called t ir contingents. They were, however, in process of e, frequently converted into payments in money, at sti- ated rates. In later times each Roman month was mated at 128,000 florins, or about L.12,000 sterling. is tax was paid either at Augsburg, Frankfort, Nurem- g, or at Leipsic, and the collectors of it were called nning-meister.

any of the individual princes were under greater or le restraint in the exercise of power, from the rights of th r state assemblies; and when there was a collision be- t en them, an appeal was made to the imperial tribunals. T those courts the princes were answerable for the debts th y incurred, and by them their dominions were on some o asions put in a state of sequestration; but in other of th principalities there were no assemblies of the states, a consequently less limitation of powers, though in them th sovereign could be brought under the authority of the in erial chamber, and obliged to fulfil his engagements.

his sketch of the ancient constitution of the German e ire is interesting, from the length of time which it last- e and from having, during ten centuries, with all its com- pl ity and impediments, preserved, among the many inde- p lent states of which it was composed, a feeling of na- ti ality, which is still cherished by all who are descended fr the rude and ancient tribes of German origin. This con- st ution gave to Germany but little other unity, and less p er, and rendered the greatest of the European king- d s the weakest of them all. It kept them, however, from su ring the misery of a conquered and an oppressed peo- pl and has led them to a degree of intellectual culture, in hich they have been equalled by few, and exceeded by n ther nation. Perhaps the distribution of the territory in ich small sovereignties was one of the most effectual m ns of advancing and securing that reformation of reli- gi , which all Protestants regard as one of the greatest bl ings to the whole human race.

he history of Germany in modern times is so much co ected with that of the rest of Europe, especially dur- in he wars of the last and the present century, that a nar- ra n of it would only be a repetition of what is to be found in is work under the heads of Europe, France, and es- pe lly Britain; and to them the reader is referred.

e peace of Presburg in December 1805 first gave oc- ca n for the dissolution of the ancient constitution of Ger- ma . By that treaty the Dukes of Bavaria and Wurtem- be were raised to the rank of kings, and the Prince of Ba n to that of an independent sovereign. Soon after- wa s (28th May 1806) the arch-chancellor of the empire de red to the assembled diet, that, though contrary to law, he had nominated Cardinal Fesch, the uncle of Bonaparte, as his coadjutor and successor; and on the 12th of July the new kings of Bavaria and Wurtemberg, and sixteen other princes, formally announced to the Emperor Francis II. their separation from the empire, and invited the other princes to join them in a new alliance. The Emperor Francis on the 6th of August issued a declaration of his withdrawing from the head of the empire, abandoning the title of Emperor of Germany, and assuming that of Emperor of Austria.

In the room of this dissolved constitution, of nearly a thousand years' continuance, the several states which had been accomplices in its destruction, with some others added to them, formed what was called the Confederation of the Rhine, which, by February 1808, had received the adhesion of most of the princes, and placed Bonaparte at its head, under the title of protector. Two years afterwards, the protector, by his sole decree, united the rivers Scheldt, Meuse, Rhine, Ems, Weser, and the mouths of the Elbe, to France, and robbed of their dominions several of the smaller princes, whom he had contracted to defend. With these augmentations he continued his aggressions till the dispersion of his army in Russia.

As the events which produced the deliverance of Germany from the yoke of France belong to the history of that country as much as to this, our notices of it here must be brief. After the destruction of that vast army which penetrated into Russia, almost all the states of the north of Germany, with Prussia at their head, declared war against France. An army was quickly collected from the French conscription, and, with a wonderful celerity, Bonaparte, at its head, was enabled to penetrate into Saxony, to threaten Prussia, and exhibit a force which he supposed would overawe Austria. The battles of Lutzen and Dresden, in 1813, produced an armistice, during the continuance of which negotiations for peace between Russia and Prussia on one side, and France on the other, were carried on under the mediation of the Emperor of Austria. But as peace could not be concluded, Austria was induced to join the allies against France. During these periods a spirit had risen in Germany which animated all classes of its inhabitants, so that those powers which still clung to the interests of France could place no reliance on the support of their subjects. Bonaparte, overpowered by numbers, with an army of raw troops from his own dominions, and with troops of doubtful fidelity from the dominions of his allies, was surrounded, and, after being compelled to retreat from Dresden, fought the important battle of Leipsic against the armies of Russia, Austria, Prussia, and Sweden. The issue of that battle was not considered as doubtful even from its commencement; but, during the contest, the Saxon division of the army marched from their station in the French line, and took up their position with the Prussians. The result of the battle was a hurried retreat from Leipsic to the frontier of France, which was then the river Rhine. On the retreat to the Rhine, the shattered remains of the French army were interrupted by the forces of Bavaria. A battle was fought at Hanau, about twelve miles from Frankfort, which, though gained by the French, tended only to hasten their flight, and led to the loss of much that remained of their stores, arms, and ammunition.

By the end of the year 1813, the French were totally expelled from every part of Germany, and the occupation of Paris by the allies, early in 1814, led to general tranquillity. The Congress of Vienna soon afterwards met, and never was a body of plenipotentiaries plunged into such a labyrinth of difficulties. The great extent of country which had been delivered, and was without any government; the number of claims urged either from previous possession, or from active service in effecting the deliverance; were such as to perplex with difficulties which appeared to be nearly insuperable, and, in whatever way they were terminated, must necessarily have left great dissatisfaction. They were, however, so settled as to leave Germany in the state described in the preceding pages; and whether they could have been adjusted with more regard to the principles of equity is not for us to decide.

The return of Bonaparte from Elba produced most gigantic efforts upon the part of all those smaller sovereigns who had been reinstated in their dominions by his downfall. The number of troops actually mustered and prepared to march when the battle of Waterloo took place and suspended them, amounted to more than 1,200,000 men. They were not indeed all armed, but many more men could have been raised if arms for them could have been procured. These efforts, added to the costly exertions made in the war of the deliverance, have encumbered with debts almost every state, as is noticed in the detailed account of them. These debts, however, have not been solely created by the events in question. The ephemeral kingdom of Westphalia, formed for Jerome Bonaparte, extended over Hanover, Brunswick, and Cassel, as well as the circle from which it was denominated. During his government, all the different portions of his kingdom had incurred vast debts in executing his projects. These debts were owing to individuals or corporate bodies within the dominions attached by the congress to their new sovereigns; and the princes, for the sake of the people, were compelled to assume the debts, and provide means for their liquidation, and the payment in the mean time of the interest. Thus the ungrateful task of providing for the expenditure attending the subjection of their states, as well as for their liberation, became one of the first duties on their resumption of power. This odious consequence of former circumstances has been industriously improved by the enemies of tranquillity, and has created considerable discontent.

These feelings of discontent were chiefly confined to writers in periodical papers of the smaller kind, and to associations amongst the young men in those universities in which the discipline was the most relaxed. The demonstrations of this dissatisfied state of the public mind were few, and scarcely noticed except in narrow circles. The murder of Kotzebue by Sandt, and a similar attempt on the life of Ibell, the minister of Nassau, were tokens of great excitement amongst a few fanatics; but the judicial inquiries which followed these transactions seemed to the governments to prove that the mischievous views of insurrection or assassination were confined to a very narrow circle. There was no interruption to the full exercise of the powers of the law, nor any necessity for increasing the military establishments. The Revolution in Paris in 1830 produced, however, considerable excitement in several parts of Germany, particularly in Hanover and in Saxony, and also in Brunswick, though in the latter country it was more owing to the personal character and conduct of the sovereign, which led to his deposition and to the investing of the power in the hands of his brother. In Hanover, the suspension of the university of Göttingen, and the mild but firm measures of the government, soon led to tranquillity; and in Saxony, though some mischief was effected, it was but of short duration, and the kingdom soon returned to that tranquil state which is habitual to the greater part of its inhabitants. The establishment of the present German confederation, consisting of ambassadors from all the states, in number proportioned to their extent and population, has concentrated the power of the whole body of the princes, and appears calculated to give stability to ancient and respected institutions. These representatives were seventy in number, but are now reduced to sixty-nine,[1] as appears by the table which follows; and in some cases they act by a committee of seventeen. In the general body, two thirds are required to make a law; in the smaller body a bare majority is sufficient, but in both assemblies Austria and Prussia have a great preponderance. Austria is the president in both these bodies, and has the casting vote when an equality of opinions is experienced. It is not our design to condemn or applaud the constitution; but it is powerful to suppress insurrection, and to propagate general regulations, and is said to have been found highly beneficial in the arrangement of differences between the governments of the several states of which it is composed.

Within the limits of Germany are portions of kingdoms, parts of the territory of which are not within the sphere of the confederation; thus Austria, Prussia, the Netherlands, and Denmark, have parts only of Germany within their dominions, and therefore will here receive such notice as is merely necessary to give a view of the whole of Germany. Austria and Denmark have already been noticed in this work, and the kingdoms of the Netherlands and of Prussia will occur in their alphabetical order.

The four kingdoms of Bavaria, Hanover, Saxony, and Wurtemberg, are too important to be wholly included in a general article. Bavaria has been already treated of separately, and the other three will be noticed in their proper places.

According to its present boundaries, Germany extends from 45° to 54° 20′ north latitude, and from 5° 43′ to 20° 50′ east longitude from London. It is bounded on the north by the German Ocean, by Denmark, and the Baltic Sea; on the east by West Prussia, Poland, Cracow, Gallicia, and Illyria; on the south by the Adriatic Sea, Italy, and the Helvetic provinces; on the east by France and the kingdom of the Netherlands. Its whole extent, including rivers and lakes, is 248,832 English square miles.

The southern part of Germany is either covered or penetrated with steep mountains, one part of which extends from the Alps, and the other from the Carpathian range. These mountains gradually lose themselves in advancing northward; and from the last of them, the Hartz, upon the confines of Hanover, begins that vast plain which extends over the north of Germany, through Prussia and Poland, and a considerable part of Russia. This plain was probably covered by the water long after the more southern parts had emerged from the ocean, the evidences of which are apparent in the turf moors of the sandy districts, where expensive embankments and dikes are necessary to preserve the land from inundation.

The soil is generally productive. The plains in the north have indeed much arid sandy land; but nature has provided along the borders of the rivers some rich and fruitful soils, where the most abundant harvests are gathered. The south has also on its mountains much barren or slightly productive land; but the beautiful valleys and small plains between the hills rival in fertility the best alluvial lands on the banks of the northern rivers. In general the soil in the north is heavy, and in the south light; the former most adapted for corn, and the latter for vines. The best soil is in the middle, between the mountains and the sandy plains. In Bohemia, Silesia, Franconia, Saxony, and on the Rhine, the proportion of good soil is much greater than in the north or the south.

Some of the loftiest mountains of Germany are those springing from the great mass of the Alps, and divided into the Rhætian and the Noric; and several of the peaks of these reach the line of perpetual snow. The eastern branch of the Noric chain runs through the Austrian dominions, and loses one part of that chain in Silesia, whilst another enters Hungary. The other branch runs through Bavaria and Wurtemberg, to the west of the Black Forest, and is connected with the Odenwald, the Fichtelgebirge, and the mountains of Thuringia. It stretches to the Hartz, and the mountains through which the Weser forces its passage, oon after which it is lost. Several other chains branch from these greater ones; and some of their peaks attain a considerable elevation. The principal mountains, and their height above the level of the sea, are as follows; but in their progress to the north their gradual declension in height is remarkable :—

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[1] This diminution of the number has been caused by the duchy of Saxe-Gotha having been divided between two other states.

	Feet.
The Ortel, in the Rhætian Alps	14,416
The Grossglockner, in the same	11,982
The Vichbachhorn, in the Noric Alps	10,826
The Terklon, in the Carnic Alps	9,744
The Hochvogel, in the Alguer Alps	9,000
The Grosenberg, in the Styrian Alps	8,380
The Eisenhuth, in the Julian Alps	7,680
The Schneeberg (near Vienna), in the Noric Alps	6,858
The Olscher, in the Noric Alps	6,062
The Traunstein, in the same	5,365
The Schneekuppe, in the Reisenberg	4,950
The Feldberg, in the Schwartzenwald	4,610
The Rachel, in the Bohemian Forest	4,282
The Speiglitzer, in the Macher Mountains	4,280
The Fichtelberg, in the Erzgebirge	3,731
The Dammersfeld, in the same	3,640
The Schneeberg, in the Fichtelgebirge	3,621
The Brocken, in the Hartz	3,489
The Hohe-Eule, in the Glatzgerbirge	3,326
The Beerberg, in Thuringia	2,985
The Inselberg, in the same	2,791
The Feldberg, in the Taunus	2,605
The Meissner, in the Warrageberge	2,180
The Müggelsberg (the highest in Brandenburg)	340
The Rekuhl (the highest in Pomerania)	280

The mountains are generally covered with forests; to the southward, where they are the most lofty, with pines; and to the northward, with various deciduous trees. If at the present day the *terra sylvis horrida* of Tacitus cannot be found in Germany, it is still the most abundantly wooded territory in Europe.

Germany has seven large rivers which pass through it to the sea; and in their passage receive the various smaller streams which issue from the mountains, and spread fertility over this well-watered country. The Danube rises in the dukedom of Baden, becomes navigable for small craft at Ulm, receives the large rivers Lech, Iser, Inn, Ens, and March, and, after a course of 430 miles, exclusively of its curvatures, waters Hungary in its way to the Black Sea. The Rhine, rising in Switzerland, and navigable from its entrance into Germany, has a course, exclusive of its windings, of 460 miles, before it enters the kingdom of the Netherlands. In its progress it receives the navigable rivers Neckar, Lahn, and Moselle, the Saar, the Roer, and the Lippe.

The Weser rises in middle Germany, from two springs which form the Fulda and the Werra, and at their junction takes the name which it carries to the ocean, and under which name it runs, without noticing its bendings, 190 miles. It becomes navigable at Minden for boats, and at Vegefach, near Bremen, for ships. The Elbe, like the Weser, from its rise to its junction with the ocean, is wholly a German river. It becomes navigable near its source, runs a course of 520 miles, and is the most considerable channel of commerce with foreign countries, through the ports of Hamburg and Altona. It receives the navigable rivers Moldau, Eger, Saale, Havel, Spree, Ilmenau, and Steckinitz, besides fifty smaller streams. The Oder becomes navigable for boats at Ratisbon, and running, in the Prussian part of Germany, a course of 380 miles, empties itself into the Baltic Sea in Pomerania. It receives the rivers Bober, Neisse, and Warthe, besides many smaller streams. The Eloch is the only German river which runs to the Adriatic Sea. It passes through the Tyrol, and only becomes navigable after it has entered Italy. The Ems is a river of short course, rising in Prussia, and passing through the province of East Friesland, now belonging to Hanover, whence it becomes navigable, and soon enters the sea near the city of Emden in two branches.

The forming a junction between these great rivers, by means of canals, is an object of vast importance, and some progress towards effecting it has been made. The Holstein Canal unites the German Ocean with the Baltic Sea from the river Eider. The Plauen Canal unites the Havel with the Elbe, or rather facilitates and shortens the passage. The Finnow Canal forms a communication between the Havel and the Oder. The Frederick William's Canal unites the Spree and the Oder. The Pappenburg Canal is designed to unite the Ems with the Elbe. Lastly, the Vienna Canal is now completed, and forms a communication between the Danube and the Adriatic Sea.

The whole of Germany being in the temperate zone, though, from the variations of elevation and the difference of latitude, it differs in climate, is generally very healthy. The most mild and beautiful are the middle provinces, between the 48th and 51st degree. In the south, under the influence of the Alps, the air is raw and cold; whilst in the plains and open valleys the climate of the finest parts of Italy is enjoyed. The northern provinces are colder, damper, and more ungenial, and near the stagnant lakes unwholesome. The weather undergoes extreme variations, and the frost is frequently seen at a late period of the year. The inhabitants there too feel the effect of heavy fogs, and sometimes of tremendous storms. No volcanoes are now in existence; and though the remains of them are to be seen in many places, they are not supposed to have been in activity since the antediluvian ages. Earthquakes are scarcely felt, and have never been injuriously experienced; and the country is free from the musquitos, which so much annoy the inhabitants of Italy. Vines, maise, and rice, grow as far north as latitude 51; but beyond that they do not arrive at full perfection. The olive and the silk-worm are only raised on that small portion of Germany to the south of the 46th degree.

The original German horses are of a very inferior race, and the specimens of them, where they have not been improved by the intermixture of other breeds, generally bad; but from this must be excepted those of Mecklenburg, East Friesland, Holstein, and Luneburg, which, for draft or for heavy dragoons, are admirable races, and have been propagated over all Europe. Horses for pleasure, or for mounting light cavalry, must be brought from other countries; but the jennets, a light small breed, are good and quiet. Asses are not common even in the southern part of the country. Mules are to be seen in Hanover, near the Hartz Forest, and in the Tyrolese portion of Germany they are the common beasts of burden.

The cows are of various breeds; but the handsomest are those from East Friesland, Oldenburg, Holstein, and the other provinces on the borders of the German Ocean, though generally known under the name of East Frieslanders. The Hungarian breed prevails in many parts, but is esteemed more for the ease with which the animals are fattened than for the purposes of the dairy. A third sort of cows is the Swiss breed, which does not come wholly from the Alpine regions, but is furnished by Wurtemberg, and a part of Bavaria. The breed of Germany, originating from the mixture of these races, is well adapted for the dairy; but, either from want of appropriate qualities in the animals, or from the imperfect manner of fattening them, the oxen, when killed, are seldom more than 500 pounds weight, and the average of them considerably lighter. Some attempts are now making to improve the breed, by the introduction of the Tyrolese bull; perhaps the most perfect animal of the cow kind for meat and for draft, and which, when crossed with the best milkers, produces the most complete cattle. The common practice in Germany, of killing the calves from ten to sixteen days old, produces very bad veal; but some of the beef, especially near the banks of the Elbe, is excellent.

The proper German sheep are a mixture of the original coarse-woolled race, crossed by a breed from Ardennes. In a part of Illyria they have the sheep of Padua. The fine-woolled sheep of Spain have, however, been introduced by many of the princes, and have been vastly extended, especially in Saxony, Silesia, and Brandenburg, and will probably, at no distant period, be the principal, if not the sole race. The badness of their flesh is of less consequence in Germany than in England; because, in the former country, it is not worth more than the annual clipping of the wool, which can be sent to richer countries, where they can afford to pay high prices for it; but the flesh must be consumed at home, and therefore sells for little.

Goats are common in all the states, but are only to be seen in large flocks in the more mountainous parts. Swine are the most important kind of live stock in Bavaria, Westphalia, Hanover, Mecklenburg, and Pomerania. They are of three different breeds; the long white, bent in the back; the short white, or yellow, with the same kind of back; and the black, or yellow, of a short make; but these different breeds are becoming much mingled together.

The forests of Germany abound with untamed animals, which afford sport to its princes and nobles, and furnish a considerable quantity of aliment to the higher and middle classes of the people, as the noble sportsmen generally sell their prey, and are obliged to dispose of it cheap. Wild deer of various kinds, and wild swine, are very numerous in many parts of the country. With them, foxes are found in some districts in prodigious numbers; but the hunting of these animals is less an object with sportsmen in Germany than with us, as the lynxes are very numerous, especially in the mountains in the south, and the chase of them is found to be the most exciting of all rural sports. At a hunting on the estate of one nobleman in Bohemia, during three days of 1818, more than 12,000 head of game were killed; and in Saxony between 2000 and 3000 hares were shot in one day, and sold for about one shilling each. There are bears in the southern parts, in Illyria, in the Steyermark, and the Tyrol, of the small black kind, more dangerous to the bee-hives, and the smaller animals, than to man. Wolves are few now, and only found in the Trans-Rhenish provinces. In some of the mountains the beaver is found, though but rarely, and some other animals, principally valuable for their fur. The most annoying animal is the field-mouse, of a species called the hamster, which is found in thousands in Saxony, and does incredible injury to the productions of the soil. In the months between the 9th May and the 9th September 1817, the corporation of the city of Gotha paid rewards for killing 89,565 of these mischievous animals.

Domesticated birds are very plentiful, but especially ducks and geese. The latter form an important portion of the food on many of the farming establishments, especially in Pomerania, Bohemia, and the Steyermark, where most houses in the country cure from fifty to a hundred for their winter consumption. Wild birds are more numerous in Germany than in any other part of Europe. Wild geese, bustards, grouse, blackcocks, woodcocks, wild ducks, widgeons, teal, and snipes, are most abundant. Besides these, the smaller kinds of birds, as larks, thrushes, and sparrows, and the singing birds, especially bullfinches and canary birds, are plentiful. The latter are chiefly taken in the Hartz Forest, and are circulated throughout all Europe.

The three seas which border on Germany abound with fish. Besides the kinds which are caught in the ocean, the Baltic Sea and the Adriatic furnish their peculiar species. Amongst those of the former are the dersh and the klipfish (*anarchicos*); and of the latter the tunny, the sardinia, and many others. The greater part of the fish consumed in Germany is, however, the produce of the rivers and lakes, which supply in great abundance eels, lampreys, trout, salmon, sturgeon, perch, pike, salmon-trout, barbel, carp, craw-fish, and many others. With these various kinds the markets in the cities are most profusely supplied.

The rearing of bees in the north, and especially in Lausatia, is productive of much honey and wax, which form important articles, both for domestic use and for foreign trade.

The great production of Germany, as of every other European country, is grain of various kinds. Wheat, rye, maize, rice, barley, oats, beans, peas, and buckwheat, are the most important of these. In the south, more wheat than rye is grown; but in the north, the proportion of rye to wheat is eight to one. In the north, most oats are cultivated; in the south, more barley. Maize and rice are peculiar to the south; buckwheat and peas are alike in every part.

The productions arising from garden culture are very great. Potatoes are sometimes cultivated with the spade, sometimes with the plough; but the increase of their growth has been very rapid of late years, and probably furnishes as much human aliment as grain. The cabbages of all the Brassica tribe receive much attention, and are raised in great quantities. Turnips are cultivated with little care, merely as food for man, and are not extensively used for feeding cattle. The superior kinds of fruit are best in the middle and southern provinces; but in the north the apples, plums, and pears, are good and most abundant. The Pearmain apple, which has spread throughout all the countries of Europe from Germany, is found in the highest perfection in Stettin, Bostock, and the Tyrol. Chestnuts and almonds are almost exclusively grown in the southern parts, towards Illyria and the Tyrol; and in the same vicinity the melons and other fruits, which in our climate and the north of Germany require artificial heat, are raised in the open air.

Vines were originally planted in Germany by the Romans. They are now cultivated successfully on the banks of the Rhine, the Maine, the Moselle, the Danube, the Mur, the Etsch, and the Save, where they produce wine as highly esteemed as any in Europe. The most valued of all the wines is that produced on the banks of the Rhine, known in England by the name of Old Hock, from the vineyards of Hockheim, where the best kind is made. The principal sorts, from the places of their growth, are denominated Johannisberg, Rudesheim, Hockheim, Markobrunn, and Lieb-frauenmilch. The next in value are the wines of the Maine, called Leisten wine, Stein wine, and Steyer wine. The wines from the Danube are next in estimation, and to them succeed those from the Tyrol and the banks of the Moselle. The other wines near the lake of Constance, and in Bohemia, are much inferior; and those produced near to Naumberg, Jena, and Meissen in Saxony, and to Zullichau in Silesia, are of very indifferent flavour, specially after a moist summer, and scarcely merit the ame of wine, though, from their great abundance, they ecome very useful to the inhabitants.

Neither the quantity nor the quality of the oil produced om olives in Germany is material; it is confined to a nall district of the south. Great quantities of rape and nseed oil are expressed; and for the more common puroses, the oil of herrings, seals, and other aquatic animals, very abundant.

But the staple production of Germany is flax, which grown in almost every village, and is spun into yarn. he best is produced in Silesia, in Westphalia, in Hanoer, in Brunswick, and in Bohemia; but even these kinds not attain a length or fineness of fibre equal to the flax Flanders. Hemp is raised in Baden, Wurtemberg, estphalia, Hesse-Darmstadt, and Luneburg, but scarce- produces sufficient for the consumption of the country. obacco has been long cultivated in Baden, on the Rhine, d near Magdeburg, and during the existence of the ench continental system had been very much extended; t the return of peace checked its progress, and the culation of it is again confined to those parts here menoned, where, from long habit, it has become almost ingenous. Various roots were cultivated for the proiction of sugar during the continuance of that system, t they now scarcely deserve notice, as they are nearly andoned. Woad, saffron, annise-seed, cummin-seed, ps, rhubarb, camomile flowers, and Iceland-moss, are tive and considerable productions. The forests of Gerany, besides their abundant supply of fuel to the inhatants, furnish much wood, both for building houses and ips; and if ever the water communication should be ich extended, so as to bring the largest trees with faity to the shores of the ocean, they will become a most luable source of wealth.

No part of Europe yields a greater variety or abundance mineral productions, and in no part of the world are the nes worked with so much skill or so much economy. ecious stones are discovered in many parts; rock-crys, amethysts, topazes, are found in Bavaria; calcedony, ate, petchstein, and porcelain-jasper, in Bohemia; batès in many parts; marbles, gypsum, and alabaster, in hemia; alum near Töplitz; rock-salt and Glauber salts in rious parts; and abundance of the earths calculated for king earthenware, from the coarsest description to the est porcelain. Fossil coal is found in many districts, d much of it is consumed; but the cheapness of wood, d the prejudices of the people against the use of it in eir houses, has operated to prevent the mines from ing completely explored or worked to anything apaching the extent of which they are capable. Gold procured, though in very small quantities, by washing, Saltzburg, in Bohemia, in the Rammelsberg, and in Siia. Silver and cinnabar are raised from the mines of Erzgebirge in Saxony. Iron, copper, tin, lead, canine, bismuth, cobalt, nickel, titanium, arsenic, and alst every other mineral, is more or less raised from the nes. The abundance of mineral substances everywhere ttered, and which it would be difficult to enumerate, e promoted the study of mineralogy, and given birth the school of Freyburg, whence, under the direction Werner, the mineralogical knowledge of the earth has en widely extended.

The annual supply from the mines of Germany is as ows:

Gold	1,456 ounces.
Silver	984,000 do.
Copper	39,000 hundreds.
Lead	191,200 do.
Tin	7,800 do.
Iron	2,400,000 do.
Quicksilver	6,180 hundreds.
Cinnabar	7,800 do.
Cobalt	16,500 do.
Calamine	82,800 do.
Arsenic	10,600 do.
Antimony	2,400 do.
Rock-salt	5,150,000 do.
Fossil coals	20,000,000 do.

The population of Germany has been vastly increased within the period which has passed since the conclusion of the revolutionary year. By the several censuses furnished by the respective states to the congress of Vienna, it appeared that the whole number of the inhabitants was 30,355,069, which in sixteen years has increased to 36,491,019, as is thus seen.

States.	Inhabitants.	Square English Miles.	Votes in the Assembly or Diet.
Austria	11,645,000	78,912	4
Prussia	10,010,755	70,549	4
Bavaria	4,037,017	30,997	4
Saxony	1,497,568	7,200	4
Hanover	1,549,000	14,720	4
Wurtemberg	1,562,033	7,524	4
Baden	1,201,300	5,803	3
Hesse-Cassel	649,800	4,352	3
Hesse-Darmstadt	720,000	4,112	3
Holstein	410,385	3,691	3
Luxemburg	305,120	2,347	3
Saxe-Weimar	232,704	1,408	1
Saxe-Coburg Gotha	156,639	1,024	1
Saxe-Altenburg	114,048	491	1
Saxe-Meiningen Hilburghausen	129,588	875	1
Brunswick	250,100	1,514	2
Mecklenburg Schwerin	450,200	4,755	2
Mecklenburg Strelitz	84,130	768	1
Oldenburg	251,500	2,752	1
Nassau	355,815	2,164	2
Anhalt-Dessau	60,000	363	1
Anhalt-Bernburg	40,000	340	1
Anhalt-Kothen	36,000	331	1
Schwartzenburg-Sonderhausen	51,767	384	1
Schwartzenburg-Rudolstadt	60,000	448	1
Hohenzollern-Hechingen	15,500	117	1
Hohenzollern-Sigmaringen	39,000	426	1
Leichtenstein	5,550	53	1
Reus, elder branch	25,000	153	1
Reus, younger branch	58,500	453	1
Lippe-Detmold	77,500	436	1
Schaunburg-Lippe	25,500	213	1
Waldeck	56,000	459	1
Hesse-Homburg	23,000	138	1
Frankfort	55,000	113	1
Lubeck	47,000	122	1
Bremen	49,000	72	1
Hamburg	154,000	134	1
	36,491,019	251,418	69

The inhabitants are of two original races; the ancient Germans and the Sclavonians. The former are divided into High and Low Germans, speaking a language somewhat different, but possessing great similarity in habits, characters, and dispositions. The Low German, or, as it is called, *Platt Deutsche*, prevails among all the people in Lower Saxony, Westphalia, Holstein, Mecklenburg, Brandenburg, and Pomerania; but as the service in the churches, and the instruction in the schools, is in High German, all even of the peasantry understand that language, though they prefer their own dialect. In the southern parts, where only High German is spoken, the peasantry use a *patois* which is scarcely more intelligible to those unaccustomed to it than the *Platt Deutsche.* The descendants of the Sclavonians reside all to the eastward of the Elbe. They retain their original language, with a great mixture of German words; and they are far behind their neighbours in cultivation, but are an industrious and patient people. They form nearly one sixth of the inhabitants. In the south are some few of Italian origin; and colonies of French, originally Protestant refugees, are established in many places, where they retain a connection with each other, founded upon privileges granted at the time of their emigration. But all these scarcely amount to more than 250,000. The Jews are 248,749 souls; of whom 83,077 are in Austria, 57,353 in Prussia, 22,000 in Bavaria, 8319 in Wurtemberg, 8000 in Hanover, 8300 in Hesse-Darmstadt, 15,079 in Hesse-Cassel, 14,378 in Holstein, 16,000 in the free cities, and the remainder are scattered over the other states.

By the terms of the confederation, the three Christian sects, Catholics, Lutherans, and Reformed, are on an equal footing in all the states of the union, and the religious profession of the princes has very little influence upon that of the subjects. The Catholics are the great majority in Austria, Bavaria, Baden, and Luxembourg, and form a numerous body in Prussia, Wurtemberg, Hesse-Darmstadt, Hesse-Cassel, and Hanover, amounting in all to 21,000,000 individuals. The Protestants of the two confessions have approached each other so nearly as to form almost but one church, and in many parts they are amalgamated together. Their whole number is about 14,000,000. The smaller Christian sects, Menonites, Hussites, Moravians, and a few of the Greek church, are not together more in number than the Jews, who, as before stated, do not exceed 250,000.

The knowledge of the German people probably exceeds that of every other. They have men of eminence in every department of literature, and can enumerate those who have made discoveries or improvements in every branch of science. It is not, however, so much from the merits of their eminent men, great and useful as they have been, as from the general diffusion of knowledge, that the character of the nation must be estimated. Its literature is not the work of its princes and nobles, but arises from the general taste for reading and accumulating knowledge which so extensively prevails, and which descends lower in the scale of society than in almost any other country of the civilized world. Although for two hundred years literature has prevailed much in Germany, it was only about the middle of the last century that, by the poets and critics, the language became polished, without diminishing its force, and was purified from many of those vulgarisms which had disgusted the English, French, and Italian literati. The learned men had more sedulously studied the ancient languages of Greece and Rome than the improvement of their own; but, in the middle of the last century, a race of authors appeared, with whom arose the commencement of the golden age of literature. Gotsched, Lessing, Adelung, and Campe, were amongst the first who imparted to their countrymen the knowledge of the powers and of the beauty of their native tongue. Poetry soon lent its aid, and furthered what the prose writers had begun; it broke forth suddenly as from a dark cloud, and threw a radiance on almost every subject which, in any age or country, the muse has ever attempted. With Haller, Gellert, and Hagedorn, began that chain of poetical writers which has continued to be extended to the present day. The poetical epistles of Michaelis, Ebert, Gotter, and Jacobi, will ever be read with delight. In descriptive poetry Von Kleist, Thümmel, and Wolfgang, have been distinguished; but especially Goethe, whose name is known in every corner of Europe. In satire, Rabener, Musæus, Lichtenberg, and Falk, excelled; in elegy, Holtz, Bürger, Weisse, Schmidt, and Herder; in fables, Gellert, Lessing, Willamow, and Pfeffel; in poetic tales, Wieland, Blumauer, Rost, and Nicolay. The name of Klopstock will ever be reverenced by those who venerate heroic or religious poetry. The lyric poems of Schiller, of the two Schlegels, of Bos, and Ramler, are beautiful specimens of the powers of the German language. Amongst the most eminent of the poets of Germany the name of Goethe cannot be passed over without some mention being made beyond the bare announcement. He has been, during a long life recently closed, the wonder and the delight of all who can understand his language. His works embrace every species of poetry, and are all marked with originality, force, pathos, and nature. He appeared with wonderful applause as a writer, first in 1773, and continued to interest, amuse, and instruct his country during more than fifty years, retaining to the last his powers of critical reflection and of accurate and spirited composition. The theatrical productions have kept pace with the other species of poetical composition. In tragedy, Schiller, Goethe, Lessing, Collen, and Grillparzer, have distinguished themselves; whilst Ifland, Kotzebue, Brand, Grossman, Schroeder, and a host of other writers, have appeared in comedy.

German writers of prose have been neither fewer nor less able, though their names have not been so far extended in other countries as those of the poets and theatrical authors. In religious compositions, Mosheim, Sack, Jerusalem, Spalding, Zollikofer, and Teller, are destined to futurity, after having delighted and edified the existing generation. In epistolary writing, few in any language have exceeded Gellert, Winkelman, Abt, and Garve, whilst Mendelsohn has been unrivalled in his dialogues. The race of novel and romance writers has been too numerous to be recited; and the latter have displayed a power over the human passions and feelings which has scarcely been equalled by the writers of other nations. In didactic writings, those of Scheibart, Lessing, Winkelman, Iselin, Sonnenfels, Moser, Zimmerman, Eberhard, Botticher, and Forster, have displayed great talent; and on subjects of education, Basedow, Campe, Trapp, Salzman, and Pestalozzi, have discovered vast powers of mind directed to one of the most important subjects.

In classical literature the Germans have thoroughly imbibed the spirit of the ages when Greece and Rome were at the highest pinnacle of literary glory. The names of Ernesti, Heyne, Gesner, Camerarius, Fabri, Wyttenbach, Wolf, and Scheller, are familiar to the Latin scholars of every country; as are those of Michaelis, Hottinger, Von der Hardt, Eichorn, Griesbach, and Paulus, to the Greek student; but perhaps, of all the classical scholars of Europe, none have equalled the stupendous learning of the elder Schweighæuser, whose edition of Herodotus, with his lexicon, and his extracts from Polybius, Athenæus, Arrian, Simplicius, Epictetus, and others, have rendered him an object of admiration to the learned of every country.

The Germans have been ever distinguished for that diligence and patience in examination which are the great requisites in geographical and statistical authors. None in any country has exceeded Busching, and many living authors are now following his steps with equal success.

The Germans claim the honour of having been the re-ivers of the Grecian mathematics, and the glory of having ascertained, by their countryman Copernicus, the true ystem of astronomy. Kepler is considered as the father f dioptrics, Tschernhausen the inventor of burning lasses, Leibnitz the discoverer of the differential calculus, nd Lieberkuhn the greatest improver of the solar microcope. Euler was distinguished by his powers of analysis; nd Kepler, Mayer, Herschel, Bode, Von Zach, and Olers, by their skill in astronomy. Metaphysics engaged e close attention of Wolf, Leibnitz, Kant, and their holars, Fichte, Schelling, and Platner.

Although in natural history Germany has produced neier a Linnæus nor a Buffon, yet Blumenbach, Zimmeran, Pallas, and Fabricius in zoology; Haller, Gleditsch, Iofman, and Sprengel in botany; and Werner in minelogy, would not be unfit associates of those great names.

In natural philosophy the Germans claim for Guerike the iscovery of the air-pump; for Fahrenheit the thermoeter; and for Hausen the invention, and for Marun the erfecting, of electrical machines; and they are proud to eckon amongst their chemists the names of Stahl, Hofan, Margrof, Born, Klaproth, and Humboldt. In mediine, besides Paracelsus and Stahl, they boast with great eason of Hofman, Tissot, Haller, Unzer, and Huefland, ith many others of great though inferior name.

In jurisprudence the Germans long took the lead in urope; and in theology Luther and Melancthon have, y the translation of the sacred books, and by their wriings, produced a mighty change through all the most enghtened nations of Europe.

It is, however, somewhat singular, that in a country of o much learning and such research, in which antiquities ave been sedulously studied, where the numismatic colections are so numerous, and where ancient documents re so carefully preserved, scarcely any historian has apeared who deserves a higher name than that of a chroicler.

The fine arts have been cultivated, especially music, ith much success. No nation has produced more celerated composers than Gluch, Handel, Haydn, Bach, and, bove all, perhaps, Mozart. Statuary has been practised ore by Italians in this country than by natives. Painters ave risen to no very great excellence, with the exception f Albert Durer, Kranach, and Holbein; but to those of more recent date must be added Mengs, and, in our wn time, Angelica Kaufman, Hackert, and one or two thers.

The circulation of books, produced from the pens of ten housand writers, is facilitated by the two fairs of Leipsic, o which the publishers from all parts of Germany resort vith the new works they have printed at their own resilences. This general rendezvous becomes the focus of iterary information. The publications are made known, heir respective merits are discussed, and the different ooksellers exchange with each other the productions of heir respective provinces, which are thus spread over the xtensive country in which the language is used with reat regularity, and at a very trifling expense in adertising.

One evil is much complained of, namely, the want of proection for literary property; which arises from the great umber of sovereigns in whose dominions the same language is spoken. The best productions of the north are requently pirated in the south. The king of Saxony has ndeed prohibited the circulation of pirated editions at Leipsic during the fairs; but that is found insufficient to rotect authors whose productions combine excellence vith popularity. The average number of works published f late years at Leipsic has been about six thousand, mounting to about ten thousand volumes, which proably is more than all the other presses of Europe deliver. The press in Germany is nearly free; for though in some states there is a previous censorship, yet it is conducted on liberal principles, and is seldom exercised except on small political works which display more heat than light, or on the class of periodical publications of less than twelve sheets.

No other part of Europe enjoys advantages for education equal to Germany, especially the northern parts of it. The parochial schools are so universal, that none but the wilfully ignorant, or those of imperfect faculties, can be strangers to reading, writing, and the first rules of arithmetic. The schools for classical instruction, denominated *Gymnasiums*, *Pedagogiums*, and *Lyceums*, are found in almost every large town, and dispense learning at a very cheap rate. The universities are sufficiently numerous and sufficiently endowed to provide instruction in the higher branches of knowledge upon terms nearly if not altogether gratuitous.

The number of students in 1831, *communibus annis*, at each of the universities, is as under:—

Universities.	When Founded.	Religion.	Number of Professors.	Number of Students.
Heidelburg..	1346	Protestant.	45	1018
Prague......	1348	Catholic...	41	1449
Vienna......	1361	Catholic...	79	1954
Würtzburg..	1403	Catholic...	36	521
Leipsic......	1409	Protestant.	41	1360
Landshut...	1410, 1810	Catholic...	48	720
Rostock......	1419	Protestant.	34	110
Freyberg....	1456	Catholic...	32	627
Tübingen...	1477	Mixed......	44	887
Marburg....	1527	Protestant.	42	427
Jena.........	1557	Protestant.	39	593
Giessen......	1607	Protestant.	37	241
Kiel..........	1667	Protestant.	29	130
Halle.........	1694	Protestant.	51	1214
Breslau......	1702	Mixed......	51	1254
Göttingen...	1734	Protestant.	80	854
Erlangen ...	1743	Protestant.	29	413
Berlin........	1808	Protestant.	58	1937
Bonn.........	1818	Mixed......	—	988

Besides these universities, there are in almost all the capitals of every state institutions for instructing pupils in the various learning of the medical, clerical, legal, and military professions, and of agriculture, mining, and the management of forest lands. There are also abundance of learned societies spread over the whole of Germany, many of which have, in the course of years, been enabled to assemble such large collections of natural and artificial curiosities as afford valuable assistance to those engaged in the pursuit of knowledge.

The public libraries collected in the different cities far exceed any thing that has been known in other countries. These valuable collections are managed with the greatest liberality; all of them are open for inspection and perusal at all proper seasons; and from most of them the readers may be supplied at their own residences. They thus become active and efficient fountains of knowledge. It would be tiresome to give a list which should comprehend all those the number of volumes in which exceed 10,000; but we shall present one of those whose volumes are not less than 50,000: viz. Vienna, 550,000 volumes, including manuscripts and local and temporary works; Munich, 400,000 volumes in the royal central library; Göttingen, 280,000 volumes, including some thousand valuable manuscripts; Dresden, 250,000 printed volumes, and 104,000 manuscripts and smaller works; Wolfenbuttel, 190,000 printed volumes, 44,000 manuscripts, and 6000 Bibles;

Stutgardt, 170,000 volumes, besides 12,000 Bibles of all languages and editions; Berlin, 300,000 volumes, in seven public libraries; Weimar, 110,000 volumes, and 20,000 smaller works; Prague, 110,000 volumes; Frankfort, 100,000 volumes, in several public libraries; Hamburg and Breslau have 100,000 each in their public libraries; Mentz, 90,000; Darmstadt, 85,000; Cassel, 70,000; Gratz, 70,000; Gotha, 60,000; Marburg, 55,000; Jena, 50,000. The number of books in all Germany, in such libraries and other institutions as are open to the public, has been estimated at 5,000,000 volumes.

The collections of pictures and of antiquities correspond in extent and in excellence to the public libraries. The gallery of Dresden, now that the pictures which were plundered by France have been sent back from the Louvre to the places whence they had been taken, is the first in Europe. The collections at Berlin, Brunswick, Cassel, and Augsburg, are also very fine; and many private assemblages of pictures, particularly those of the Princes Liechtenstein, Kaunitz, Esterhazy, and Count Schönbrun, are of the very first class. The antique cabinets of Dresden, Munich, and Cassel, are filled with curiosities from remote ages and distant nations; and the cabinets of natural history at Vienna, Berlin, Dresden, Cassel, Manheim, Jena, Munich, and Gotha, are most richly filled.

The greater part of the land in Germany is held by those ancient feudal tenures which formerly prevailed in every part of Europe. The possessors of the soil, of whom in every state the sovereign is by far the greatest, have under them a species of customary tenants called subjects (Unterthäner), who have the cultivation of common fields divided into small portions, without the intervention of fences. As soon as the corn is removed from the field, the lord has the right of pasture; and owing to these circumstances it is impossible to deviate from an ancient practice, by which the different portions of the common land must be devoted to particular kinds of crops at specific periods. The rotation almost universally prescribed, and known by the name of *drey feld landwirthshaft*, consists of a fallow, succeeded by two crops of grain. The fallow, however, generally bears a crop, which is usually either flax, peas, or, very commonly of late, potatoes; in consequence of a crop on the fallow, the land is seldom properly cleaned of weeds. To this fallow crop generally succeeds winter corn, either wheat or rye; but, in the north, the proportion of the latter to the former is as four to one, and in many parts, especially in Pomerania, ten to one. In the southern states, the two kinds of grain are nearly equally cultivated. To the winter corn succeeds barley or oats, as the land is better adapted for the one or the other, or as may have been settled between the ancestors of the present lords and their tenants in remote periods. By this mode of cultivation, the earth yields but a small increase. The tenants can keep but little live stock, and therefore make but little manure. The live stock they do keep is generally fed throughout the winter with straw, and the addition recently of potatoes, with a small portion of corn; and what dung they do produce is consequently of a very weak quality. These tenants are commonly holders of small portions of land, which, in many instances, is necessarily divided at their decease among all their children; and thus the evil of the cottage system of small farms is clearly experienced. The villages are crowded with little proprietors, who have not either the conventional or the pecuniary power to improve the soil, who live in a state inferior to labourers, and who, from the smallness of their farms, can only obtain subsistence by living on the cheapest diet, which of late, as in Ireland, is principally potatoes. Upon this system, the number of husbandmen increases with considerable rapidity; they form soldiers, and when called out by the military conscriptions of their princes, are placed in a better situation than when living on their farms.

In this condition of the community, the only land which can be well cultivated is the small portion of demesne which is in the hands of the lords, who, from their stock of cattle, could make manure to dress and improve the soil. These demesne lands are, however, though cultivated for the lords, ploughed by the tenants, who are bound by their tenures to do certain stipulated work for their superiors. The consequence of this is, that the work is badly performed, and at such seasons as best suits the tenant's own labour. The demesnes, too, feel the want of capital; for the lords have little besides their estates and the cattle upon them, and these being too generally left to the care of managers, who are less thrifty than as proprietors they would be, suffer considerably from that circumstance.

The foregoing sketch is a description of the practice on the far greater portion of the land in Germany; and, in consequence of it, the soil, though superior in original fecundity to the greater part of England, is gradually deteriorating, and does not at present yield more than five eighths of what we raise upon the same quantity of land. From the poorer classes eating nothing but rye or potatoes, and from having three fourths of its population employed in agriculture, Germany is enabled to export corn in most years; but when an unpropitious season occurs the distress is dreadful, and is increased by the smallness of the different states, and the power being restricted of circulating grain freely from one to another; an evil which was severely felt and lamentably deplored in the calamitous year 1817.

The land of Germany produces but little beyond the absolute and indispensable wants of its inhabitants, except in wine, flax, and wool. The culture of the vine is much less attended to than in France; and wine is the production of but a very small portion when compared with the whole extent of the country, whereas in France almost every part yields it. The quantity made in Germany is not calculated at more than about one sixth of what France supplies; the whole is computed to be nearly two million pipes of one hundred gallons each; but a very small part of this finds its way to foreign countries.

The flax frequently forming, as before stated, the fallow crop, is important from the employment it affords, during the long and cold nights of their severe winter, to the female members of the peasants' families, and from the trade it creates in the export of its productions in the form of yarn or of linen cloth.

Wool is generally the property of the lord, and its annual clip is frequently the principal revenue derived from extensive possessions. This has induced many to pay great attention to the improvement of the wool, and much of it, especially from Saxony, is superior to any that the Merino flocks of Spain afford. It is within the few years which have elapsed since the expulsion of the French, that the great extension of the breed of fine-woolled sheep has taken place. The implements of husbandry are in a very imperfect state, and as much so from want of information as from want of capital in Germany. The ploughs are generally small, light, and without a due curvature in the mould-board. The harrows are frequently of wood. That useful implement the roller is rarely seen; the waggons and carts are badly constructed, and the harness of all consists either of ropes or twisted straw.

There are exceptions to these observations on the agriculture of Germany, but they are too few to merit any particular notice.

Germany is generally a manufacturing country, and can supply itself with by far the greater part of all the commodities which it needs. The manufacturers of that coun-ry are not placed in different districts, but in the same owns; and in almost every town of a moderate populaion, woollen, linen, cotton, silk, and iron wares are made. hus their establishments are mostly upon a small scale, nd they cannot avail themselves of those minute divisions f labour which are essential to the perfecting and to the heapness of the goods. Linens are the most valuable rticle, and are made, from the coarse ones of Westphalia, hich are used for negro clothing, to the finest shirting nd table linen of Silesia and Saxony, and of all the interediate qualities. Woollens of all kinds are made, and are fficient for the consumption, so that those of England nd France are scarcely needed; nor do the Germans alw that any foreign fine linen cloth is equal, either in uality or price, to those manufactured in Saxony, Silesia, nd the newly acquired Prussian provinces on the Rhine, om wool of native growth. The cassimeres and Vigoia cloths, in that last-mentioned district in the towns of upen, Machren, and Aachen, are preferred to any which re brought from other countries. The fabrics of cotton ad much increased during the continental system of exlusion, and had arrived at a considerable degree of perection; but the return of tranquillity has checked the proress of all, and annihilated many. The most considerble districts for these kinds of goods are the kingdom of axony, the Prussian provinces of Juliers, Berg, and leves, and on the banks of the Ens, in the Austrian doinions. The silk manufactures have never been conderable; some goods of the kind are made in many of he cities, but the principal establishments are in Vienna, t Roveredo in the Tyrol, at Creveldt, at Cologne, and at erlin. Leather, iron, steel, and the wares prepared from hem, are made at home. Porcelain and common earthenare are well made, and the two great royal manufactoies of the first at Berlin and Dresden equal any from èvre, from Worcester, or Etruria. The glassware of Boemia, though of a very bad quality, is universally diffusd, not only throughout Germany, but in most other parts f the world. Paper is a considerable article amongst the erman manufactories. That for printing is coarse, and f a bad colour, and the writing paper is very imperfecty made. There are 506 mills, which deliver annually bout 60,000 bales, but none of it goes to other countries. hemical preparations are made upon an extensive scale, nd comprehend alum, vitriol, smalts, white lead, Prusian blue, sal ammoniac, and verdigris. Salt and sugar re refined for home consumption. Tobacco, snuff, wax, nd oils from plants, are also supplied from domestic manuctories. The quantity of beer furnished by the breweries n every town in the north is very great, and the distilleies of ardent spirits from grain form a most extensive maufactory; vinegar is mostly prepared from grapes in those istricts where they do not ripen sufficiently to be made nto wine. The minuter articles, such as musical, matheatical, surgical, and optical instruments, with watches nd clocks, are well and cheaply made. Wooden toys nd plaited straw are important objects of employment to any of the inhabitants. Most of the fabrics of Germany re fettered by the laws of the guilds, or corporations, to hich the masters are obliged to belong; and this acts as n impediment to their arriving at a high degree of perection.

The commerce of Germany, conducted by means of hipping, centres principally in the Prussian ports, or in he free cities, and may be best treated of under each of hem. The commerce with France, Italy, Turkey, Poand, and Russia, is by no means great. The articles prouced on the borders of each are too similar to cause a ecessity for an interchange; and the heavier articles, hich are produced at a distance from the respective bounaries, will, in few instances, bear the expense of land carriage. The trade which is purely internal, or amongst the different states, is much less than might be expected, and much less than it would be if there existed less of a monopolizing spirit among the cities, and less of jealousy among the several sovereigns. The greater part of the internal trade consists in the sale of wines, and of foreign colonial produce, which the capitalists in the cities collect and sell in smaller quantities to the shops' in the provincial towns.

As the other independent states of Germany are separately described in this work, and Baden only referred to Germany, in the alphabetical order, the following is a more especial notice of it.

It is a grand duchy, is bounded on the north-east by Bavaria, on the east by Wurtemberg and Hohenzollern, on the south-east by the lake of Constance, on the south by Switzerland, and on the west and north-west by France. It extends over 6008 square miles, and has been recently divided into four circles, thus:

Circles.	Extent in Square Miles.	Population.	Capitals.
The Lake...........	1184	169,749	Constance.
Upper Rhine........	1507	318,540	Freyburg.
Middle Rhine......	1958	397,805	Rastadt.
Lower Rhine........	1359	301,846	Manheim.
	6008	1,187,940	

The face of the country is peculiarly striking. On the western side a most fertile stripe of land is bounded by the river Rhine, from which rises that mass of mountains on the east known as the Black Forest, one of the peaks of which is of the height of 4600 feet. In the valleys the husbandry is good and productive, and the crops of hemp, madder, tobacco, poppies, beans, and potatoes, are most luxuriant. Even in the mountainous parts, rye, wheat, and oats are extensively cultivated, but much of the surface is covered with woods. A considerable extent of pasture land supplies the duchy with good butter, meal, and some cheese. The vineyards are extensive, occupying one tenth of the country, and producing various kinds of excellent wine; and the gardens and orchards supply abundance of fruits of the best description, and especially almonds, chestnuts, and walnuts, at very cheap rates. Though not more than half the land is cultivated, the supply of every agricultural product is more than sufficient for the inhabitants.

The mining concerns are numerous but not large, and yield commonly 5000 ounces of silver, 400 quintals of copper, 2000 of lead, 320 of cobalt, and iron to the extent of 1000 tons. The mineral springs are numerous, but those of the greatest celebrity in the duchy of Baden are almost exclusively resorted to by visitors for health or pleasure.

Baden is a manufacturing country for many articles, the value of which arises almost wholly from the labour employed in their preparation. In some years 110,000 wooden clocks and 50,000 dozen of wooden spoons are made. These are only a part of the numerous smaller kinds of ware which the ingenuity of the inhabitants prepares. Besides these, there are manufactures of linen and woollen goods produced, but of the coarser sorts.

The reigning house has risen to its present dignity and consideration since the peace of Luneville in 1801, when its territory extended only over 1554 square miles, inhabited by 210,000 people. By the treaty then made, the dominions were nearly doubled, and further augmented by the treaty of

Presburg in 1803; and by some smaller additions at subsequent periods, it has attained its present extent. A constitution has been given by the prince, by which an upper and a lower house of legislators is established. The revenues amount to about L.1,000,000 annually; and the expenditure, including a sinking fund for the discharge of the public debt, is about equal to it. Since the general peace, the debt has been gradually diminished, from L.2,000,000 to its present amount, which in 1832 was L.1,300,000. The regular army consists of 8000 infantry, 1500 cavalry, and 850 artillery. The contingent to the German confederation is fixed at 10,000 men. The three religions are equally established, but the prince adheres to the Lutheran church. The Catholics are the most numerous body, being about 800,000. The Lutherans and Calvinists have united since 1821, and amount to 365,000; and there are nearly 20,000 Jews. There are two universities, that of Heidelburg for the Protestants, the oldest in Germany, and that at Freyburg for the Catholics. The principal cities and their population are as follows:

Manheim	22,000	Pforzheim	6,400
Carlsruhe	20,000	Lahr	6,000
Freyburg	15,000	Constance	5,700
Heidelburg	12,500	Rastadt	5,700
Bruchsal	7,000		

(G.)

GERMEN, the seed-bud, defined by Linnæus to be the base of the pistillum, which contains the rudiments of the seed, and, in progress of vegetation, swells and becomes the seed-vessel. In assimilating the vegetable and animal kingdoms, Linnæus denominates the seed-bud the *ovarium* or *uterus* of plants; and affirms that it exists chiefly at the time of the dispersion of the male dust by the antheræ, since, after its impregnation, it becomes a seed-vessel. Germen, by Pliny and the ancient botanists, is used to signify a bud containing the rudiments of the leaves.

GERMINATION, amongst botanists, comprehends the precise time which the seeds take to rise after they have been committed to the soil. The different species of seeds are longer or shorter in rising according to the degree of heat which is proper to each. Millet, wheat, and several of the grasses, rise in one day; blite, spinach, beans, mustard, kidney beans, turnips, and rocket, in three days; lettuce and dill, in four; cucumber, gourd, melon, and cress, in five; radish and beet, in six; barley, in seven; orach, in eight; purslain, in nine; cabbage, in ten; hyssop, in thirty; parsley, in forty or fifty days; peach, almond, walnut, chestnut, peony, horned poppy, hypecoum, and ranunculus falcatus, in one year; rose bush, cornel tree, hawthorn, medlar, and hazel nut, in two. The seeds of some species of orchis, and of some liliaceous plants, never rise at all. Of seeds, some require to be sown almost as soon as they are ripe, otherwise they will not sprout or germinate; and of this kind are the seeds of coffee and fraxinella. Others, particularly those of the pea-bloom flowers, preserve their germinating faculty for a series of years.

GERONA, a city of Spain, in the province of Catalonia. It is situated on the river Ter, at its confluence with the Oña, and is a strongly fortified city, of great celebrity in the military history of Catalonia, by the sieges it has sustained at various periods. None of the resistances it has made, or indeed of those made by any other city, surpasses the obstinate defence which it sustained against the armies of France during the late war. It is the see of a bishop, and has a magnificent cathedral, with many other substantial public buildings. The diocese of Gerona was one of the best cultivated and most flourishing districts of Spain. The portion of it on the sea coast abounds in wheat, wines, and vinegar; the sides of the mountains are covered with vineyards and olive gardens, and the tops yield the best oaks and other useful trees. The ravages of war have been very severely felt; but the fertility of the soil, and the industry of the inhabitants, will, it is hoped, speedily repair the injuries it has endured. Its inhabitants amount to 14,000. It is in north latitude 42. 0. 2.

GERONTES, in *Antiquity*, a kind of judges, or magistrates, in ancient Sparta, answering to what the Areopagites were at Athens. The word is Greek, γερων, and signifies an old man, whence also the words *gerontic*, something belonging to an old man; and *Geronicon*, a famous book amongst the modern Greeks, containing the lives of the ancient monks. The senate of Gerontes was called *Gerusia*, that is, an assembly or council of old men. The Gerontes were originally instituted by Lycurgus; and their number, according to some, was twenty-eight, but according to others, thirty-two. They governed in conjunction with the king, whose authority they were intended to balance, and also to watch over the interests of the people. Polybius defines their office in few words, when he says, *per ipsos, et cum ipsis, omnia administrari.* None were to be admitted into this office under sixty years of age, and they held it for life. The Gerontes were succeeded by the Ephori.

GERS, a department in the south-west of France, formed out of Condomois, Armagnac, and Comminges, portions of ancient Gascony. It is bounded on the north by the department of the Landes and of Lot-Garonne, on the east by Tarn-Garonne and Upper Garonne, on the south by Upper Garonne, Upper Pyrenees, and Lower Pyrenees, and on the west by the Landes.

The extent is 2717 square miles, or, according to the Royal Almanack, 623,719 hectares. It is divided into five arrondissements, twenty-nine cantons, and 685 communes, which are inhabited by 312,160 persons. The whole surface of the department is covered with hills, between which are some pleasant valleys, but no plains; but none of those hills exceed 1200 feet in height, and they are a kind of spurs or projections from the mass of the Pyrenees. The soil is generally clayey, but intermixed with stripes of calcareous and sandy land. The melting of the snows on the Pyrenees in the months of May and June causes great injury to the land, before it passes by the beds of the various rivers and rivulets which empty themselves into the Adour. The inhabitants are a lively, cheerful race, simple in their dress, food, and houses, and speak the Gascon language, which is a mixture of Latin, Italian, and Spanish, rich in diphthongs and vowels. Garlic and onions are abundantly cultivated, and form an important portion of the aliment of the inhabitants. Agriculture is in a backward state, and barely produces sufficient corn for the scanty consumption of those who use it. The meadows are about a tenth part of the land, but, from neglect, furnish only a scanty provision for the cattle, which are by no means distinguished for their good qualities. The number of cattle was in 1801 as follows:—11,710 horses, 3020 mules, 171,506 cows, oxen, and calves, 517,380 sheep, and 37,500 pigs. The sheep yield only coarse wool. Fruit is cultivated negligently, and the produce of the vineyards is barely sufficient for the department, and is of bad quality. Brandy is made, and is almost the only article exported; some of it is highly prized. The forests have been wasted, and now scarcely yield sufficient fuel for the inhabitants. There is little manufacturing industry, and no trade with other districts, excepting the export of some brandy, and of a few cows, calves, sheep, and lambs.

GERTOKH, a town of Thibet, and a mart for the exchange of the productions of Nepaul with those of the country. The imports consist of grain, oil, sugar, cottons, chintzes, iron, brass, lead, dates, almonds, peaches, &c.; and from Gertokh are exported for the Cashmerian market, shawl wool, to Nepaul and Hindustan gold dust, silver, musk, scented leather, shawls, China ware, tea, salt, borax, &c.

GERVAISE, or GERVASE, of Tilbury, an historian of the thirteenth century, was a native of Tilbury in Essex, and nephew of Henry II. The exact date of his birth has not been ascertained. Having visited part of Europe, he arrived, about the year 1208, at the court of Otho IV. Emperor of Germany, who, being descended by his mother from an illustrious family in England, received Gervase with the greatest distinction, made him one of his orators, then nominated him chancellor, and, lastly, appointed him marshal of the kingdom of Arles. Gervase died about the year 1218. His productions are, 1. Otia Imperialia, libri tres, a work which is also known under the titles Mappa sive Descriptio Mundi, and De Mirabilibus Orbis; 2. Illustrationes Galfridi Monemuthensis, libri iv.; 3. Historia Terræ Sanctæ; 4. De Origine Burgundiorum; 5. Facetiarum liber, dedicated to Henry II. of England; 6. Tricolumnium Angliæ; and, 7. Metrica Descriptio Balneorum Puteolanorum. The compilation of the Exchequer book, entitled *Liber Niger Saccarii*, was ascribed to Gervase; but Madox, who published a correct edition of this Black Book, attributes it to Richard Nelson, bishop of London. There are two manuscript copies of this work; one in the Exchequer, presented, according to Strype, by Archbishop Parker; and another in Caius College, Cambridge, which is supposed to have been the original, whence the archbishop's copy was transcribed. Bale and Pitts differ considerably in their accounts of Gervase's works, the greater part of which still remain in manuscript, and are but little known.

GERUND, in *Grammar*, a verbal noun of the neuter gender, partaking of the nature of a participle, but declinable only in the singular number, through all the cases except the vocative. The word is formed from the Latin *gerundivus*, and that from the verb *gerere*, to bear. The *gerund* expresses not only the *time*, but also the *manner* of an action; as, he fell in running post. It differs from the participle in this, that it expresses the *time*, which the participle does not; and from the tense properly so called, in expressing the *manner*, which the tense does not. See GRAMMAR.

GESA, a city of the grand duchy of Saxe Weimar, in Germany, in the principality of Eisenach. It is situated on the river Ulsten, and contains 304 houses, with 1890 inhabitants. It is the capital of a bailiwick of the same name, formerly a part of Fulda, containing 6410 inhabitants.

GESNER, CONRAD, a celebrated naturalist, surnamed the Pliny of Germany, and, for his time, a prodigy of application, knowledge, and sagacity, was born at Zurich on the 26th March 1516. He was the son of Vasa Gesner, furrier, and Barbara Frick, persons who, besides being poor, had several other children, so that he would not have been able to continue his studies had it not been for the assistance of his maternal uncle John Frick, a minister, who formed his taste for letters, and gave him his first notions in botany. But this uncle having died, and his father having been killed in 1531, at the battle of Zug, where the celebrated reformer Zwinglius also perished, young Gesner found himself obliged to seek his fortune in a foreign country. He accordingly went to Strasburg, where, by means of a salary, he for some time seconded the labours of Capiton; then, having obtained some assistance from the canons of Zurich, he repaired to Bourges, and there commenced the study of medicine. At the age of eighteen, having occasion to visit Paris, he indulged without rule and without restraint his passion for all kinds of study, being assisted in his poverty by John Steiger, a young Bernese of patrician family, with whom he was connected by the ties of friendship. From Paris he returned a second time to Strasburg, whence, in 1536, he was recalled to Zurich to occupy in the college of that place the petty employment of regent. But the magistrates having soon perceived that he was formed for less obscure and more important labours, made him, in 1537, a new grant, to enable him to continue his medical studies at Bâle; and it was in this latter city that he began to labour for the public by superintending an edition of the Greek Dictionary of Favorinus. The following year, the senate of Berne having founded an academy at Lausanne, Gesner was appointed to that institution, and taught Greek there for three years. He then passed a year at Montpellier, where he became intimately connected with the celebrated physician Laurent Joubert, and the great naturalist Rondelet. At length, in 1541, he was received as doctor in medicine at Bâle, where he completed some extracts from the Greek and Arabian authors on botany and medicine, which were published the same year at Zurich and the succeeding one at Lyons. Soon afterwards, he published a Catalogue of Plants in four languages, in which he gave proofs of very extensive knowledge in botany, and indicated several vegetables which were then new. Some journeys in the Alps of Switzerland and Savoy enabled him to discover other plants which were also new, and led him, in 1542, to write a little book on milk, accompanied by a letter on the beauty of the mountain scenery. The same year he translated from the Greek a Treatise on Syllogisms, and other philosophical works, which were followed in 1543 by the Maxims of Stobæus, and in 1544 by the Allegories of Heraclides of Pontus, the Discourse of Dion Chyrsostom on Homer, and a purified edition of Martial. In 1545, he made a journey to Venice and to Augsburg, where he formed an acquaintance with several men of merit, and had an opportunity of consulting many rare works and valuable manuscripts. It was then that he began to bring out his famous *Bibliothèque Universelle*, the first great bibliographical work which the moderns had produced. The titles of all the works then known in Hebrew, in Greek, and in Latin, whether extant or lost, and often a summary of their contents, with a judgment of their merits, and some specimens of their style, formed the substance of this collection. The first volume, published at Zurich in 1545, is classed in the alphabetical order of the names of the authors; the second, which is arranged in the order of the materials, and divided into nineteen books, appeared at the same place in 1548, under the title of ***Pandects;*** the twenty-first book, devoted to theology, was published the following year; but the twentieth, which was to treat of works on medicine, has not been printed, because the author did not conceive it so complete as it ought to be, or as the subject required. The Library of Gesner has been abridged by Lycosthenes, and completed by Simler and by Fries, Zurich, 1583, in folio. During the same time, he occupied himself with editions or translations of different small Greek treatises; in particular, he published a corrected edition of Hermolaus Barbaro, a critical Preface on the works of Galen, another on the History of Plants by Tragus, a Treatise on the Mineral Waters of Switzerland and Germany, and a Description of Mount Pilat near Lucerne. But, amidst these diversified labours, he lost no opportunity of collecting and arranging materials for a great work on Natural History, of which he had conceived the plan from his earliest youth. Numerous friends whom his merit had procured him in almost all Europe, sent him figures and notices of the productions of their various climates, and sometimes the natural objects themselves, which he caused to be painted and engraved. As often as he had leisure, he also travelled in Switzerland and in Germany. He had long desired to visit the coasts of the North Sea, but the religious war which broke out in 1551 constrained him to return home without having accomplished the object of his wishes. Gesner has written on the three kingdoms of nature, but his History of Animals is the most considerable of his works on natural history, and that which will ensure him the most durable reputation. It is divided into five books, which are commonly bound in three volumes folio. The first book, printed originally at Zurich in 1551, treats of viviparous quadrupeds; the second, printed in 1554, of oviparous quadrupeds; the third, printed in 1555, of birds; the fourth, printed in 1556, of fishes and other aquatic animals; and the fifth, a posthumous publication, which appeared at Zurich in the year 1587, of serpents. There was to have been a sixth book on insects, but it is doubtful whether Gesner had commenced preparing it, and all that remains consists of some inedited figures of butterflies. Besides these first editions of the different parts of the History of Animals, there appeared several others, some of which, considerably amplified, were printed during the author's lifetime, or after his death, in Latin, German, and French, and also various abridgments under the titles of *Icones Animalium*, *Icones Avium*, *Nomenclator Aquatilium*, &c. In this great work, the author arranges animals in the alphabetical order of their Latin names, and gives details respecting each, divided into eight heads, viz. its denominations in the different languages, ancient and modern; its description, internal as well as external, and the countries it inhabits; the duration of its life and of its growth, with the epoch of its fecundation and birth, and the number produced at a birth; the maladies to which it is subject; its peculiar habits and instincts; its utility; the aliments on which it subsists; the remedies which it supplies; and, lastly, the images which it furnishes to poetry and eloquence, as well as the epithets which have been applied to it. In a word, every thing which the ancient authors, or those of the middle age, have written relative to these details, is introduced under one or other of the heads which we have enumerated; and Gesner also adds, with as much critical sagacity as could be employed in an age when the authority of the ancients was still greatly respected and nature very little known, a vast number of new details derived from his own observations, or communicated by his numerous correspondents. He states many exact facts, which are still deserving of attention, particularly respecting the animals of Switzerland; each species is represented by a figure in wood; and those which the author had caused to be copied from nature are very exactly given; but he was also obliged to borrow some of them from his predecessors, and these are not always remarkable for the same degree of accuracy. The history of fishes, however, is not given altogether on the same plan as that of the others; for here Gesner copies, on each species, the articles of his two friends and contemporaries, Belon and Rondelet, to which he has merely made some additions. As the abridgments appeared after the large treatises, they contain several remarks which are not to be found in the latter; and it is necessary to consult both in order to obtain a complete idea of what was then known on the subject. The History of Animals by Gesner may therefore be considered as the basis of all modern zoology. Copied almost literally by Aldrovand, and abridged by Johnston, it has served as the foundation of works much more recent; and more than one celebrated author has borrowed from it, without acknowledgment, nearly all his erudition; for it is deserving of remark, that the passages in the ancient authors which escaped Gesner have scarcely at all been taken into consideration by the moderns. By his accuracy, his clearness, his good faith, and even in some instances the refinement of his views, Gesner merited this confidence; and although he may not have established genera nor natural classification, yet, in various places, he indicates with tolerable distinctness the true relations of beings. Another important service rendered by Gesner to zoology consists in his edition of a complete translation of the works of Ælian, which he published in 1556, immediately after his volume on fishes. His new notes on the text, which had long occupied his attention, appeared for the first time in the edition published by A. Gronovius, London, 1744, two vols. in folio, as those on the *Historiæ Diversæ* did in the edition of Leyden, 1731, in 4to. Although he has been less fortunate in the publication of his labours on botany, he has perhaps rendered himself even more celebrated in that science by the fecundity of the views which he has introduced into it; for not only was he from his infancy addicted to the collection of plants, and accustomed to rear them, but he soon learned to delineate them, and, in fact, painted more than fifteen hundred, the figures of which he intended for a general history of vegetables. This exercise led him to direct his attention to the numerous details of the flower and the fruit; and he thus succeeded in discovering the art of distinguishing and classing plants by the organs of fructification, an art which has truly created botanical science. In the text he expresses clearly the necessity of attending to characters of this kind in botany. It is to be observed, however, that his *Enchiridion Historiæ Plantarum*, printed at Paris in 1541, is not deserving of much attention; it is a youthful performance of Gesner, and is merely a compilation. His real botanical works, after having passed in manuscript into different libraries, were, about the middle of the last century, acquired by Trew, a botanist of Nuremberg, and published by Schmiedel, physician to the margrave of Anspach, Nuremberg, 1754 and 1770. They consist of Commentaries on the fifth book of Valerius Cordus, Fragments of a History of Plants, commenced according to the plan of Gesner, by Wolf, his pupil, and a great number of figures which he had designed, with the relative notes and descriptions. The little treatise of Gesner on the figures of fossils, stones, and gems, Zurich, 1565, in 8vo, attracted attention to the subject of petrifactions and crystals; and we find from his letters, that he had made experiments on several minerals, and was not ignorant of the electrical qualities of certain precious stones. Lastly, in his *Mithridates de differentiis Linguarum*, Gesner, not confining himself to the comparison of different languages, threw out several very ingenious ideas respecting language generally, which have since been more fully developed. His own acquisitions as a linguist were in fact very considerable. He possessed a knowledge of the three learned languages, had some tincture of Arabic, understood French, Italian, and Flemish, and had laboured much to improve the German language. So many useful works having secured to Gesner merited consideration, the magistrates of Zurich, in the year 1555, created him public professor of natural history. The Emperor Ferdinand I., who loved the sciences, and to whom Gesner had dedicated his History of Fishes, invited him to Augsburg in 1559, and in 1564 granted him a coat of arms emblematic of his pursuits, and at the same time sent him some fragments of bezoar, a substance which was then regarded as exceedingly precious. But he did not long enjoy these marks of esteem. A pestilential malady, which had commenced at Bâle in the spring of 1564, and extended itself to Zurich, where it re-appeared the following year with great fury, at length smote Gesner. During these two years e had bestowed great care on the persons who were afected with this disease, and had even written a dissertaion on the best method of treating it ; but a bubo having howed itself under his right armpit, although it occaioned him but little pain, he considered himself as doomd to fall a victim to the prevailing malady ; and, accordngly, having caused himself to be carried into his cabinet, hat he might put his works in order, he died there, while hus occupied, on the 13th of December 1565, aged only orty-nine years and some months. He bequeathed his brary and his manuscripts to Gaspar Wolf, his pupil, hom he charged to publish all that could be extracted om his papers calculated to advance any branch of the atural sciences. *(Eloges de M. de Thou ; Mémoires de Vicéron ; Biographie Universelle).* (A.)

GESNER, *Solomon*, author of the death of Abel, and any other works in the German language, was born at urich in the year 1730. In his early age he showed few gns of superior abilities ; and his progress in the rudients of education was so slow, that his master gave him p as incapable of any greater attainments than writing d the four elementary rules of arithmetic. He was en placed under the care of a clergyman in the neighourhood, a relation of his father's, who showed himself etter acquainted with the art of discovering the natural clinations of his pupils. This gentleman often carried oung Gesner with him into the fields, where he made him bserve the beauties of nature ; and finding that he took reat pleasure in such lessons, and seemed to listen to em with peculiar attention, he occasionally repeated me of the most striking passages of the ancient authors, ho have written on these subjects in the most agreeable d pleasing manner. By this ingenious artifice, the mind f young Gesner began to open, and its powers to expand ; d it is perhaps owing to this circumstance that he beamo so fond of the language of Virgil and of Theocritus. Vhen he arrived at a proper age to think of following me pursuit or business, Gesner made choice of that of ookseller, which was the profession of his father, and in me measure of his family. Of five houses at Zurich enaged in the printing and bookselling business, two were ccupied by Gesners ; one belonged to two brothers of at name ; and the other, that in which our poet had a hare, was known by the denomination of Orel, Gesner, d Company. It was known also by the extent of its orrespondence, and by the choice and elegance of the orks which it gave to the public.

Though Gesner was a bookseller, he did not, however, amp his genius by submitting to the drudgery of busiess. He indulged himself freely in pursuing his favoure object, and his partners never envied him that time hich he devoted to meditation and study. In 1752, he ade a tour through Germany, not so much for the purose of extending his commerce, as to see and become acuainted with those authors who had done honour to their ountry. The following circumstance, which occurred duing this tour, deserves to be mentioned, as it is strikingy characteristic of the timidity which often accompanies rue genius. When Gesner was at Berlin, he was admited into a literary society, of which Gleim and Lessing vere members. Each of the authors who composed it sed to read in turn some pieces of their own composiion, and Gesner felt desirous of submitting to these able ritics a small work, which was his first attempt ; but he vas far from resembling those poets whom Horace and ther satirists have ridiculed, and who stun every one they neet by reciting their verses. As each of the members ad done reading, Gesner was observed to move his hand vith a kind of tremor towards his pocket, and to draw it ack again without bringing out the manuscript which he ught to have produced. Having not as yet published any thing, none of the company could guess the cause of a motion which his modesty prevented him from explaining. The work which he had not the courage to show was his small poem entitled Night, which he published on his return to Zurich in 1753. It was considered as an original, of which no model is to be found among the moderns ; but in the opinion of the author, it was only a piece of imaginary painting, or, to use an expression of his own, in one of his letters to Huber, who has translated his works, " a caricature composed in the moments of folly or intoxication." In this little poem he has introduced a short episode on the origin of the glow-worm, containing a poetical explanation of this natural phosphorus, which has all the beauty of Ovid's Metamorphoses, without their prolixity. The success of this essay emboldened the too timid muse of our young bookseller, and he published a pastoral romance called Daphnis, in three cantos. The applause which was deservedly bestowed upon this performance induced the author to publish, some time after, his Idylls and other rural poems, in imitation of those of Theocritus. Pastoral poetry, which at this time was little known in Germany except by translations from foreign poets, began to find many partisans, and to be preferred to every other kind. Desirous, therefore, of tracing out a new path for himself, our poet thought that he could not do a more acceptable service to his countrymen than by painting the felicity and innocence of rural life, and the tender emotions of love and gratitude. The only author worthy of notice who had preceded Gesner in this career was Rost of Leipsic, whose pastoral poems appeared for the first time in 1744. This writer polished the language of the German shepherds ; and he had address enough to unite spirit and simplicity in a kind of writing which is insipid without the one, and which becomes unnatural and disgusting if it want the other. He sometimes throws a delicate veil over those images which are deficient in decency, but it is to be regretted that it is often much too light. Such was the antagonist against whom Gesner had to contend. Our poet, however, pursued a different course. Instead of placing, like Rost, his scenes in modern times, he goes back, with Theocritus, to that happy age which we are fond of reviewing when our passions are calm, and when, freed from those anxious cares which hurry us beyond ourselves, we contemplate amidst tranquillity the beauty and fertility of nature. The characters of Gesner's Idylls, therefore, are taken from those societies which exist no longer except in the remembrance, or rather the imagination. His shepherds are fathers, children, and husbands, who blush not at these titles so dear to nature, and to whom generosity, beneficence, and respect for the Deity, are sentiments no less familiar than love. These Idylls were the principal and favourite object of his pursuit, and that part of his works which acquired him the greatest reputation, especially amongst his countrymen. His Death of Abel, which is well known, was published for the first time in the year 1758. It is written, like the rest of his pieces, in poetical prose, and was so much sought after, that it went through no less than three editions in the space of a year, without speaking of the spurious ones which appeared in Holland, at Berlin, and in France. The French edition was followed by several others. One came out in Italian ; another in the Dutch language ; another in the Danish ; and, lastly, two in English, one of them in prose and the other in verse. Amongst the pieces which Gesner published after the Death of Abel was his First Navigator, a poem in three cantos, which many people in Germany consider as his masterpiece. He made an attempt also in the pastoral drama, but not with the same success as in other kinds of rural poetry. He produced likewise, in the same style, Evander and Alcimne, in three acts ; and Erastus, a small piece of one act, which was represented with some applause in several societies, both at Leipsic and Vienna.

But though poetry was Gesner's darling pursuit, and though he enriched the literature of his country with works which will render his name immortal, he did not confine himself to one manner of imitating nature; he in turns took up the pencil and the pen, and his active genius equally directed both. In his infancy he had received a few lessons in drawing, and he had afterwards pursued this study, but without any intention of becoming an artist. At the age of thirty he felt that violent desire which may be considered as the voice of genius; and this was in some measure excited by the sight of a beautiful collection formed by Heidegger, whose daughter he had married. To please his father-in-law, he studied this treasure, composed principally of the best pieces of the Flemish school; and to this new taste he had almost sacrificed every other. Gesner at first ventured only to delineate some decorations for the frontispieces of curious books printed in his office; but by degrees he acquired the courage to make other attempts. In 1765, he published ten landscapes etched and engraved by himself, and dedicated them to his friend Watlet. Gesner owed him this mark of respect for the care which he had taken to ornament with beautiful vignettes Hnber's translation of his Idylls. Twelve other pieces appeared in 1769; and after these attempts, Gesner executed ornaments for many works which came from his presses, amongst which were his own works, a German translation of Swift, and several other productions.

Were we to judge from Gesner's enthusiasm for his favourite pursuits, and from the time and attention which he bestowed upon them, we should be apt to conclude that he had found but little leisure for discharging his duty as a citizen. The contrary, however, was the case; for he passed almost the half of his life in the first employment of the state. In 1765 he was called to the grand council, and in 1767 to the lesser. In 1768 he was appointed bailiff of Elibach, in 1776 head of the four guards, and in 1781 superintendent of waters, which office was in 1787 continued to him for six years. In all these stations Gesner discharged his duty with the most scrupulous fidelity, and died of a paralytical disorder, lamented by his countrymen and by those who had the pleasure of his acquaintance, on the 2d of March 1788, at the age of fifty-six.

GESTURE, a motion of the body, intended to signify some idea or passion of the mind. It consists principally in the action of the hands and face, and may be defined, a suitable conformity of the motions of the countenance, and of several parts of the body, in speaking, to the subject-matter of the discourse.

GETÆ, the same people who were known to the Romans under the name of Dacians. They were originally a Thracian tribe, occupying the country between Mount Hæmus, the lofty ridge of the Balkan, and the lower part of the river Danube, and distinguished from the rest of their countrymen neither in language nor in manners. Here Herodotus seems to have known them probably from personal observation (iv. 93), and Thucydides speaks of them as occupying the same position (ii. 96). It was not till Philip of Macedon and his successors proceeded to extend their conquests over the Thracian tribes, that we hear of the Getæ changing their abode. When Alexander (about 333 B. C.) made an expedition into their country, he found them on the north side of the Danube, but we have no means of ascertaining whether they still retained their possessions to the south. His successor Lysimachus was not equally successful in his war with the Getæ. Having been taken prisoner by their king, he was asked to observe the poverty of the nation, and at the same time advised not to make war upon a people whose wants were so few and so easily supplied. He was afterwards allowed to depart in safety. (Diod. Sic. *Fragm.* xxi.; Memnon, ap. Phot. cod. 214, c. 6.) In the reign of Perseus, last king of Macedon (170 B. C.), we find the eastern bank of the Danube in possession of the Bastarnæ, a Teutonic people, who must have expelled the Getæ, and gave occasion to the appellation of *Deserta Getarum*, by which it was first known to the Romans. The Getæ seem to have travelled westwards, and settled in Transylvania, spreading themselves over Hungary. Here their power increased so much under one of their kings, Bœribistas, that it became formidable even to the Romans; they pillaged Thrace, and reduced the country of the Boii to a desert. At this time they were in possession of part of the country to the south of the Danube, a part of Servia and Bulgaria, where we find them attacked by the Romans (Justin. xxv. 1.; Flor. iii. 4). At last Augustus determined to subdue them, and he found the attempt less difficult than he had expected, for Bœribistas was dead, and his kingdom divided into several parts. The Roman generals compelled the Getæ partly to submit, and partly to withdraw to the north of the Danube. Mœsia was erected into a province, the banks of the river were studded with fortresses, and the kingdom of the Getæ to the south was put an end to for ever. (Strab. vii. 304, 305.) During the whole of the first century of the Christian era, the Getæ continued to make incursions from their mountains into the Roman territory, but it was not till the reign of Domitian that they became truly formidable. They were then under the command of Decebalus, who directed their proceedings with so much prudence and vigour, that the emperor found himself obliged to conclude with them a disgraceful treaty. The succession of Trajan to the empire, and his well-known experience and wisdom, induced Decebalus to lower his tone; but it was too late, for Trajan was determined to relieve the Romans from all danger in this quarter. Trajan crossed the Danube with a formidable army; and Decebalus, after several unsuccessful battles, found himself obliged either to submit or to put an end to his life. The latter alternative he chose as the more honourable, and his subjects submitted to the conqueror. His kingdom was erected into the province of Dacia, the only one which ever existed to the north of the Danube; and as the land was nearly without inhabitants, Trajan transferred to it many from other parts of the empire, and the province became Roman not only in manners, but even in language (Dion. Cass. lxviii. 14; Eutrop. viii. 2, 6). The Romans were not allowed to remain quietly in possession of this country, but they continued to maintain their footing until the reign of Aurelian (A. D. 271), who, convinced of the impossibility of resisting the encroachments of the Goths without some better protected frontier than Dacia presented, determined to withdraw the Roman inhabitants to the south side of the Danube. The greater number followed his advice, and were placed in the country between Upper and Lower Mœsia, in the present district of Servia and Bulgaria, which was then called Dacia Ripensis (Eutrop. ix. 15; Vopisc. in Aurel. c. 39). The name of Dacian or Getan was no longer heard of; but a considerable number of the people still remained, preserving their ancient customs and the Latin language. There seems indeed to be little doubt that the present inhabitants of Wallachia are descendants from this people, as it is difficult otherwise to account for their language so closely resembling the ancient Latin. (See a discussion on this subject in Thunmann's Untersuchungen über die Geschichte der östlich Europ. Volker, Leips. 1774.)

GETHIN, LADY GRACE, an English lady of uncommon talents, was the daughter of Sir George Norton of Abbot's Leigh, in Somersetshire, and born in the year 1676. She

Ghauts.

hl all the advantages of a liberal education, and became
t wife of Sir Richard Gethin, of Gethin Grott in Ireland.
Se was mistress of great accomplishments, natural and
ajuired, but did not live long enough to display them to
t world, having, unfortunately, died in the twenty-first
yr of her age. She was buried in Westminster Abbey,
vere a beautiful monument with an inscription is erect-
e over her remains; and for perpetuating her memory,
pvision was made that a sermon should be preached in
estminster Abbey yearly, on Ash Wednesday. She
vote, and left behind her, in loose papers, a work, which
sn after her death was methodized, and published under
t title of *Reliquiæ Gethinianæ;* or, some Remains of
ace, Lady Gethin. This was a collection of choice dis-
crses, pleasant apophthegms, and witty sentences, writ-
t by her, for the most part, by way of essay, and at
lsure hours. London, 1700, 4to.

GETHSEMANE, in *Ancient Geography*, a village in
t Mount of Olives, whither Jesus Christ sometimes re-
ted in the night-time. It was in a garden belonging to
ts village that he suffered the agony in which he sweated
ops of blood; and here also he was arrested by Judas,
ad the rest who were conducted by that traitor.

GHASSA, the capital of a district in Bootan, and the
stion of a provincial governor. It is surrounded with
lgh mountains covered with snow throughout the year,
the base of which is a spring of water of so high a tem-
rature as scarcely to admit of bathing.

GHAUTS. The term of Ghaut signifies originally a
ss through the mountains, or the place where boats
nd. But it has been applied to designate the mountain-
s chains which run in a direction nearly north and south
rough southern India. These are divided into the East-
n and Western Ghauts. The eastern ridge commences
the south, to the north of the Cavery, in about latitude
. 20. north, and extends, with little interruption, and
arly in a straight line, to the banks of the Kistnah, in la-
ude 16. north. The height of this ridge has never been
curately ascertained throughout its whole extent. It
estimated, however, to rise at its highest part, which is
posite Madras, to the height of 3000 feet; and Banga-
re, which is within the chain, was found by barometri-
l observation to be 2900 feet above the level of the sea.
r Buchanan, who had an excellent opportunity of ob-
rving the strata of these mountains, where the rock was
t away to form the road, describes their component
rts to be granite, consisting of white felspar and quartz,
th dark green mica, in a small proportion to the other
o ingredients. The rocks appear to be stratified; but
e strata are broken and confused. In some places they
e almost horizontal, and in others vertical, with all in-
rmediate degrees of inclination. The country above
e Ghauts, about Naiekan Eray, rises into swells like the
nd in many parts of England, and is overlooked by high
rren peaks, which close the view to the eastward. The
untry is but poorly cultivated, and is far from populous.
r Buchanan judged that not above one half of the coun-
y had been ploughed; and about a tenth part of the
hole rises into hills too steep for the plough. The soil
the gently swelling ground is very poor, and covered
ith coppice, having a few large trees intermixed. The
ppice land serves for pasture; and the bushes supply the
tives with fuel. Reservoirs are constructed like those
low the Ghauts; and the watered fields are productive
rice. The want of water, however, is the great draw-
ck on agriculture throughout all the eastern parts of the
pper Carnatic. The mountains produce iron ore, which
washed down by the torrents, and, being found in the form of black sand, is smelted by the natives. Each forge pays a certain tribute in iron, for permission to carry on the work. These mountains abound in rude and magnificent scenery, and there is a number of passes through them, the principal of which are those leading to Seringapatam and Poonah. Many of these roads have been formed with great labour across the mountains; but they are soon ploughed into inequalities by the mountain torrents, and are thus as rough as before. Among the lofty peaks of these mountains large tracts of barren land are to be found; the country is naked, and is not even clothed with forests. The hills next the Vellore road by Sautghur are covered with large stones, among which grow many small trees and shrubs, with occasionally a tamarind tree of great age and size. The pass here has been greatly improved, being widened and levelled since the conquest by the British; and is now practicable for artillery.

Ghauts, *Western*. This great chain of mountains runs along the peninsula of Hindustan, from Cape Comorin to the Tuptee or Surat river, at the distance of not more than sixty or seventy, and in some places not above forty miles from the western shore of the Indian peninsula, namely, the coasts of Malabar, Canara, &c.; and they are frequently visible from the sea, to which at one point they approach within six miles. By this peculiar configuration of the country all the great rivers of the peninsula of India run down the eastern slope of these mountains into the Bay of Bengal, there not being sufficient space for the collection of any great body of water on the western declivity, which is of greater elevation, and more abrupt in its ascent. The range is generally computed to rise to between 3000 and 4000 feet above the level of the sea. These mountains do not terminate in a point or promontory, but bend eastward in a wavy line parallel to the river, and are afterwards lost among the hills in the neighbourhood of Boorhanpoor. These hills extend about 800 miles in length, with the exception of a break in the ridge about sixteen miles wide, where the river Paniany takes its course from the Coimbetore country to the sea; and here it is well known that ships which navigate the Malabar coast during the north-east monsoons commonly experience a stronger gale in the neighbourhood of Paniany than elsewhere; a circumstance which Major Rennell ascribes to this opening in the Ghaut Mountains.[1] The altitude of this mountain chain is sufficient to intercept the great body of the clouds which are alternately impelled across the continent of India by the south-west and north-east monsoons; and accordingly these winds occasion a rainy season on one side of the mountains only, so that while the periodical rains are deluging the country on one side, the weather is serene and dry on the other. But it is only a particular tract of country that is sheltered from rain by the ridge of the Ghauts; for the clouds do pass over, but at too great a height and too much attenuated to be condensed into rain. At a greater distance, however, they collect into masses, and occasion a rainy season in the countries farther to leeward. Thus, at Nagpoor, in the very centre of India, the seasons differ but little from their usual course in Bengal and on the western side of India. They have a rainy season occasioned by the south-west monsoon, though it is not so violent as in Bengal. At the mouth of the Godavery, and in the neighbourhood, the south-west monsoon occasions a rainy season, when the Godavery is swollen and overflows; and this country is about the same distance to leeward of the Ghauts as Nagpoor. Major Rennell suggests that the clouds which occasion the rainy season at the mouth of the Godavery may come from Cape Comorin, though from the prevalence of westerly winds this appears doubtful. But it is certain that the clouds which bring rain at Nagpoor must pass over the Ghauts. Madras lies in the sheltered tract, though at least 300 miles to leeward of the Ghauts. The country near the mouth of the Godavery is about 200 miles more. It would be curious, if we had facts for such a speculation, to trace the limits between wet and dry, and thus to ascertain the influence which this elevated and extensive mountain chain exercises on the climate of the Indian peninsula; but without fuller and more minute information we can scarcely enter into such an inquiry.

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[1] Rennell, *Memoir of a Map of Hindustan*, p. 196.

The Western Ghauts, about the fifteenth degree of north latitude, although they are steep and stony, are by no means rugged or broken with rocks. On the contrary, in the country near Cutaki the stones are buried in a rich mould, and in many places are not visible until they are dug up. Thus, instead of the naked, sun-burnt, rocky peaks, so common in the eastern chain, these mountains are clothed with stately forests. Dr Buchanan mentions that he had nowhere seen finer trees, nor any bamboos that could be compared to those he saw there. These bamboos compose a large part of the forest; they grow in detached clumps, with open spaces between, and equal in height to the most stately palms, which are also found in great abundance. There is no underwood nor creepers to interrupt the traveller who may choose to wander in any direction through these woods. But there are numerous tigers, which, joined to the unhealthiness of the climate, renders any long stay there uncomfortable. About midway up the mountain the teak becomes common; but it is very inferior in size to other trees. Roads have been formed through these mountains with great labour, out of a bed of loose rock. These roads are ploughed up by torrents during the rainy season, which wash away their softer parts, and leave single rocks of four or five feet diameter standing in the centre. The difficulty formerly experienced in penetrating these mountain passes was very great. In 1791, when the Bombay army was advancing to the Mysore through the Poodicherrim pass, it required two days to draw up twenty light field-pieces two miles, and three weeks to bring up the other artillery to the top of the Ghauts.

GHENT, a city, the capital of the province of East Flanders. It stands on the river Scheldt, where it receives the waters of the Lys, the Lieve, and the More, and is connected with several navigable canals, which form twenty-six islands, over which there are many bridges. It contains about 10,000 houses, and 30,000 inhabitants. It is a sumptuously built ancient city, with many public buildings, some venerable for their antiquity, and others for their architecture. It was before 1830 a place of most extensive manufactures, which had grown up in the preceding fifteen years with a degree of rapidity which has no parallel on the Continent. The commerce and the benevolent institutions were, up to the same period, in a most meritorious state, and yet improving. It is to be hoped that peace may restore the city to its former state of prosperity. Long. 3. 38. 30. E. Lat. 51. 3. 21. N.

GHEP, or Gheep, a district of Hindustan, in the province of Lahore, situated principally between the thirty-second and thirty-third degrees of north latitude. It is bounded on the north-west by Sohaan, and on the south-east by Jhylum rivers. It produces a considerable quantity of fossil salt, great part of which is exported to the more eastern and southern provinces of Hindustan. Part of it belongs to the Sikks, and the remainder to the Afghans. The principal towns are Pirhala, Muckealah, and Varsha.

GHERIAH, a fortress of Hindustan, in the south of India, situated on a rocky promontory in the province of Concan, about one mile long, and a quarter of a mile broad. It is joined to the main land by a narrow neck of land; and lies about a mile from the entrance of a capacious harbour, formed by the mouth of a river which descends from the Western Ghauts. It was taken possession of by the Mahrattas in the seventeenth century; and in 1707, Conajee Angria had established an independent sovereignty here, and possessed a numerous piratical fleet. The depredations of these pirates drew on them the vengeance of the British; and in 1756 Angria's fleet was destroyed by Admiral Watson and Colonel Clive. The first which was taken was found to contain 206 pieces of ordnance, and an immense quantity of ammunition and naval stores, besides L.120,000 in specie or valuables.

GHEROUD, a town of Hindustan, in the province of Khandesh, belonging to the Mahrattas. Long. 79. 49. E. Lat. 21. 58. N.

GHIDDILOW, a town of Bengal, in the district of Conch Beyhar, situated on the northern bank of the Durlah river, which divides that district from Rungpore. Long. 89. 38. E. Lat. 26. N.

GHIDDORE, a town of Bengal, district of Monghir, situated on the road leading from Calcutta to Patna, through Birbhoom. The fort which it formerly possessed is now in a state of ruin. Long. 86. 18. E. Lat. 24. 50. N.

GHILAN, or Gheelan, a province of Persia, which runs along the south-western shore of the Caspian Sea. It is bounded on the south and south-east by Irak and Mazunderan, on the north by Shirvan, and on the west by Azerbijan. It is hemmed in on the south and west by the Elburz range of mountains, which, at the distance of about fifty miles, runs along the shore of the Caspian Sea, and rises to a great height, like a steep wall. The breadth of the low country, from the sea to the foot of the hills, varies exceedingly; the mountains advancing sometimes to the water's edge, and in other places retiring to a distance of thirty or forty miles. The boundary of the province, along with that of the contiguous province of Azerbijan, runs along the elevated crests of the mountains in a very irregular and indefinite line; in some places contracting its whole breadth to thirty, in others enlarging it to seventy miles. The whole coast of Ghilan is lined with a belt of impenetrable forest; and behind this barrier are deep back-waters and extensive morasses. On the south, the passes through the mountains are of extreme steepness, difficulty, and length; so that the province is strongly defended by nature against an invading enemy. The plains extending from the Caspian Sea to the mountains are well watered, verdant, and beautiful; the soil is fertile, and yields abundantly rice, wheat, hemp, hops, and many kinds of fruit, such as lemons, oranges, peaches, and pomegranates. Grapes are in the greatest plenty; and the vines which grow wild in the mountains, support themselves, as in Georgia, on the trunks and branches of trees. From want of attention to their culture, they are not however of the best quality, and, like other fruits in Ghilan, are esteemed unwholesome. But of all the productions in this province, that of silk is the most celebrated. The cultivation of this commodity, which employs the industry of the country, and enriches the natives, constitutes the principal trade of Ghilan, and is annually exported in great quantities from Resht and Lankeroon to Astrakhan. The only river of any consequence is the Kizilozien, which descends from the Elburz Mountains with the rapidity of a torrent, and flows with a meandering course through Ghilan to the Caspian Sea. There are few places in Ghilan deserving the appellation of towns. Resht, containing about 80,000 inhabitants, and Lahajan, stand almost alone. Enzellee is but a poor shipping village, dependent on Resht; and Lankeroon, an open roadstead at the mouth of a river, is upon Lahajan. Fornen, Massouleh, Kiskar, and Teregoraum, are large villages, in which there are tolerable bazars;

Ghoraghaut.

d there may be many other villages as populous, though
t so well established marts for trade. On the other hand,
rkets are periodically held at places which, except at
ese particular times, are almost destitute of inhabitants.
roughout the whole of Ghilan, and the neighbouring
ovinces of Astrabad and Mazunderan, the population
y be divided into two classes; the first inhabiting the
ins, and living stationary in towns or villages, where
ey cultivate rice, wheat, cotton, sugar, silk, and are of
aceable and industrious habits; the second class, in-
iting the skirts of the hills, and the valleys amongst
m, as well as the villages nearest their base, but who
ire during the heat of summer to elevated regions, thus
grating with their flocks in quest of pasture, according
the change of seasons. In the northern parts of Ghilan
the Talish, a fierce tribe of mountaineers, who unite
ny of the better qualities of highlanders with the bar-
rity of savages. They are continually marauding among
emselves, and plundering their immediate neighbours;
d neither property nor life are safe in their hands. They
brave, and devoted to their chiefs; and they are also
tive, and patient of fatigue; but they are treacherous,
rciless, and rapacious towards all the world besides.
ey are for the most part spare, raw-boned men, of ro-
st though not tall frames. Their dress consists of a
se pair of trousers; the only vest they wear is fitted
ht to the body; and the head is covered by a sheep-
n cap of red or black wool. About the waist they wear
leathern girdle, from which depends the formidable
ilanee knife, broad and two-edged, its blade varying
m one to two feet in length, and from two to three
hes in breadth, exceedingly sharp, and ending in a point,
l very deadly in brawls and private quarrels. Over
ir shoulder they carry their toffing or matchlock, in the
of which they are exceedingly expert. The revenue
lded by this province amounts to about 210,000 to-
uns, or L.115,000 sterling, a year. This revenue arises
m a tax on the export of silk goods and silk, a tax on
ports, and a land-tax. We have no accurate account
he population. The cattle are not of a very large size.
e cows resemble the lesser breeds of that animal in In-
; the sheep are also small; and no large horses are
d in these provinces; but there are excellent ponies,
ich answer all purposes much better, as they are strong
l stout, and carry enormous loads through the worst
ds in winter, although after long showers they sink to
girths at every step. Ghilan was ceded by the king
ersia to Russia in 1724; it was taken possession of by
herine II. in 1780, and restored to Aga Mahommed
an in 1797. The southern parts are subject to Persia;
towards the north, the extensive district of Talish is
d by Mustapha Khan, a rebellious and independent
ef, who, finding the power of Persia too great for him,
ted the Russians to his assistance, promising at the
e time to yield them obedience as sovereigns. In the
r 1812, he, along with a Russian garrison consisting of
men, were driven by the Persians out of Lankeroon,
ch was garrisoned by 1500 irregular Ghilanee troops,
ides two battalions of Persian infantry, and a company
rtillery. It was attacked on 13th June with 2000 in-
ry, 1000 Cossacks, and three vessels of war, and was
ied by assault, with a loss of 1200 men. Mustapha
n continued till his death in possession of Russian Ta-
, acknowledging a nominal obedience to the authorities
hat empire, who never demanded more; and he has
n succeeded by seven sons, who have shared between
m the whole country. (Kinneir's *Geographical Me-*
r of the Persian Empire; Fraser's *Travels and Adven-*
s in the Persian Provinces, &c.)

HIZNI, a district of Afghanistan, situated between
thirty-third and thirty-fourth degrees of north latitude, and between the sixty-eighth and sixty-ninth of east longitude. It is a table land, interspersed with a few hills, and possesses a very cold climate. The inhabitants, who are of the Ghiljie tribe, are all shepherds, who raise a number of sheep and lambs. The district is but thinly peopled. The principal towns are Ghizni, Kurrabaugh, and Gurdaiz.

GHIZNI, a celebrated city of Afghanistan, the chief town of the above district, and forming the capital of a powerful empire, reaching from the Tigris to the Ganges, and from the Jaxartes to the Persian Gulf. It is now reduced to about 1500 houses, besides suburbs without the walls. Its situation is on a height, at the foot of which flows a pretty large stream. It is surrounded by stone walls, and contains three bazars of no great breadth, with high houses on each side, and a covered chaursoo or exchange, besides several dark and narrow streets. Ghizni was splendidly adorned by the Ghiznavi princes, especially by Sultan Mahmoud. But most of these splendid buildings have been long levelled with the dust; and only some few remains of the ancient grandeur of the city are to be seen in the neighbourhood, particularly two lofty minarets, which stand at some distance from each other, and are of different heights, the least upwards of a hundred feet high. The tomb of Sultan Mahmoud is also standing, about three miles from the city. It is covered with a cupola, and is a spacious rather than a magnificent building. The doors, which are large, are of sandal wood, and said to have been brought by the sultan, as a trophy, from the famous temple of Somnaut in Guzerat, which he sacked in his last expedition to India. The tombstone is of white marble, on which are sculptured Arabic verses from the Koran; and at its head lies the plain but mighty wooden mace, with a head of metal so heavy that few men can now use it. There are likewise some thrones or chairs, inlaid with mother of pearl, in the tomb, which are said to have belonged to Mahmoud. There are other ruins of less note, among which may be mentioned the tombs of Behtole the wise, and that of Hakeem Sunanee, a poet. But there are no remains of the magnificent palaces of the Gaznavide kings, or of the mosques, baths, and caravanserais which once adorned the capital of the East. Of all the antiquities of Ghizni, the most useful is an embankment across a stream, which was built by Mahmoud, and which still supplies water to the fields and gardens round the town. This city was in the year 960 taken possession of by Abistagy, a rebel governor of Khorassan, who threw off his allegiance to the Samonavian dynasty of Persia, and founded a new kingdom. He was succeeded by his son-in-law Subactageen, who ascended the throne in 975, and extended his dominions to the banks of the Indus. Mahmoud, who succeeded, invaded India several times, and raised the glory of the Ghiznean empire to its highest pitch; and he first obtained from the khalif the title of Sultan. He died in the year 1030, and was buried in a magnificent tomb. The kingdom continued to flourish till the year 1116, when a Persian army invaded the country, and took the capital. It was again taken about the year 1150, by Alaaddeen, the prince of Ghore. Irritated by an insult offered to his family by the inhabitants of Ghizni, he gave up the town to be pillaged by his soldiers, who for seven days massacred the inhabitants, and destroyed all the public buildings, sparing only the tombs. From this period may be dated the decline of the city. The royal family fled to Lahore, where, languishing through two weak reigns, the dynasty terminated in the person of Khosroo II. and in the year 1189. The travelling distance from Delhi by Cabul is 917 miles; from Cabul eighty-two miles. Long. 68. 22. E. Lat. 33. 36. N. (Elphinstone's *Account of Cabul*; Rennell's *Memoir of a Map of Hindustan*; Foster, &c.

GHORAGHAUT, a district of Bengal, containing about a hundred and fifty square miles, but formerly much more extensive, as it not only embraced great part of the district of Dinagepore, but also extended across the Brahmaputra river, and included the small district of Carrybary; it is pleasantly situated on the western bank of the Currutya river, and formerly carried on a considerable trade with Bootan for Tangan horses, musk, &c. Long. 89. 25. E. Lat. 25. 13. N.

Ghoraghaut, a fortress of Hindustan, in the province of Gurjerat. It is the capital of the above district, situated on the borders of the extensive salt morass of the Run, which affords good pasturage for horses, and divides Gurjerat from Cutch. It serves as a barrier fortress to the Run; a strong garrison being always kept in it by the Jam of Noanagur.

GHORE, or Ghour, a considerable district of Afghanistan, situated between the thirty-fifth and thirty-seventh degrees of north latitude, and the sixty-seventh and sixty-ninth degrees of east longitude. This was formerly one of the Persian governments; but in the twelfth century its chiefs became independent, overturned the Ghiznian empire, and carried their arms as far as Benares. One of their slaves named Cuttub founded, about the year 1206, the Mahommedan kingdom of Delhi. This country was overrun in the thirteenth and fourteenth centuries by the armies of Genghis Khan and Tamerlane, and it is now in possession of the Usbec Tartars. The Ghory tribe, being of pastoral habits, have emigrated to the vicinity of Peshawer, and are now subdivided into three tribes. Its chief towns are Ghore and Firoy Koh. Ghore is the name of the capital, and was once the residence of a long line of sovereigns. It was taken by the king of Kharezm, and was subsequently sacked by the armies of Genghis and Tamerlane, from which it has never recovered, and is now scarcely known. Long. 67. 48. E. Lat. 35. 45. N.

GHOSEGONG, a small town in the Garrow country, on the western frontier of Bengal, and situated on the west side of the Natee river. It consists of a considerable number of thatched houses belonging to the Garrow tribe, some of them a hundred and fifty feet long and thirty wide. The soil in the vicinity is good, and produces rice, mustard seed, and hemp. The pasture is also good, and the ghee produce is of an excellent quality,

GHOORBUND, a district of Afghanistan, situated to the south of the Hindu Coosh range of mountains, about fifty-six miles to the north-north-west of Cabul. It is a fertile valley, which yields abundance of wheat; but the favourite food of the natives is dried mulberries. It produces also lapis lazuli. The inhabitants are of Persian descent, being of the Sheea sect, while all the other Afghans are Soonees.

GONFODE, or Ghunfude, a sea-port of Arabia, in the province of Hedsjaz, in Arabia. All vessels carrying coffee to Jidda are compelled to anchor here, and to pay a duty. It is 145 miles south of Mecca.

GHURKA. See Aurungabad.

GHYSEABAD, a town of Hindustan, in the Mahratta territories, in the province of Malwah, 50 miles south from Chatterpoor. Long. 79. 56. E. Lat. 24. 8. N.

GHOST, an apparition, or spirit of a person deceased, rendered visible to the eye of sense. See Apparitions.

GIAGH, in *Chronology*, a cycle of twelve years, in use amongst the Turks and Cathayans or Chinese. Each year of a giagh bears the name of some animal; the first that of a mouse, the second that of a bullock, the third that of a lynx or leopard, the fourth that of a hare, the fifth that of a crocodile, the sixth that of a serpent, the seventh that of a horse, the eighth that of a sheep, the ninth that of a monkey, the tenth that of a hen, the eleventh that of a dog, and the twelfth that of a hog. The day is also divided into twelve parts, called *giaghs*, and distinguished by the name of some animals. Each giagh contains two of our hours, and is divided into eight kehs, each equal to a quarter of an hour with us.

GIANNONE, in Latin Jannonius, Peter, a celebrated Neapolitan writer and historian, was born at Ischitella, a small town in the province of Capitanata. Having acquired the elements of a liberal education under the paternal roof, he was sent by his father, at the age of eighteen, to Naples, there to complete his studies, and particularly to study jurisprudence. Being placed under the immediate tuition of Dominico Aulisio, who not only excelled in the qualifications necessary for training young men to the bar, but was also profoundly conversant with Greek and Roman literature, history, philosophy, and indeed all the learning of his time, Giannone made so rapid progress in his studies, both in philosophy and jurisprudence, and evinced so great penetration of mind, that he was admitted into the society or club which met at the house of Gaetano Argento, one of the most distinguished advocates of Naples, who combined the cultivation of letters with the practice of his profession. This circumstance appears to have materially influenced, if not in fact determined, the character of his subsequent pursuits. He applied himself with great ardour to the study of jurisprudence on philosophical principles, and soon gave proofs of his capacity for investigating and illustrating the sources of that science by several learned dissertations *De Originibus Juris.* His inquiries, however, having disclosed to him much respecting the origin and mutations of laws, and the vicissitudes of nations, which had escaped the penetration of ordinary jurisconsults, he conceived the design, with the approbation of Argento, of writing a civil history of the kingdom of Naples, comprehending an account of the origin and progress of its laws and government, and an exposition of the causes which led to the gradual abolition of ancient customs and institutions. But this work, interrupted from time to time by the affairs of the bar, was not completed until after the lapse of twenty years, and only appeared in 1723, under the title of *Istoria Civile del Regno di Napoli,* in four volumes 4to. Giannone took as his guide Angelo de Costanzo, whose history of Naples, which was then accounted the best, he almost entirely transfused into his work; but his distinguishing merit consists in the valuable expositions he has given relative to the ecclesiastical and civil constitution, and to the laws and customs of the kingdom. Although the style is neither correct nor elegant, the philosophical spirit, the erudition, and the profound research, which this history exhibits, secured it a high reputation. But the author perhaps affects too much passion against the court of Rome, the proceedings of which, however censurable in themselves, should have been treated by a writer like Giannone, not with the impassioned bitterness of a controversialist, but with the dignified and judicial calmness of a philosophical historian. The consequences of this asperity were such as might have been expected. The freedom with which he treated ecclesiastics generally, and the boldness with which he discussed several topics relating to the origin of the papal power, raised a storm against him, which neither the authority of the viceroy, Cardinal Althann, nor the credit of the municipality of Naples, of which he had been elected advocate, could allay, or even mitigate. "I know not, indeed," said Argento, when speaking to him on this subject, "whether I should congratulate you or condole with you; for I very much fear lest the crown of laurel which now encircles your brows should become a crown of thorns." Having been several times insulted by the populace, and at length excommunicated by the archiepiscopal court, Giannone, seeing his work placed in the *index expurgatorius*, left Naples on the 29th of April 1723, and went to seek an asylum at Vienna. The Emperor Charles VI. regarded him at first with an unfavourable eye; but the protection of such men as Prince Eugene, the Chancellor Zinzendorf, the celebrated Count de Bonneval, and the Chevalier Garelli, first physician to the emperor, procured him a pension of a hundred florins on the ecretaryship of Sicily. Although relieved from his exommunication by Cardinal Pignatelli, archbishop of Nales, he did not restrain himself from composing several ttle satires against his sentence, and particularly against e prohibition of his book; but by the advice of his friends e only circulated these in manuscript. It is in his smaller orks that his resentment against the court of Rome knew o bounds. During his stay at Vienna, where he enjoyed e favour of the great and of men of letters, he laboured a work entitled *Il Triregno, ossia del regno del Cielo, ella Terra, e del Papa,* which occupied him nearly twelve ears, and to which he only put the last touches at Genea. This work, in which man is successively represented the state of nature, under the law of grace, and under e temporal dominion of the popes, comprehends ten pochs, the first three of which extend to the ninth cenury; but the remainder has not been completed. Don arlos having ascended the throne of Naples and of Sicily 1734, Giannone lost his pension and all his hopes. Beg constrained to quit Vienna, he retired to Venice, here he was received with every mark of distinction, by ersons of quality and men of letters, particularly by the enator Angiolo Pisani, who gave him a lodging in one of is houses. He refused the appointment of counsellor of he republic, and the chair of Roman law in the univerity of Padua, ingenuously confessing that he was not in a ondition to explain the laws in the Latin language, acording to the usage of the schools. But the repose which e hoped to enjoy at Venice was not of long duration. enounced as unfavourable to the pretensions of the reublic over the Adriatic, he endeavoured to avert the storm y publishing a *Lettera intorno al dominio del mare Adritico ed ai trattati seguiti in Venezia tra Papa Alessandro II. e l'Imperador Federigo Barbarossa;* but as the state nquisitors had taken umbrage at the prolonged visits paid y him to the ambassadors of France and Spain, his remoal was decided on, and, in the night of the 23d September 735, sbirri seized and conducted him in a small boat or arque to the frontiers of the territory of Ferrara. The aprehension of still greater misfortunes now induced him to hange his name to that of Antonio Rinaldo, under which e sojourned at Modena, Milan, and Turin, and arrived ith his son at Geneva, on the 5th of December. His reutation, which had preceded him in different cities, proured him in the last-mentioned place the most satisfactory eception on the part of Dr Turretin, the minister Vernet, and the bookseller Bousquet, who furnished him with the neans of living at his ease. In 1736 he was preparing to rint a volume of supplement to his history, when, having een conducted by a perfidious friend to pass Easter in a catholic village belonging to the king of Sardinia, he was arrested by order of that sovereign, and his manuscripts seized and conveyed to Rome. He was himself conducted to the castle of Miolan, and thence to the fort of Ceva, where, in his calmer moments, he employed himself in translating various works into Italian, in writing on politics, and in preparing memoirs of his life. The discussion which arose between the courts of Rome and Turin on the nomination to consistorial benefices in the states of the king of Sardinia, and which was terminated by the concordat of 1738, furnished Giannone with an occasion of writing, in favour of the rights of the sovereign, a memoir, which he sent to the king. His Sardinian majesty appeared to receive it with pleasure; but, strange to add, he caused the author to be more closely confined than before, and ordered him to be transferred to the citadel of Turin, where he passed twelve consecutive years in trouble and agitation. It was in this fortress that, giving ear to the persuasions of Father Prever of the Oratory, Giannone retracted, on the 4th April 1738, the maxims which had been condemned in his history. But this submission did not procure him his liberty; for he died in prison on the 7th of March 1758, aged seventy-two years. In 1760 his posthumous works were published at Lausanne, in one volume 4to, under the title of *Opere Postume in difesa della sua Storia civile del regno di Napoli, con la di lui professione di fede.* The history of Giannone was translated into French by Louis Bochat of Lausanne; and among the re-impressions of the work may be distinguished that which appeared with illustrations by the Abbé Cestari. It has been highly commended by Gibbon in his *Extraits de mon Journal* (Miscellaneous Works, vol. v. p. 413, 8vo ed.) "The candour, penetration, and freedom of this excellent lawyer," says he, "will ever ensure to this work the esteem of all wise men. But," he adds, "churchmen are not always of the number." In the number of the refutations which have appeared, it is only necessary to mention the *Riflessioni morali e teologiche sopra l'Istoria civile del regno di Napoli*, by Eusebio Filopatro (Father San-Felice, a jesuit), in two volumes 4to, an extract of which may be seen in the *Mémoires de Trevoux* for January 1730. (Fabroni, *Vitæ Italorum*, vol. xiii. v. *Petrus Jannonius.*) (A.)

GIANT, a person of extraordinary bulk and stature. The romances of all ages have furnished us with so many extravagant accounts of giants of incredible bulk and strength, that the existence of such people is now generally disbelieved. It is commonly thought that the stature of man has been the same in all ages; and some have even pretended to demonstrate mathematically the impossibility of the existence of giants. Of these our countryman Maclaurin has been the most explicit. "In general," says he, "it will easily appear, that the efforts tending to destroy the cohesion of beams arising from their own gravity only, increase in the quadruplicate ratio of their lengths; but that the opposite efforts, tending to preserve their cohesion, increase only in the triplicate proportion of the same lengths. From this it follows, that the greater beams must be in greater danger of breaking than the lesser similar ones; and that though a lesser beam may be firm and secure, yet a greater similar one may be made so long, that it will necessarily break by its own weight. Hence Galileo justly concludes, that what appears very firm and succeeds very well in models, may be very weak and infirm, or even fall to pieces by its own weight, when it comes to be executed in large dimensions according to the model. From the same principle he argues, that there are necessary limits in the operations of nature and art, which they cannot surpass in magnitude. Were trees of a very enormous size, their branches would fall by their own weight. Large animals have not strength in proportion to their size; and if there were any land animals much larger than those we know, they could hardly move, and would be perpetually subject to the most dangerous accidents. As to the animals of the sea, indeed, the case is different; for the gravity of the water in a great measure sustains those animals, and in fact these are known sometimes to be vastly larger than the greatest land animals. Nor does it avail against this doctrine to tell us, that bones have sometimes been found which were supposed to have belonged to giants of immense size, such as the skeletons mentioned by Strabo and Pliny, the former of which was sixty cubits high, and the latter forty-six; for naturalists have concluded on just grounds, that in some cases these bones had belonged to elephants; and that the larger ones were bones of whales, which had been brought to the places where they were found by the revolutions of nature that have happened in past times; though it must be owned that there appears no reason why there may not have been men who have exceeded by some feet in height the tallest we have seen."

It will be easily seen, that arguments of this kind can never be held as conclusive, because, along with an increase of stature in any animal, we must always suppose a proportional increase in the cohesion of the parts of its body. Large works sometimes fail when constructed on the plan of models, because the cohesion of the materials of which the model is made, and of the large work, are the same; but a difference in this respect will produce a very remarkable difference in the result. Thus, suppose a model is made of fir-wood, the model may be strong and firm enough; but a large work made also of fir, when executed according to the plan of the model, may be so weak that it will fall to pieces by its own weight. If, however, we make use of iron for the large work instead of fir, the whole will be sufficiently strong, even though made exactly according to the plan of the model. The same thing may be said regarding large and small animals. If we could find an animal whose bones exceeded in hardness and strength the bones of other animals as much as iron exceeds fir, such an animal might be of a monstrous size, and yet be exceedingly strong. In like manner, if we suppose the flesh and bones of a giant to be greatly superior in strength and hardness to the flesh and bones of other men, the great size of his body will be no objection at all to his strength. The whole of the matter therefore concerning the existence of giants must rest upon the credibility of the accounts we have received from those who pretend to have seen them, and not on any arguments drawn *a priori*. In a memoir read before the Academy of Sciences at Rouen, M. Lecat gives the following account of giants who are said to have existed in different ages.

"Profane historians have given seven feet of height to Hercules, their first hero; and in our days we have seen men eight feet high. The giant who was shown in Rouen in 1735 measured eight feet some inches. The Emperor Maximin was of that size; Shenkins and Platerus, physicians of the last century, saw several persons of that stature; and Goropius saw a girl who was ten feet high. The body of Orestes, according to the Greeks, was eleven feet and a half; the giant Galbara, brought from Arabia to Rome under Claudius Cæsar, was near ten feet; and the bones of Secondilla and Pusio, keepers of the gardens of Sallust, were but six inches shorter. Funnam, a Scotsman, who lived in the time of Eugene II. king of Scotland, measured eleven feet and a half; and Jacob Lemaire, in his voyage to the Straits of Magellan, reports, that on the 17th of December 1615, they found at Port Desiré several graves covered with stones; and having the curiosity to remove the stones, they discovered human skeletons of ten and eleven feet in length. The Chevalier Scory, in his voyage to the Peak of Teneriffe, says, that they found in one of the sepulchral caverns of that mountain the head of a Gaucho which had eighty teeth, and that the body was not less than fifteen feet in length. The giant Ferragus, slain by Orlando, nephew of Charlemagne, was eighteen feet in height. Rioland, a celebrated anatomist, who wrote in 1614, says, that, some years before, there was to be seen in the suburbs of St Germain the tomb of the giant Isoret, who was twenty feet in height. In Rouen, in 1509, whilst digging in the ditches near the Dominicans, they found a stone tomb containing a skeleton whose skull held a bushel of corn, and whose shin-bone reached up to the girdle of the tallest man there, being about four feet in length, and consequently the body must have been seventeen or eighteen feet in height. Upon the tomb was a plate of copper, on which was engraved, 'In this tomb lies the noble and puissant lord the Chevalier Ricon de Vallemont, and his bones.' Platerus, a famous physician, declares that he saw at Lucerne the true human bones of a subject which must have been at least nineteen feet high. Valence in Dauphiné boasts of possessing the bones of the giant Bucart, tyrant of the Vivarais, who was slain with an arrow by the Count de Cabillon, his vassal. The Dominicans had a part of the shin-bone, with the articulation of the knee, and his figure painted in fresco, with an inscription, showing that this giant was twenty-two feet and a half in height, and that his bones were found in 1705, near the banks of the Morderi, a little river at the foot of the mountain of Crussol, upon which, according to tradition, the giant had his residence.

"On the 11th January 1613, some masons digging near the ruins of a castle in Dauphiné, in a field which, by tradition, had long been called the *giant's field*, at the depth of eighteen feet discovered a brick tomb thirty feet long, twelve feet wide, and eight feet high; on which was a gray stone, with the words *Theutobochus Rex* cut thereon. When the tomb was opened, they found a human skeleton entire, twenty-five and a half feet long, ten feet wide across the shoulders, and five feet deep from the breast-bone to the back. The teeth were each about the size of an ox's foot, and the shin-bone measured four feet. Near Mazarino, in Sicily, in 1516, was found the skeleton of a giant thirty feet high; his head was the size of a hogshead, and each of his teeth weighed five ounces. Near Palermo, in the valley of Mazara, in Sicily, a skeleton of a giant thirty feet long was found, in the year 1548; and another of thirty-three feet high, in 1550. Many curious persons have preserved several of these gigantic bones.

"The Athenians found near their city two famous skeletons, one of thirty-four and the other of thirty-six feet in height. At Totu, in Bohemia, there was found in 758 a skeleton, the head of which could scarcely be encompassed by the arms of two men together; whilst the legs, which they still keep in the castle of that city, were twenty-six feet long. The skull of the giant found in Macedonia in September 1691 contained two hundred and ten pounds of corn. The celebrated Sir Hans Sloane, who treated this matter very learnedly, does not doubt these facts, but thinks the bones were those of elephants, whales, or other enormous animals. Elephants' bones may be shown as those of giants; but they can never impose upon anatomists. Whales, which, by their immense bulk, are more proper to be substituted for the largest giants, have neither arms nor legs; and the head of that animal has not the least resemblance to that of a man. If it be true, therefore, that a great number of the gigantic bones which we have mentioned have been seen by anatomists, and by them have been reputed real human bones, the existence of giants is proved."

With regard to the credibility of all or any of these accounts, it is difficult to determine any thing. If, in any castle of Bohemia, the bones of a man's leg twenty-six feet in length are preserved, we should have indeed a decisive proof of the existence of a giant, in comparison of whom most others would be but pigmies. Nor could these bones be supposed to belong to an elephant; for an elephant itself would be but a dwarf in comparison of such an enormous monster.

GIANT'S *Causeway*, a vast collection of basaltic pillars in the county of Antrim, on the northern coast of Ireland. The principal or grand causeway consists of a most regular arrangement of many hundred thousand columns of a black kind of rock, very hard, almost all of them of a pentagonal figure, but so closely and compactly situated on their sides, though perfectly distinct from top to bottom, that scarcely any thing can be introduced between them. The columns are of an unequal height and breadth; some of the highest, visible above the surface of the strand, and at the foot of the impending angular precipice, may be about twenty feet; and they do not exceed this height, at least none of the principal arrangement. How deep they are fixed in the strand was never yet discovered. This grand arrangement extends nearly two hundred yards, visible at low water, but how far beyond is uncertain; from s declining appearance, however, at low water, it is probable it does not extend under water to a distance any thing equal to what is seen above. The breadth of the principal causeway, which runs out in one continued range of columns, is in general from twenty to thirty feet; at one lace or two it may for a few yards be nearly forty. In his account are not included the broken and scattered ieces of the same kind of construction which are detached from the sides of the grand causeway, as they do not ppear to have ever been contiguous to the principal arrangement, though they have frequently been taken into he width; and this has been the cause of the wild and issimilar representations of this causeway, which different accounts have exhibited. The highest part of the auseway is the narrowest, at the very foot of the impending cliff from which the whole projects, where, for four or ve yards, it is not above ten or fifteen feet wide. The olumns of this narrow part incline from a perpendicular little to the westward, and form a slope on their tops, y the very unequal height of the columns on the two ides, by which an ascent is made at the foot of the cliff, rom the head of one column to the next above, *gradatim*, o the top of the great causeway, which, at the distance of alf a dozen yards from the cliff, obtains a perpendicular osition, and, lowering in its general height, widens to bout twenty or between twenty and thirty feet, and for hundred yards nearly is always above water. The tops f the columns for this length being nearly of an equal eight, they form a grand and singular parade, that may e easily walked on, but rather inclining to the water's edge. From high-water mark, as it is perpetually washed y the beating surges on every return of the tide, the platform lowers considerably, and becomes more and more uneven, so as not to be walked on but with the greatest care. At the distance of about a hundred and fifty yards rom the cliff it turns a little to the eastward for twenty r thirty yards, and then sinks into the sea. The figure f these columns is almost without exception pentagonal, r composed of five sides; there are but very few of any ther figure introduced; some, indeed, there are of three, our, and six sides, but the generality of them are five-sided; and the spectator must look very nicely to find ny of a different construction. Yet, what is very extraordinary, and particularly curious, there are not two columns in ten thousand to be found, which either have heir sides equal among themselves, or whose figures are like. Nor is the composition of these columns or pillars ess deserving the attention of the curious spectator. They are not of one solid stone in an upright position, ut composed of several short lengths, curiously joined, ot with flat surfaces, but articulated into each other like all and socket, or like the joints in the vertebræ of some f the larger kinds of fish, the one end at the joint having cavity, into which the convex end of the opposite is exactly fitted. This is not visible except by disjoining two f the lengths. The depth of the concavity or convexity s generally about three or four inches. And, what is still more remarkable of the joint, the convexity and the corresponding concavity is not conform to the external angular figure of the column, but exactly round, and as large s the size or diameter of the column will admit; and consequently, as the angles of these columns are in general extremely unequal, the circular edges of the joint are seldom coincident with more than two or three sides of the pentagon, and from the edge of the circular part of the oint to the exterior sides and angles they are quite plain. t is still further remarkable, that the articulations or those oints are frequently inverted; in some the concavity is upwards, and in others the reverse. This occasions the variety and mixture of concavities and convexities on the ops of the columns, which is observable throughout the platform of this causeway, yet without any discoverable design or regularity with respect to the number of either. The length also of these particular stones, from joint to joint, is various; in general, they are from eighteen to twenty-four inches in length; and, for the most part, longer towards the bottom of the columns than nearer the top, and the articulation of the joints something deeper. The size or diameter of the columns is likewise as different as their length and figure; but in general they are from fifteen to twenty inches in diameter. There are really no traces of uniformity or design discoverable throughout the whole combination, excepting in the form of the joint, which is invariably by an articulation of the convex into the concave of the piece next above or below it; nor are there any traces of a finishing in any part, either in height, length, or breadth, of this curious causeway. If there is here and there a smooth top to any of the columns above water, there are others just by, of equal height, which are more or less convex or concave, and show them to have been joined to pieces that have been washed, or by other means taken off. And undoubtedly those parts which are always above water have, from time to time, been made as even as might be; whilst the remaining surfaces of the joints must naturally have been worn smoother by the constant friction of weather and walking, than where the sea, at every tide, is beating upon the causeway, and continually removing some of the upper stones, and exposing fresh joints. Further, as these columns preserve their diameters from top to bottom, in all the exterior ones which have two or three sides exposed to view, the same thing may with reason be inferred of the interior columns, whose tops only are visible. Yet, what is equally curious and extraordinary in this phenomenon, it appears that, notwithstanding the universal dissimilitude of the columns, both as to their figure and diameter, and though perfectly distinct from top to bottom, the whole arrangement is so closely combined at all points that hardly a knife can be introduced between them, either on the sides or angles.

The cliffs at a great distance from the causeway, especially in the bay to the eastward, exhibit in many places the same kind of columns, figured and jointed in all respects like those of the grand causeway. Some of them are seen near to the top of the cliff, which in general, in those bays to the east and west of the causeway, is about three hundred feet in height; others again are observed about midway, and at different elevations from the strand. A very considerable exposure of them is seen in the very bottom of the bay to the eastward, about a hundred roods from the causeway, where the earth has evidently fallen away from them upon the strand, and exhibits a most curious arrangement of many of these pentagonal columns in a perpendicular position, supporting in appearance a cliff of different strata of earth, clay, rock, &c. to the height of about a hundred and thirty feet or more above. Some of these columns are between thirty and forty feet high, from the top of the sloping bank below them; and, being longest in the middle of the arrangement, and shortening on either hand, they have obtained the appellation of *organs*, from a rude likeness in this particular to the exterior or frontal tubes of that instrument; and as there are few broken pieces on the strand near it, it is probable that the outside range of columns which now appears is really the original exterior line, to the seaward, of this collection. But how far they extend internally into the bowels of the incumbent cliff is unknown. The very substance, indeed, of that part of the cliff which projects to a point, between the two bays on the east and west of the causeway, seems composed of this kind of materials; for, besides the many pieces which are seen on the sides of the cliff that circulate to the bottom of the bays, particularly the eastern side, there is, at the very point of the cliff, and just above the narrowest and highest part of the causeway, a long collection of them seen, whose heads or tops, just appearing without the sloping bank, plainly show them to be in an oblique position, and about half way between the perpendicular and horizontal lines. The heads of these, likewise, are of mixed surfaces, convex and concave, and the columns evidently appear to have been removed from their original upright to their present inclining or oblique position, by the sinking or falling of the cliff.

GIARITCHAS Isles, a cluster of five small islands, about six miles south-south-west from Makiam. They are of moderate height, and contain many bare rocks intermixed with trees.

GIAVENO, a city of Italy, in the kingdom of Sardinia and province of Susa. It stands on a hill, at whose base the river Sangone flows. It has the remains of an ancient wall, and contains a college. The inhabitants amount to 8300, who are employed in silk manufactures and in tanneries, and make some very good wine.

GIBBET, a machine in manner of a gallows, on which notorious criminals, after execution, are hung in irons or chains, as spectacles *in terrorem*. The word in French, *gibet*, properly denotes what we call gallows; and it is supposed to come originally from the Arabic *gibel*, a mount, or elevation of ground, by reason that gibbets are usually placed on hills or eminences.

GIBBON, Edward, the celebrated author of the Decline and Fall of the Roman Empire, and generally considered as forming, with Hume and Robertson, the triumvirate of great English historians, was descended of an ancient but not very distinguished family of the same name in the county of Kent. His grandfather, a merchant and citizen of London, was, under the Tory administration of the last four years of Queen Anne (1710–1714), appointed one of the commissioners of customs, and sat at the same board with Matthew Prior; but the mercantile man seems to have been better qualified for his station than the poet, at least in the opinion of Lord Bolingbroke, who was heard to declare that he had never conversed with a person who understood more clearly than Mr Gibbon the commerce and finances of England. In the year 1716, he was elected one of the directors of the South Sea Company; and, before his acceptance of this fatal office, he had acquired an independent fortune of sixty thousand pounds. But this fortune was overwhelmed in the shipwreck of the year 1720, when the company failed, and the accumulations of thirty years were swallowed up in a single day. Of the use or abuse of the South Sea scheme this is not the place to say any thing; and the question as to the guilt or innocence of Mr Gibbon may also be passed over without remark or discussion. In the first proceedings against the South Sea directors, however, he was one of the few who were taken into custody; and, in the final sentence, the measure of his fine was determined by the total estimate of his means, which he delivered upon oath to the House of Commons. But a sum of ten thousand pounds was afterwards allowed him for his maintenance; and on this foundation, with the skill and credit of which parliament had not been able to deprive him, he erected the edifice of a new fortune, the greater part of which he prudently secured in the purchase of landed property. He died in his house at Putney, in December 1736, and, by his last will, enriched his two daughters, Catharine and Hester, at the expense of his only son, Edward, the father of the historian, who had married without his consent. This son, who was born in 1707, received the benefit of a liberal education. At Westminster, and afterwards at Emmanuel College, Cambridge, he passed through a regular course of academical discipline. He then proceeded on his travels, but without taking a degree; and, on his return to England, he was chosen member of parliament for the borough of Petersfield in 1734, and again for that of Southampton in 1741. In parliament he joined the party which, after a long and fierce contest, finally succeeded in driving Sir Robert Walpole from power; and his son has not concealed that, in the pursuit of an unpopular minister, he gratified a private revenge against the supposed oppressor of his family in the South Sea persecution. This retaliation, however, was entirely misdirected; for Mr Coxe has clearly proved that, so far from stimulating or exasperating the fury of that time, Walpole endeavoured to stem the torrent of parliamentary vengeance, and to turn the sentiments of the house into the safe channel of moderation.

Edward Gibbon, the future historian of the Roman empire in its decline and fall, was born at Putney, in Surrey, on the 27th April, old style, in the year 1737. His mother, Judith Porten, was the youngest daughter of James Porten, a merchant of London; and he was the eldest of five brothers and a sister, all of whom died in infancy. During his early years his constitution was so feeble, and his life so precarious, that, in the baptism of his brothers, his father successively repeated the Christian name of Edward; and to preserve and rear so frail a being, the most tender assiduity was scarcely sufficient. From this anxious and painful duty his mother's attention was diverted by frequent pregnancy, an exclusive passion for her husband, and the dissipation of the world; but the maternal office was supplied by his maiden aunt, Mrs Catharine Porten, who nursed him with the greatest tenderness, and, during the intervals of convalescence, procured him such instruction as his years and infirm health admitted. After some previous instruction at home, or in a day-school at Putney, he was, at the age of seven, placed under the care of Mr John Kirkby (author of *Automathes*, a philosophical romance), who, for about eighteen months, acted as his domestic tutor. In his ninth year (January 1746), during a lucid interval of comparative health, he was sent to a school at Kingston-upon-Thames, which was then kept by Dr Woodeson and his assistants; but his studies were still frequently interrupted by sickness; and though, by the common methods of discipline, he purchased some knowledge of Latin syntax, he does not speak with much satisfaction of his proficiency, and, after a real or nominal residence of nearly two years, he was finally recalled by his mother's death in 1747. After this event, he spent about two years in the rustic solitude of Buriton, to which his father had retired; and there, principally under the eye of his affectionate aunt, he acquired that invincible love of reading which, he declares, he would not exchange for the treasures of India. In 1749, he was sent to Westminster school, then conducted by Dr John Nicoll, where, within the space of two more years, he reached the third form; but his application was so frequently interrupted by sickness, or rendered useless by debility, that, by medical advice, he was removed to Bath, whence, after an ineffectual trial of the virtues of its mineral waters, he was transported to Winchester, to the house of a physician. From the latter place he returned unimproved in health to Bath, and at length moved with his father to Buriton and Putney, where he so far recovered, that a short and unsuccessful trial was made to renew his attendance at Westminster school. But his infirmities could not be reconciled with the hours and discipline of a public seminary; and as he was not provided with a domestic tutor, who might have watched the favourable moments, and imperceptibly advanced him in learning, he was obliged to be content with such occasional teachers as the different places of his residence could supply.

As he approached his sixteenth year, however, his sufferings entirely ceased. Nature, to use his own words, displayed in his favour her mysterious energies; his constitution became fortified and fixed; and his disorder, instead of gaining strength with his years, and reducing him for fe to the condition of an illiterate cripple, most wonderully vanished. Encouraged by his unexpected recovery, is father placed him at Esher, in Surrey, in the house of ie Reverend Philip Francis, the translator of Horace, who, was expected, would at least inspire him with a taste for ie Latin poets. But this hope was altogether frustrated. Ir Francis preferred the pleasures of London to the inruction of his pupils; and, amidst the perplexity which iis discovery occasioned, young Gibbon was, without furier preparation, hurried by his father to Oxford, where, on ie 3d of April 1752, he was matriculated as a gentleman-ommoner of Magdalen College.

"I arrived at Oxford," says Gibbon, "with a stock of rudition that might have puzzled a doctor, and a degree f ignorance of which a school-boy might have been ashamd." During the preceding three years, although sickness revented him from following a regular course of instrucon, his fondness for books had increased, and he was peritted to indulge without restraint his love of desultory eading. But his indiscriminate appetite subsided by derees into the historical line, and he perused with avidity uch books of history as accident threw in his way, gratiying a curiosity of which he could not trace the source, nd supplying wants of which he felt the craving without eing able to account for his predilections. The assiduous erusal of the Universal History, as the octavo volumes uccessively appeared, and of a treatise by Hearne, the *uctor Historicus*, introduced him to as many of the Greek nd Roman historians as were accessible to an English eader. He also devoured Littlebury's Herodotus, Spelian's Xenophon, Gordon's Tacitus, and "a ragged Proopius" which happened to fall in his way; whilst "many rude lumps" of Speed, Rapin, Mezeray, Davila, Machiael, Fra Paolo, Bower, and others, were swallowed, if not igested by him; and in the descriptions of India and hina, Mexico and Peru, he found an inexhaustible source f gratification. The continuation of Echard's Roman Iistory gave him some insight into the reigns of the sucessors of Constantine; and in Howel's History of the Vorld he found the Byzantine period exhibited on a larer scale. Mahommed and his Saracens soon fixed his ttention; and Simon Ockley, an original in every sense, aving opened his eyes to the true character of both, he was ed from one book to another, until he had ranged round he whole circle of oriental history. The same insatiale ardour urged him to guess at the French of D'Herelot, and to endeavour to construe the barbarous Latin f Pococke's Abulfaragius. The maps of Cellarius and Vells imprinted on his memory the details of ancient georaphy; from Stranchius he imbibed the elements of chroology; the Tables of Helvicus and Anderson, together ith the Annals of Usher and Prideaux, distinguished the onnection of events; the systems of Scaliger and Petaius, of Marsham and Newton, which he could seldom tudy in the originals, formed the subject of frequent meitation; and his sleep was sometimes disturbed by vain ttempts to reconcile the Septuagint with the Hebrew omputation.

In this strange and eccentric course of desultory readig, young Gibbon, whilst ranging at pleasure through uch books as fell in his way, seems to have been unconciously and instinctively led to that great branch of liteature in which he was destined subsequently to attain he highest eminence. But the habits thus formed, whatver influence they may have exerted on his future life, ere by no means favourable to the success of his acadeical pursuits. He was, by his own admission, exceedigly deficient in classical learning; and, in fact, he apears to have been sent to Oxford without either the prearation or the mental training necessary to enable him to eap the advantages of academical instruction. This may probably account for the harshness with which he speaks of the system pursued in the English universities, though it will neither explain nor obviate critical censures, many of which subsequent reform and improvement show to have been but too well founded. He appears to have spent at Magdalen College fourteen months, which he describes as the most idle and unprofitable in his life; but why, even with his habits of irregular application, they were so idle and unprofitable, he has nowhere informed us. Of the indifference of one of his tutors, and the almost total neglect of the other, he appears, indeed, to have had good cause of complaint; but as he admits that he was disposed to gaiety and late hours, the pupil must in justice share the blame with his masters, and cease to complain that he was not taught what he perhaps affected to despise. His objections to the system pursued, however, and his strictures on the silence of the Oxford professors, which is imperfectly supplied by the tutors of the several colleges, and by which the youth are deprived of public instruction, with all the advantages resulting from this species of institution, remain in full force, and are altogether unaffected by the personal circumstances to which we have just alluded.

When Gibbon first left Magdalen College, during the long recess between the Trinity and Michaelmas terms, his taste for reading, as he informs us, began whimsically enough to revive, and, "unprovided with original learning, unformed in the habits of thinking, and unskilled in the arts of composition, he resolved to write a book." The title of this first essay, The Age of Sesostris, was perhaps suggested by Voltaire's Age of Louis XIV.; and, what is deserving of remark, its object was not to narrate the exploits of the conqueror of Asia, but to investigate the probable date of his life and reign. On his return to Oxford, however, he abandoned this project, and the sheets he had written were afterwards committed to the flames. By the negligence of his second tutor he was now left entirely to himself, and, from want of experience, advice, and occupation, he was betrayed into culpable improprieties of conduct, ill-chosen company, late hours, and inconsiderate expense. In his peculiar frame of mind, indeed, there appears to have been originally interwoven no inconsiderable share of juvenile arrogance and presumption. Whilst his debts were growing, his studies neglected, and his frequent absences from his college visible and scandalous, the blind activity of idleness urged him into the perilous mazes of controversy, and, at the age of sixteen, he contrived to bewilder himself amidst the errors of the church of Rome.

The bold criticism of Middleton's Free Inquiry appears to have given the first shock to his Protestantism; and whilst he hovered as it were on the very verge of infidelity, the perusal of Bossuet's Exposition of the Catholic Doctrine, and his History of the Protestant Variations, seem to have recalled him from the region of doubt, and led him to seek repose in the bosom of an infallible church. These works, says he, "achieved my conversion, and I surely fell by a noble hand." In this fall, however, Parsons the Jesuit appears to have had a considerable share; for, in another part of his Memoirs, he imputes his conversion principally to that vigorous writer, who, in his opinion, had urged all the best arguments in favour of the Roman Catholic religion. But be this as it may, he had no sooner settled his new religion than he resolved to profess himself a Catholic; and, accordingly, on the 8th of June 1753, he solemnly abjured the errors of heresy before a Catholic priest in London, and immediately announced the event to his father in an elaborate controversial epistle, approved by his spiritual director. His father, though neither a bigot nor a philosopher, was astonished at his apostacy from the religion of his country; and having, in the first sally of passion, divulged a secret which prudence might have suppressed, thus shut the gates of Magdalen College against the return of his son. At an advanced age, when he had learned to treat all religions with equal indifference, Gibbon, reviewing this event of his life, speaks of it with an indulgent tenderness, which will perhaps be acknowledged as more natural than just; he avows himself proud of an honest sacrifice of interest to conscience; and he declares that he can never blush if his tender mind was entangled in the sophistry which had seduced the manly understandings of Chillingworth and Bayle. The resemblance, however, is closer in the transition which they afterwards made from superstition to scepticism; from that state of mind which believes against reason, to its opposite extreme, which attacks the foundations of reason itself, and seeks to inculcate a belief that there is no belief. "To my present feelings," says Gibbon, "it seems incredible that I should ever believe that I believed in transubstantiation."

Finding it necessary to form a new plan of education, and also to devise a method which, if possible, might effect the cure of his spiritual malady, his father, after much consideration, determined to fix him, during some years, at Lausanne, in Switzerland; and there he was accordingly established, with a very moderate allowance, under the care of M. Pavilliard, a Calvinist minister of that place. In as far as regards the instructor and guide thus selected, a more fortunate choice could scarcely have been made. From the testimony of his pupil, and the still more conclusive evidence of his own correspondence with the elder Mr Gibbon, M. Pavilliard appears to have been a man of singular good sense, temper, and knowledge of the human mind; and in the method of instruction which he adopted for the double purpose of advancing the intellectual improvement and correcting the religious aberration of his pupil, he evinced a refinement and delicacy of judgment which it is much more easy to admire than to imitate. At first, however, M. Pavilliard had a twofold obstacle to contend with; he could not speak English, and as Mr Gibbon did not understand French, some time necessarily elapsed before he could even attempt to carry into effect the instructions he had received. But when, by mutual industry, this difficulty had been in part removed, M. Pavilliard lost no time in endeavouring, by considerate and judicious kindness, to secure the attachment of his pupil; and having accomplished this object, he then directed his studies according to a regular plan, and placed within his own reach such means of information as seemed best calculated to remove the errors into which he had fallen. "My obligations to the lessons of M. Pavilliard," says the historian in his Memoirs, "gratitude will not suffer me to forget; he was endowed with a clear head and a warm heart; his innate benevolence had assuaged the spirit of his church; he was rational because he was moderate; in the course of his studies he had acquired a just, though superficial knowledge of most branches of literature; and he laboured with assiduous patience to know the character, gain the affection, and open the mind of his English pupil. As soon as we began to understand each other, he gently led me, from a blind and undistinguishing love of reading, into the path of instruction. I consented with pleasure that a portion of the morning hours should be consecrated to a plan of modern history and geography, and to the critical perusal of the French and Latin classics; and at each step I felt myself invigorated by the habits of application and method. His prudence repressed and dissembled some youthful sallies; and as soon as I was confirmed in habits of industry and temperance, he gave the reins into my own hands." On the more delicate subject of religion, M. Pavilliard followed the same winning and judicious method, with equal success; and at length, on Christmas day 1754, Mr Gibbon, after a full conviction, received the sacrament in the church of Lausanne. "It was here," says he, "that I suspended my religious inquiries, acquiescing with implicit belief in the tenets and mysteries which are adopted by the general consent of Catholics and Protestants."[1]

At Lausanne Gibbon laid the foundation of all his future improvement; and although it is no doubt true, as he has himself observed, that every man who rises above the common level has received two educations, one from his teachers and another from himself, yet it is at least equally so that the success of the second is in a great measure dependent on the proper direction given to the first. Under his judicious tutor he was reclaimed from his excursive and desultory habits of reading, and initiated in a regular and methodical course of study, without in the least abating his thirst of general knowledge, or hindering him from gratifying his curiosity, after the hours appropriated to the pursuits in which he had been led to engage. His reading had now a fixed object, the attainment of which made him sensible of the value of his acquisitions, and reconciled him to that system of regular application by which all his powers were invigorated. By acquiring a knowledge of the Greek, Latin, and French languages, new stores of learning were opened, and new models of taste presented to him. Poetry, history, philosophy, criticism, and antiquities, in their turn occupied his attention; and the honest zeal of the tutor was admirably seconded by an unwearied industry and insatiable avidity of knowledge on the part of the pupil, which bespoke a mind capable of extraordinary attainments, and deserving of the highest honours in literature. For the pursuit of science, however, he evinced neither the same aptitude nor the same inclination. His father had been desirous, and even pressing, that he should devote some time to the study of the mathematics; nor did he refuse to comply with a wish so reasonable. But, after attending during two winters the prelections of a teacher, who explained the elements of algebra and geometry as far as the conic sections of the Marquis de l'Hôpital, he relinquished for ever the pursuit of the mathematics, in which he appears to have made but little proficiency, and consoled himself with the reflection, in which few will probably be inclined to coincide, that he desisted "before his mind had become hardened by the habit of rigid demonstration, so destructive of the finer feelings of moral evidence, which must determine the actions and opinions of our lives." It is not very wonderful, perhaps, that a mind naturally disposed to doubt should shrink from certain and demonstrable truth, which excludes the play of sceptical ingenuity; or that the rigour of exact science should revolt one vho had so long been accustomed to expatiate in the more ttractive regions of taste and literature; but, on the other and, it does seem a little surprising that Gibbon, like ohnson, should have thought himself entitled to underalue a science which he had failed to acquire, and that is memory did not suggest to him many eminent examles in disproof of his assertion that the mind becomes harened by the habit of rigid demonstration. It is always asy, however, to find a plausible excuse for neglecting that hich we want either the power or the inclination to pursue.

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[1] As Mr Gibbon was himself alone instrumental in his conversion to popery, so he seems inclined to take to himself a large share of the merit of his reconversion to protestantism. "Mr Pavilliard," says he, "was not unmindful that his first task, his most important duty, was to reclaim me from the errors of popery. The intermixture of sects has rendered the Swiss clergy acute and learned on the topics of controversy; and I have some of his letters in which he celebrates the dexterity of his attack, and my gradual concessions, after a firm and well-managed defence. I was willing, and I am now willing, to allow him a handsome share of the honour of my conversion; yet I must observe that it was principally effected by my private reflections; and I still remember my solitary transport at the discovery of a philosophical argument against transubstantiation." With reference to the claim here put forward by Mr Gibbon, Lord Sheffield observes: "M. Pavilliard has described to me the astonishment with which he gazed on Mr Gibbon standing before him; a thin little figure, with a large head, disputing and urging, with the greatest ability, all the best arguments that had ever been used in favour of popery." Bossuet and Parsons had supplied him with his arms.

Whilst at Lausanne, Gibbon to his classical attainments dded the study of Grotius and Puffendorff, of Locke and Iontesquieu; and he also mentions the Provincial Leters of Pascal, the Life of Julian by La Bleterie, and the ivil History of Naples by Giannone, as having remotely ontributed to form the historian of the Roman empire. rom the Provincial Letters he tells us that he learned o manage the weapon of grave and temperate irony, even n subjects of ecclesiastical solemnity; a weapon, we may emark, which, however useful to a polemic, is unlawful in he hand of an historian, and which, when resorted to by he latter, justly subjects him to the suspicion of having xhausted both his courage and his argument. Truth as vell as error may be discredited by a sneer, which it is proerbially impossible to refute; sarcasm may provoke ridiule and excite contempt, but it can never conduce to the urposes of that sound practical philosophy which seeks s examples in history. It is more to the honour of our ndefatigable student that, about this time, he established correspondence with several distinguished literary chaacters, to whom he looked for instruction and direction; ith Crevier, the successor of Rollin, and the editor of ivy; with Breitenger of Zurich, the editor of a Septugint Bible; with Professor Matthew Gesner of Göttinen, and M. Allamand, minister at Bex;—and that by the cuteness of his remarks, the extent of his knowledge, nd his zeal in the cause of literature, he attracted their articular attention, and proved himself not unworthy of heir confidence.

He had also the satisfaction of seeing Voltaire, who, fter forfeiting by his own misconduct the friendship of he king of Prussia, had retired, at the age of sixty, ith a plentiful fortune, to this free and beautiful couny, and resided two winters at Monrepos, a countryouse close to a suburb of Lausanne. "The most extrardinary man of the age" received the young Englishman ith civility, but without any peculiar notice or distincon. *Virgilium vidi tantum*, says Gibbon. But the inense with which the autocrat of literature was then aproached, and the boyish enthusiasm of the unfledged auhor, which made him look upon admission to the private heatricals of Monrepos as the highest distinction, could carcely be without influence on the formation of his chaacter and opinions. According to his own expression, e then rated Voltaire above his real magnitude; but he as probably unconscious that both his tone of mind and is manner of expression, in which he was ever endeaouring to point his stately and inflexible English with he light and graceful irony of the Frenchman, were peretually betraying his early adoration of the patriarch; hilst, on the other hand, Voltaire little suspected that, n the awkward and oddly-formed English boy (whose nemory had retained, and whose indiscretion made pubc, one of his fugitive poems not yet intended for the ulgar ear), he was silently forming, not a disciple, but a ellow-labourer, whose fame would at length cast his own istorical reputation into the shade. The immediate effect f Mr Gibbon's attendance at the private theatre of Monepos was an increased predilection for the French stage, nd a corresponding decline in his veneration for Shakpeare. A taste formed to delight in the smooth-shaven, artificial lawn of a French play, can never retain any relish for the wild, irregular, masculine beauties of our great dramatist, heaped together as they are with all the profusion, magnificence, and simplicity of nature herself.

Gibbon was now familiar in some, and acquainted in many families of Lausanne, and his evenings were generally devoted to conversation and cards, either in private parties, or in what are called assemblies; in short, he enjoyed his full share of the amusements of society. During this alternation of study and pleasure, he became enamoured of Mademoiselle Susan Curchod, daughter of the minister of Crassy, in the mountains which separate the Pays de Vaud from the county of Burgundy; a young lady whose personal attractions were, he assures us, embellished by the virtues and talents of the mind. His addresses were favoured by Mademoiselle Curchod and her parents, and both at Crassy and at Lausanne he indulged his dream of felicity; but his father, on being consulted, expressed the utmost repugnance to "this strange alliance," and his son, thinking more of his prospects than of his passion, yielded, as he says, to his fate. "I sighed as a lover," he adds; "I obeyed as a son." His wound, which could scarcely have been deep, was insensibly healed by time, absence, and the habits of a new life; and his cure was accelerated by learning that the lady herself was not inconsolable for the loss of so prudent a lover. But the minister of Crassy soon afterwards died, and as his stipend died with him, his daughter retired to Geneva, where, by teaching young ladies, she earned a hard subsistence for her mother and herself. In her lowest distress, however, she maintained a spotless reputation, and having attracted the notice of a rich banker of Paris, a citizen of Geneva, she became the wife of M. Neckar, afterwards prime minister of France.

In 1758, Mr Gibbon took leave of Lausanne, and returned to England, after an absence of nearly five years. His father received him as a man and a friend, and appeared to rejoice in the success of the plan of education which had effected the reconversion and improvement of his son. One disagreeable circumstance, however, awaited the young student on his return to his native country and paternal home. In the room of her who had given him birth he found a stepmother, whom he regarded as an intruder, and to whom he was introduced with the most unfavourable prejudice. But this initial dislike, by no means unnatural on his part, was soon overcome by the amiable manners and obliging conduct of the new Mrs Gibbon, who gave him a polite welcome, and did all in her power to study and gratify his wishes. At home he was allowed to consult his own taste in the choice of place, company, and amusements; and his excursions were bounded only by the limits of the island and the measure of his income. He assiduously frequented the theatre at a very propitious era of the stage, and indulged somewhat freely in the pleasures of a town life; but the better habits which he had formed at Lausanne, prevailing over these occasional excesses, induced him to seek more elegant and rational society, though, in the first instance, not with the success which might have been expected. He had now reached his twenty-first year without having made choice of a profession, or engaged in any regular employment. His stepmother recommended the study of the law, and some faint efforts were made to procure for him the situation of secretary to a foreign embassy; but the former scheme he declined, and the latter did not succeed.

Of the first two years which he spent in England, he passed about nine months in London, and the remainder in the country. But as his father's taste had always preferred the highest and the lowest company, for which, it seems, he was equally qualified, he was by this time forgotten by the great with whom he had associated; and, as he had no fixed residence in London, his son failed to gain admission into those circles of society in which he ardently desired to move. He acquired an intimacy, however, in the house of David Mallet, and by his means was introduced to Lady Harvey's parties; nor was he at all displeased by her preference and affectation of the manners, language, and literature of France. But his progress in the English world was in general left to his own efforts, and those efforts, he says, were languid and slow. The want of society, however, does not appear to have given him much uneasiness; he depended chiefly on himself for his happiness; and, unlike many of his countrymen, he knew not the tediousness of an idle life, or the misery of having hours which he could not occupy. At Buriton he enjoyed many opportunities of adding to his stock of learning; books became more and more the source of all his pleasures; and the leisure he could borrow from his systematic plan of study was employed in perusing the works of the best English authors since the revolution. His father had endeavoured in vain to inspire him with a taste for agriculture, and to induce him to acquire a knowledge of rural affairs; but his own more rational object was to restore the purity of his diction which had been corrupted by the long and constant use of a foreign idiom. By the advice of Mallet he was directed to the writings of Swift and Addison, which he has on the whole judiciously discriminated. "Wit and simplicity," says he, "are their common attributes; but the style of Swift is supported by manly original vigour; that of Addison is adorned by the female graces of elegance and mildness." But the first productions of Robertson and Hume, the histories of Scotland and of the Stuarts, engaged his attention still more deeply. The perfect composition, the nervous language, and the well-turned periods of the one, inflamed him with the ambitious hope that he might one day tread in his footsteps; whilst the calm philosophy and the careless inimitable beauties of the other often forced him to close the volume with a mixed sensation of delight and despair. Charmed, however, as he was with Swift and Addison, with Robertson and Hume, and well as he knew how to appreciate the peculiar excellencies of their respective styles, he lost sight of every model when he became a writer of history, and formed a style of his own, which, though in its essential spirit it is at least in part French, is justly entitled to be considered as original.

In 1761, Gibbon, yielding to the authority of a parent, published his *Essai sur l'Etude de la Littérature*, which appeared in a small volume duodecimo. As his object, at this time, was to get an appointment as secretary of legation to some English ambassador or plenipotentiary, his father believed that the proof of some literary talents might introduce him to public notice, and second the recommendation of his friends; and, with these views, the essay in question was published. Part of this production had been written at Lausanne, and the remainder completed in London, where the whole was revised by Dr Maty, author of the *Journal Britannique*, who approved the design, and applauded the execution. The object of the essay was to prove, in opposition to D'Alembert and other writers in the *Encyclopédie*, that all the faculties of the mind may be exercised and displayed in the study of ancient literature, and that the new philosophy for which the *Encyclopédistes* contended was not more adverse to the cultivation of taste than inconsistent with the principles of enlightened reason. But he introduces a variety of topics not immediately bearing on his design, and shows that, in the belles-lettres and in criticism, he had expatiated through a range much more ample than could have been expected from his years. The work, indeed, is remarkable, both for the ideas which it contains, and for the purity with which it is written in French, a language then more familiar to Gibbon than his own. This book, however, made less sensation in England than in France, where it was most favourably received, and, by anticipation, ensured the author, particularly amongst men of letters, the most distinguished reception. In England it was received with cold indifference, little read, and speedily forgotten; but had the knowledge of the French language been then as common in the literary world as it is now, so extraordinary a production from the pen of a young man would have met with a different reception, and raised high expectations of future eminence. For the neglect of his countrymen, however, the author was in some measure indemnified by the copious extracts, the warm commendations, and the flattering predictions, of the journals of France and Holland, countries where the work was estimated at its real value. In his Memoirs he discusses its merits and defects with singular impartiality; but, in fixing the respective measures of praise and blame, the former predominates, and with justice.

The uncongenial profession of a militia captain, which was embraced by Gibbon about the time when this essay appeared, neither diverted his mind from his historical pursuits, nor relaxed his unwearied industry. It is true, that for two years and a half he endured a "wandering life of military servitude" in the south battalion of the Hampshire militia; but though the roll of the drum disturbed him in the midst of an inquiry into ancient weights, measures, and coins, even these days of more than usual bodily activity and mental distraction were turned to account. In his marchings and countermarchings from Winchester to Blandford, and from Blandford to Southampton, he studied the *Mémoires Militaires* of M. Guischardt;—the discipline and movements of a modern battalion gave him a clearer notion of the phalanx and the legion;—and, amidst his peaceful evolutions, the captain of the Hampshire grenadiers laid in that store of military knowledge which afterwards enabled him successfully to elucidate the campaigns of Julian, of Belisarius, and of Narses. At the peace of 1763 his regiment was disbanded, and he resumed his studies, the regularity of which had suffered unavoidable interruption during the period of his service in the militia. In forming a new plan, he hesitated for a time between the mathematics and the Greek language, both of which he had neglected since his return from Lausanne; but having at length given the preference to Greek, he applied himself to Homer, and pursued his reading with unflinching vigour. Whatever he read or studied, however, appears to have had reference, directly or indirectly, to historical composition. From the early age of fifteen, when he projected writing the Age of Sesostris, this seems to have been the grand aim of all his studies; and, in fact, he aspired to the character of an historian long before he was able to fix upon a subject. Nor was the time unfavourable to his ambition, or calculated to abate his ardour. On the contrary, a generous emulation was excited by witnessing the triumphs of Robertson and Hume; and it is not improbable that, whilst he secretly aspired to complete the triumvirate of British historians, he thought that a subject only was wanting to enable him to realise the object of his ambition.

During his life of military servitude, as he calls it, he had resolved on several subjects for historical composition, which, from their diversity and dissimilarity, prove that he had then no particular purpose to serve, no preconceived theory to support, no actual prejudice or belief to overthrow. Amongst these he has enumerated, 1. the expedition of Charles VIII. of France into Italy; 2. the crusade of Richard *Cœur de Lion;* 3. the barons' wars against John and Henry III.; 4. the history of Edward the Black Prince; 5. the lives, with comparisons, of Henry V. and the Emperor Titus; 6. the life of Sir Philip Sidney; and, lastly, that of "Scotland's Montrose;" all of which he sucessively chose and rejected. He then fixed on Sir Wal-er Raleigh as his hero; but, after dwelling with fondness n his eventful story, varied by the characters of the sol-ier and sailor, the courtier and historian, he abandoned his esign. "What new lights," he asks, "could I reflect on subject which has exercised the accurate industry of irch, the lively and curious acuteness of Walpole, the ritical spirit of Hurd, the vigorous sense of Robertson, nd the impartial philosophy of Hume?" The History of e Liberty of the Swiss, and the History of the Repub-c of Florence under the House of Medicis, were each in rn meditated and discarded.

But whilst his brain was teeming with projects, which ame like shadows and so departed, all his designs were spended by a visit to the Continent, which, according the law of custom, if not of reason, his father thought ecessary to complete his education. Having obtained om Lady Harvey, Horace Walpole, Mallet, and the uke of Nivernois,[1] letters of recommendation to various ersons of distinction in France, he left his father's resi-ence in Hampshire, and reached Paris on the 28th of nuary 1763, only thirty-six days after the disbanding of e militia. Two years were loosely defined as the term his absence; and he was left at liberty to spend his me in such places and in such a manner as might be ost agreeable to his own taste and judgment. In France e fame of his *Essai sur l'Etude de la Littérature* had pre-eded him, and his vanity was gratified by being consider-l as an Englishman of fortune who merely wrote for his nusement. When Gibbon reached Paris, Montesquieu d Fontenelle were no more; Voltaire had retired to his tate near Geneva; Rousseau had been driven from his ermitage of Montmorency; and he neglected to seek the quaintance of Buffon. But he mixed in familiar society ith D'Alembert, Diderot, the Count de Caylus, the Abbé la Bléterie, Barthélemy, Raynal, Arnaud, Condamine, uclos, Bougainville, Caperonnier, De Guignes, Suard, d others; and four days in the week he had a place ithout invitation at the hospitable tables of Mesdames eoffrin and Du Boccage,[2] of Helvetius, and Baron d'Hol-ich. After passing fourteen weeks at Paris, enjoying the ciety and amusements of that capital, he, in the month of ay 1763, revisited his old friends at Lausanne, where he remained nearly a year. During this sojourn on the banks of the Leman Lake, he formed an acquaintance, destined to ripen into lasting friendship, with Mr Holroyd, afterwards Lord Sheffield, who at a subsequent period became as it were the guardian of his posthumous fame, and whom he characterises as "a friend whose activity in the ardour of youth was always prompted by a benevolent heart and a strong understanding." In 1764 he set out for Italy, after having carefully studied the geography and ancient history of the seat of the Roman empire, with the view of rendering his visit profitable and satisfactory to his own mind. His description of his journey is clear and precise; and as he possessed a temper not very susceptible of enthusiasm, he scorns to affect raptures which he did not feel. But the sight of Rome appeared to have conquered his apathy, and as he approached and entered the eternal city, his mind was agitated with emotions which he declares it impossible either to forget or express. Here the conception of the work which was destined to fix and perpetuate his fame first rose in his mind. "It was at Rome," says he, "on the 15th of October 1764, as I sat musing amidst the ruins of the Capitol, while the bare-footed fryars were singing vespers in the Temple of Jupiter [now the church of Zocolants or Franciscan friars] that the idea of writing the decline and fall of the city first started to my mind."[3] But this appears to have been merely the effect of the emotion produced by local associations; for the original plan was confined to the decay of the city rather than of the empire. Rome and Italy having satiated his curiosity, he returned to England, and arrived at his father's residence in the month of June 1765.

The five years and a half which intervened between his return from his travels and the death of his father in 1770, seem to have formed the portion of his life which he passed with the least enjoyment, and remembered with the least satisfaction. By the resignation of his father, and the death of Sir Thomas Worsley, he was successively promoted to the rank of major and lieutenant-colonel commandant of his regiment of militia; but he was each year more disgusted with "the inn, the wine, the company, and the tiresome repetition of annual attendance and daily exercise." He had other and more rational grounds of uneasiness on account of his situation. He belonged to no profession which he could cultivate; he had adopted no plan, by which, like some of his acquaintance, he might rise to consequence. Without aim or pursuit, he lamented that he had not engaged in the study of the law, embarked in trade, tempted the chances of civil office or India adventure, or at least courted "the fat slumbers of the church." But a mind like his was not formed to remain inactive, and the dissatisfaction which he now experienced in considering his actual position, probably arose from an impatience to acquire fame, and the elongation of the only prospect which had presented itself to his view. He still contemplated, at an awful distance, a history of the decline and fall of Rome; but, as an immediate object of pursuit, he resumed the study of the revolutions of Switzerland, which he had formerly abandoned, and, after much reading, executed, in French, the first book of a history of Swiss liberty. This specimen of his work was read, in the winter of 1767, to a literary society of foreigners in London; and as the author was unknown, he listened without observation, though with painful sensations, to the free strictures and unfavourable sentence of his judges; but their condemnation, he assures us, was ratified by his cooler thoughts. The attempt, however, was generously commended by Mr Hume, to whom the manuscript had been submitted, and who endeavoured only to dissuade the author from composing in French, and thus, as Horace says of the Romans who wrote in Greek, carrying faggots into the wood. The design was, however, abandoned, in deference to the opinion of the foreign critics, and the manuscript subsequently passed into the hands of Lord Sheffield.

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[1] In acknowledging the politeness of the Duke of Nivernois, Gibbon notices a circumstance which serves in some degree to unfold s own character, and also to exhibit that superiority of pretension, from which, in fact, he never departed. "The Duke," says he, received me civilly, but, perhaps through Maty's *fault*, treated me more as a man of letters than as a man of fashion." Congreve d Gray were weak enough to be offended on account of a similar mistake; but that Gibbon, whose sole ambition was to rise to lite-ry eminence, should have for a moment preferred the equivocal character of a man of fashion to that of a man of letters, is as unac-untable as it is surprising that, at an advanced period of life, he should have deliberately recorded such an incident. If he had been ly a man of fashion, the reader would in vain have sought for his biography in the Encyclopædia Britannica.

[2] Gibbon was also introduced to Madame du Deffand, on whom he appears to have made, upon the whole, a favourable impression. it his elaborate efforts to be agreeable, and to assume the perfect tone of French society and manners, did not escape that clever d fastidious woman, whom Voltaire so justly called *l'aveugle clairvoyante*. In one of her letters to Walpole, she writes thus: "As M. Gibbon, he is a very sensible man, who has a great deal of conversation, an infinity of knowledge, you will perhaps add, an in-ity of cleverness (*d'esprit*)—I am not quite decided on that point. He sets too much value on our talents for society (*nos agrêments*), ows too much desire of acquiring them; it is constantly on the tip of my tongue to say to him, 'Don't put yourself to so much uble; you deserve the honour of being a Frenchman.'"

[3] In a memoir of the life of Gibbon, prefixed to Guizot's French edition of the Decline and Fall, and written by M. Suard, the nslator of Robertson, to whom the historian was intimately known, we meet with the following observations on the passage above oted: "Perhaps it will not be difficult to trace, in the impressions from which the conception of the work arose, one of the causes that war which Gibbon seems to have declared against Christianity; the design of which neither appears conformable to his cha-cter, little disposed to party-spirit, nor consistent with that moderation of thought and sentiment which led him in all things, rticular as well as general, to view the advantages as well as the injurious consequences. But, struck with a first impression, bbon, in writing the history of the fall of the empire, saw in Christianity only an institution which had placed vespers, bare-ted friars, and processions, in the room of the magnificent ceremonies of the worship of Jupiter and the triumphs of the Capi-." This explanation, however, seems to us entirely fallacious. In many of his habits Gibbon was at least half a Frenchman; t he was not the creature of such impressions as that which M. Suard has here attributed to him. He drew his aversion to Chris-nity from a deeper source. Paganism was the old established religion; Christianity, viewed in its origin and early history, was a ring innovation. The one was sanctioned by time and confirmed by habit; the other had nothing but its truth to recommend it. this light Gibbon viewed the two religions, as he has himself unequivocally declared in one of his letters; his principles naturally l him to recognise the prescriptive rights of paganism, which he regarded as the established system; and they also indisposed him wards Christianity, which sought to effect and ultimately accomplished its subversion. The conservative character of his political ed attached him to the former; but he hated the latter both as a politician and as an unbeliever. This seems to be the whole stery.

After this failure, Gibbon, in 1767, united with M. Deyverdun, a native of Lausanne, then in England, and a person of taste and critical discernment, to whom he was much attached, in publishing a literary journal, under the title of *Mémoires Littéraires de la Grande Bretagne*, in imitation of Dr Maty's *Journal Britannique*, which was esteemed and regretted. But the attempt met with little encouragement, and only two volumes of the *Mémoires* appeared. Gibbon acknowledges having reviewed, in the first volume, Lord Lyttleton's *History of Henry II.*, a work of sense and learning, but not illuminated by a single ray of genius. The materials of a third volume were nearly completed, when Deyverdun having accepted the situation of travelling companion to Sir Richard Worsley, to which his coadjutor had recommended him, this appointment put an end to the *Mémoires Litteraires.*

Gibbon's next performance was of a bolder description, being nothing less than an attack on Warburton, who, in a singular chapter of the Divine Legation of Moses Demonstrated, had maintained that the descent of Æneas and the Sybil to the infernal regions was not a false, but a mimic scene, representing the initiation of Æneas, in the character of a lawgiver, into the Eleusinian mysteries. This hypothesis, which the bishop had endeavoured to support by an elaborate but strained interpretation, Gibbon assailed and completely overthrew in his Critical Observations on the Sixth Book of the Æneid, published in 1770. In this production he proved that the ancient lawgivers did not invent the mysteries, and that Æneas was never invested with the office of lawgiver;—that there is not any argument or circumstance which melts a fable into allegory, or removes the scene from the Lake Avernus to the Temple of Ceres;—that such a wild supposition is equally injurious to the poet and the man;—that if Virgil was not initiated, he could not, and if he were, he would not, reveal the secrets of the initiation;—and that the anathema of Horace (*Vetabo qui Cereris sacrum vulgarit*, &c.) at once attests his own ignorance, and the innocence of his friend. All this, which seems quite conclusive against Warburton's allegorical interpretation, might, however, have been argued in temperate and respectful language; but the clear, elegant, and decisive criticism of Gibbon, which early received the approbation of Heyne, and has since been generally acknowledged to be unanswerable, was deformed by an acrimony of style which might be excused, but could scarcely be justified, by the pride and presumption with which the bishop pronounced his infallible decrees, and the merciless severity with which he lashed his antagonists in his polemical writings.[1] A calmer tone would have been better suited to the subject; and the argument gained nothing in force by the circumstance, that the author aimed his strokes against the person and the hypothesis of Bishop Warburton. At the same time "the dictator and tyrant of the world of literature" maintained a discreet silence; he had previously shrunk from the encounter (which he had himself provoked) with Dr Lowth; and Gibbon appears to have been, in like manner, considered as an antagonist with whom it might be hazardous openly to do battle.

In the fifteen years which elapsed between the publication of his *Essai sur l'Etude de la Littérature*, and that of the first volume of the *Decline and Fall of the Roman Empire*, this criticism on Warburton, and some articles in the journal above mentioned, were the only productions of his pen which Gibbon gave to the world. But after the death of his father in 1770, an event which left him the entire disposal of his time and choice of his pursuits, he applied himself seriously to the composition of the first volume of his history. For several years he had revolved the subject in his mind, and read a great deal with a view to the undertaking, including the classics as low as Tacitus, Pliny the younger, and Juvenal; the Augustan history, and the original records both Greek and Latin, from Dion Cassius to Ammianus Marcellinus; the Annals and Antiquities of Muratori, which he compared with Sigonius and Maffei, Baronius and Pagi; the Theodosian Code, with the commentary of James Godefroy; besides all that related to the propagation of the gospel and the triumph of the church, the narratives and apologies of the Christians themselves, and the Jewish and heathen testimonies, as these have been collected and illustrated by Lardner. Observing the maxim, *Multum legere potius quam multa*, he reviewed again and again the French and English, as well as the Latin and Italian classics; his Greek studies, though less assiduous, maintained and extended his knowledge of that incomparable language; and a third perusal of Blackstone's *Commentaries*, with a copious and critical abstract, formed an introduction to the knowledge of English jurisprudence. At the commencement of his undertaking all was dark and doubtful—even the title of the work, the true era of the decline and fall of the empire, the limits of the introduction, the division of the chapters, and the order of the narrative; and, amidst the uncertainty in which he found himself involved, he was often tempted to cast away the labour of seven years. But, happily, in spite of every discouragement, he persevered in his task, which his return as member of parliament for the borough of Leskeard, in 1775, did not seriously interrupt; and, on the 17th of February 1776, he gave to the world the first volume of that work which has placed its author in the foremost rank of modern histoians. Its success was almost unprecedented. The first impression was exhausted in a few days; a second and even a third edition were scarcely adequate to the demand; he book was on every table, almost on every toilette; nd, to use his own words, the historian was crowned by he taste or fashion of the day. But, if the voice of public favour be music to the ear of an author, Gibbon must have derived more substantial satisfaction from the approbation of such judges as Robertson and Hume. “The candour of Dr Robertson,” says he, “embraced his disciple. A letter from Mr Hume overpaid the labour of en years.” The latter, however, with his usual sagacity, anticipated the objections which he foresaw would be urged against the fifteenth and sixteenth chapters. “When I heard of your undertaking, which was some ime ago,” says he, “I own I was a little curious to see how you would extricate yourself from the subject of your wo last chapters. I think you have observed a very prudent temperament; but it was impossible to treat the ubject so as not to give grounds of suspicion against you, nd you may expect that a clamour will arise. This, if ny thing, will retard your success with the public; for, n every other respect, your work is calculated to be popular. But, among many other marks of decline, the prevalence of superstition in England prognosticates the fall f philosophy and decay of taste; and though nobody be more capable than you to revive them, you will probably and a struggle in your first advances.”

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[1] Hayley, a poet and a scholar, not only pronounces a favourable judgment on the critical observations, but even condescends to justify an acrimony of style, which the author himself afterwards regretted as unmanly and indefensible. Heyne, more learned, and at the same time more candid, gently blamed the contemptuous treatment of a man who, with all his faults, was entitled to the esteem of every scholar. "*Paullo acrius quam velis......perstrinxit.*" We may add, that the editor of the Warburtonian tracts, Dr Parr, considers the allegorical interpretation "as completely refuted in a most clear, elegant, and decisive work of criticism, which could not derive authority from the greatest name, but to which the greatest name might with propriety have been affixed."

Gibbon's own reflections on this subject appear to us to be either hypocritical or ironical. He affects not to have believed that the majority of English readers were so fondly attached even to the name and shadow of Christianity; and he professes that if he had foreseen that the pious, the timid, and the prudent, would feel, or affect to feel, with such xquisite sensibility, he might perhaps have softened the wo invidious chapters, which were calculated, he admits, o create many enemies, and to conciliate few friends. But as the shaft was shot and the alarm sounded, he conoled himself with the reflection, that if the voice of the priests was clamorous and bitter, their hands were disarmed from the power of persecution. The sincerity of this pology is more than doubtful; nor is it possible to believe hat Gibbon completely misjudged the state of the public eeling on the subject of Christianity, which Hume appears, from the above extract, to have so accurately appreciated. But, however this may be, the effect of Gibon's hostility towards Christianity, upon the character of is history, has, for the first time, been fairly and justly stimated by the French critics. What they complain of is not so much his insidious description of the human means by which it was propagated, as his false estimate f its influence upon the social and even political condition f mankind. In this country, the matter has chiefly been onsidered in a polemical spirit; abroad, it has been viewd in a light at once more enlarged, more philosophical, nd, we may add, more wisely Christian. Here, amidst he indignation of the better part of the community at he publication of the first volume of the Decline and Fall, ur more distinguished theological writers stood aloof, nd the onset was made by a few rash and feeble volunteers, who, ill armed and worse disciplined, rushed against he thick bosses of the historian's buckler. With a single discharge of his formidable artillery of learning and sarcasm, Gibbon laid prostrate the whole disorderly squadron; and Davis, Chelsum, Travis, and the rest, sunk back into their original insignificance. When the first of these ventured to attack, not the faith, but the fidelity of the historian, the latter published his Vindication, which, “expressive of less anger than contempt, amused for a moment the busy and idle metropolis,” and annihilated Davis.

Their plan of attack, indeed, was as misjudging as their mode of conducting it was unskilful. With a little learning scraped together for the occasion, they ventured to impeach the accuracy and to condemn the false quotations of a scholar, whose mind was thoroughly saturated with every kind of knowledge which could bear upon his subject; and they could only make up in vituperation and intemperance for their manifest deficiency in all the qualifications requisite in defenders of Christianity. Watson, bishop of Llandaff, was the only one of the number who had the good taste to maintain towards his adversary the dignified courtesy which belonged to his literary character; and the judgment to confine his Apology to one point, namely, the inadequacy of Gibbon's secondary causes to account for the diffusion of Christianity. But it may even be questioned whether Watson himself has not unconsciously been seduced, by the consummate skill of his antagonist, to advance beyond the position which is really impregnable, and to carry on the contest upon ground far less advantageous. The art of Gibbon consists in confounding the origin and apostolic propagation of the new religion with its later progress. No argument for the divine authority of Christianity has been urged with greater force, or developed with higher eloquence, than that which is deduced from its primary development and rapid extension throughout the greater part of the Roman empire. But this argument, unanswerable when confined within just limits, becomes feeble, or disputable, or evanescent, as we recede from the time and place where the new religion was born and first manifested to the world. By Gibbon, however, the main question, namely, the divine origin of Christianity, was dexterously eluded or speciously conceded. His plan enabled him to commence his account, in most parts, below the apostolic times; and it was only by the strength of the dark colouring which he worked, with infinite art and skill, out of the failings and follies of the succeeding ages, that a shadow of doubt or suspicion was thrown back upon the primitive period of Christianity. “The theologian,” says he, “may indulge the pleasing task of describing religion as she descended from heaven, arrayed in her native purity; a more melancholy duty is imposed on the historian: he must discover the inevitable mixture of error and corruption which she contracted in a long residence upon earth among a weak and degenerate race of beings.” This passage betrays the whole secret of his art. Divest it of the latent sarcasm which pervades the whole disquisition, and it might commence a Christian history, written in the genuine spirit of Christian candour. But as the historian, with seeming respect, yet dexterously confounding the true limits of the question, contrives to insinuate that the supposed origin of our religion is a mere Utopian dream of the theologian, and to suggest rather than affirm that the days of Christian purity were a kind of poetic golden age; so the theologian, by adventuring too far into the domain of the historian, may find himself obliged to contest points where he has little chance of victory, to deny facts established by unimpeachable evidence, and to retire, if not with the shame of defeat, at least with doubtful and imperfect success.[1]

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[1] Gibbon speaks of his assailants with unmeasured contempt; and, in truth, he had every reason to do so. Davis, Chelsum, and Travis vanished before him; but “a victory over such antagonists was a sufficient humiliation.” If the strength of his adversaries

Nearly two years elapsed between the publication of the first and the commencement of the second volume of the history. During this interval Gibbon studied a course of anatomy, demonstrated by Dr Hunter; dived deeply into what he calls the mud of the Arian controversy; studied the transactions of the age of Constantine; and spent some months of pleasure at Paris. The prosecution of his task was also checked by employment of a different description, for which his talents were considered as peculiarly adapted. At the request of Lord Chancellor Thurlow, and Lord Weymouth, then secretary of state, he was induced to prepare an answer to a manifesto which the French court had issued against Great Britain, preparatory to a declaration of war. This Mr Gibbon accomplished with great ability, and vindicated the justice of the British arms, in a *Mémoire Justificatif*, composed in French, which, having been first approved of by the cabinet ministers, was then delivered as a state paper to the courts of Europe. For this service he was appointed one of the lords commissioners of trade and plantations; a place, the duties of which were by no means arduous, whilst it enlarged his private income by a clear addition of between L.700 and L.800 a year. His acceptance of this appointment provoked some of the leaders of opposition, and he was accused of deserting a party in which he declares he had never enlisted. On this subject, however, there is an awkward reminiscence preserved in the handwriting of Mr Fox. That statesman, in an autograph note on his copy of Gibbon's history, says, that, at the time of the declaration of war against Spain, in the year 1779, the author of this work declared publicly, at Brookes', that there would be no hope for England, except by cutting off six heads in the cabinet council, and exposing them, as an example, in open parliament; yet, before fifteen days had elapsed, he accepted a place under the same administration. The inconsistency which this statement involves, Lord Sheffield has attempted to palliate, if not to obviate, by observing, that, though his friend may have carelessly used strong expressions respecting some or perhaps all parties, yet he never meant that such expressions should be taken literally. But the world were not obliged to understand that, on political subjects, Mr Gibbon spoke in parables.

At the general election in 1780 he lost his seat for Leskeard, which had suddenly been converted into an opposition borough; and in the interval of his senatorial life which followed, he published the second and third volumes of his history. They appeared in April 1781, and excited as much attention as, though far less controversy than, his first volume. They were written with equal elegance but more caution, and exhibited proofs of juster and more profound thinking. His affection for his work did not permit him to estimate truly the reception with which these volumes were honoured; and, in his Memoirs, he speaks of a coldness, and even prejudice, which appear to have been altogether imaginary. It is certain, indeed, that their merit was fully appreciated, both at home and abroad; but two volumes are not so speedily sold as one, and the promise of a continuation, whilst it gratified his admirers, necessarily suspended that final judgment upon which the fame of the work was ultimately to depend.

Soon after the meeting of the new parliament, he was chosen, upon a vacancy, to represent the borough of Lymington in Hampshire. But the administration to which he had attached himself was now on the decline; the minister who refused to bend was broken by the tempest which had arisen against the supporters of the American war, and with his fall the board of trade was abolished, by which means our author was stripped of a convenient salary, which he had enjoyed about three years. Amidst the conflict of parties which followed the dissolution of Lord North's administration, Gibbon, from a principle of gratitude, adhered to the coalition, and his vote was counted in the day of battle (it was all he could supply), but he was forgotten in the division of the spoil. The board of trade could not be restored; a seat at the board of customs or excise was promised on the first vacancy, but the chance was distant and doubtful; the tumult of London, and the attendance on parliament, were grown irksome to him; and, without some additional income, he could not prudently maintain the style of expense to which he had for some time been accustomed. In these circumstances, and having always cherished a secret wish that the school of his youth might become the retreat of his declining age, he once more turned his thoughts to his beloved Lausanne. But before proceeding with the remainder of the narrative, we shall stop for a moment to review the historian's political career.

Gibbon entered the House of Commons in 1764, and he witnessed a great epoch in the history of the British parliament. Never had a more brilliant constellation of talent and genius risen in the political horizon; never had higher interests commanded attention and inspired eloquence. The insurrection of the colonies, the violent and arbitrary laws which had oppressed and driven them to

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had, however, been in proportion to their numbers, he would certainly have been overwhelmed. The following is a list of the principal writings called forth by his bold yet insidious attack on Christianity:—1. Remarks on the two last Chapters of Mr Gibbon's History. 2. An Apology for Christianity, by R. Watson, D. D., Professor of Divinity in the University of Cambridge, 1776, in 12mo. 3. The History of the Establishment of Christianity, by William Salisbury, B. D., 1776, in 8vo. 4. Reply to the Reasonings of Mr Gibbon in his History, by S. Loftus, Dublin, 1778, in 8vo. 5. Letters on the Prevalence of Christianity, by East Apthorpe, M. A., 1778, in 8vo. 6. An Examination of the Fifteenth and Sixteenth Chapters of Mr Gibbon's History, by H. E. Davis, B. A., Oxford, 1778, in 8vo. 7. Remarks on the History of the Decline and Fall of the Roman Empire, by a Gentleman. 8. Remarks on the two last Chapters of Mr Gibbon's History, by James Chelsum, D. D., Oxford, 1778, in 8vo. This last was a second edition of the anonymous Remarks mentioned in the first article, and contains additional strictures by Dr Randolph, professor of divinity at Oxford. Mr Gibbon now published his answer, which appeared under the title of a Vindication of some Passages in the Fifteenth and Sixteenth Chapters of the History of the Decline and Fall of the Roman Empire, by the author, 1779, in 8vo. This was immediately followed by, 1. A Short Appeal to the Public, by the gentleman who is particularly addressed in the postscript of the Vindication, 1779–1780, in 8vo. 2. A Reply to Mr Gibbon's Vindication, by H. E. Davis, Oxford, 1780, in 8vo. 3. A Reply to Mr Gibbon's Vindication, by James Chelsum, D. D., 1785, in 8vo. The most considerable of the works directed against the History generally were, 1. Thoughts on the nature of the Grand Apostacy, with reflections and observations on the Fifteenth Chapter of Mr Gibbon's History, by H. Taylor, 1781–1782, in 8vo. 2. Gibbon's Account of Christianity considered, by Joseph Milner, A. M., 1781, in 8vo. 3. Letters to Edward Gibbon, Esq. in defence of the authenticity of the 7th verse of the fifth chapter of the First Epistle of St John, by George Travis, A. M., 1784, in 4to. 4. An Inquiry into the Secondary Causes which Mr Gibbon has assigned for the rapid growth of Christianity, by Sir David Dalrymple, Lord Hailes, 1786, in 4to. Dr Priestley, in his History of the Corruptions of Christianity, also threw down his gauntlet to Mr Gibbon, who, however, declined the challenge in a letter, exhorting his opponent to enlighten the world by his philosophical discoveries, and to remember that the merit of his predecessor Servetus is now reduced to a single passage, indicating the smaller circulation of the blood through the lungs. Of all his antagonists, Dr Watson is the only one of whom Gibbon speaks with respect, and, indeed, almost the only one who deserved it. "Let me frankly own," says he, in concluding an account of his chief opponents, "that I was startled at the first discharge of ecclesiastical ordnance; but as soon as I found that this empty noise was mischievous only in the intention, my fear was converted into indignation; and every feeling of indignation or curiosity has long since subsided into pure and placid indifference."

spair, the war with America, the misfortunes and re- rses of that ill-fated contest, the dismemberment which reatened the empire, together with the justice, policy, d necessity of concluding a peace; such were the sub- cts then debated in parliament, with an ardour, abi- y, and eloquence, not surpassed, perhaps never equalled, any other period of our history. But amidst all the citement and animation of such a scene, Gibbon re- ained mute, and threw his silent vote into the scale of wer in support of the pretensions of the crown against e opinion of the great body of the nation, and the just aims of the Americans. He thought, or professed to ink, the cause of the government, in this instance, the use of England, and declared himself more and more nvinced that the administration had the right as well as e power on their side. With a temperament constitu- nally cold, and principles essentially conservative, he d none of the generous sympathies inspired by an ardent ve of liberty; in the resistance of the Americans he saw thing but a rising against authority, to be put down by rce of arms; and, though possessing a mind accustom- to develope political results, and to estimate the remote nsequences of changes in the social relations of man- nd, he showed himself as insensible as the humblest Lord North's adherents to the real character of the uggle in which Britain was then engaged, and seems as tle to have anticipated the advantages which would ac- ue to mankind from the generous rivalry of two great tions sprung from a common stock, or to have foreseen at the separation of the colonies from the mother country is, sooner or later, inevitable, and that, even if then erted, it might take place during some political crisis egnant with still greater danger to the power of Britain. s sagacity, in short, was speculative, not practical; and want of political courage commensurate with a certain nd, undistinguishing dread of change, which forms the ost prominent characteristic of the sect of politicians to ich, from congeniality of sentiment, he had attached nself. For Lord North individually he seems to have erished the most sincere personal regard; and, though story will scarcely ratify Gibbon's estimate of his cha- cter, yet the fine tribute paid to the fallen minister in e preface to the fourth (quarto) volume of the Decline d Fall does honour to the historian's memory.

With regard to Gibbon's parliamentary silence, it is ghly probable that it proceeded from the cause which has himself explained. "After a fleeting illusive hope," ys he, "prudence condemned me to acquiesce in the mble station of a mute. I was not armed by nature d education with the intrepid energy of mind and voice,

> Vincentem strepitus, et natum rebus agendis.

midity was fortified by pride; and even the success of pen discouraged the trial of my voice." Another use besides physical inability, and the embarrassment a high literary reputation, seems also to have concurred repressing his ambition of oratorical fame. "Upon the ole," he writes to Mr Holroyd, "though I still believe hall try, I doubt whether nature, not that in some in- nces I am ungrateful, has given me the talents of an tor, and I feel that I came into parliament much too e to exert them." At the period to which this refers, bbon was eight and thirty; but at every brilliant epoch British oratory, the leading speakers have almost in- iably commenced their career long before the age of forty; and where there are exceptions to this rule, these will generally be found amongst those who have been bred to the kindred profession of the bar. Besides, in the confirmed habit of close, accurate, and laboured composition, there is something which disqualifies for free, prompt, and effective public speaking, in which readiness and fluency are far more indispensable requisites than precision and correctness.[1]

Having resolved to withdraw from public life, and fixed upon Lausanne as the place of his retreat, Gibbon entered into an arrangement with his old friend M. Deyverdun, who was now settled there; and having disposed of all his effects, excepting his library, he bade adieu to England in September 1783, and arrived at Lausanne nearly twenty years after his second departure. His reception was cordial, and the comparative advantages of his situation fully answered his expectations. His personal freedom, which had been somewhat impaired by the House of Commons and the board of trade, was now restored, and he was delivered from the chain of duty and dependence, as well as from the hopes and fears of political adventure. His English economy, which had been that of a solitary bachelor, who might afford occasional dinners, was exchanged for a more social mode of life, in which he enjoyed at every meal, at every hour, the pleasant conversation of the friend of his youth, whilst his table was daily provided for the reception of one or two extraordinary guests. In London he was lost in the crowd; at Lausanne he ranked with the first families, and his style of prudent expense enabled him to maintain a fair balance of reciprocal civilities. Instead of a small house between a street and a stable-yard, he now occupied a spacious and convenient mansion, with a garden of four acres laid out by the taste of M. Deyverdun, a rich scenery of meadows and vineyards descending to the Leman Lake, and the distant prospect beyond the lake crowned by the stupendous mountains of Savoy. In this catalogue of advantages, however, which we have abridged from the Memoirs, there is a perceptible intermixture of caprice and weakness; for surely a man of Gibbon's intellectual resources might easily have discovered situations in England adapted to every purpose of economy and retirement, yet calculated to afford at intervals the enjoyment of good society. But, not to mention that Gibbon in his habits was at least half a foreigner, it appears that, either from pride or modesty, he was averse to the society of his literary contemporaries, in which he does not seem to have been qualified to shine, and preferred, in his hours of relaxation, that style of company in which the conversation flows in an easy natural channel, and where the object is mutually to please, not to talk for effect. In society he sought to repose and recreate his mind, after the fatigue of research and the labour of composition, not to stimulate and excite it by what is called brilliant conversation; and, as enjoyment was his object, he naturally disliked and avoided company where the aim was rather display than social amusement.

Gibbon remained about a year at Lausanne before he resumed the composition of history; but having done so, he proceeded steadily with his laborious task, which he at length completed on the 27th of June 1787. The fourth volume was terminated by an abstract of the controversies respecting the Incarnation; in the fifth and sixth volumes the revolutions of the empire and the world are most rapid, various, and instructive, and the Greek and

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"Extraordinary periods of public excitement," says a very able writer, "like the French Revolution, may suddenly, as it were, ture the powers of older men; but it may be remembered, that Mirabeau was by no means an unpractised speaker; and how ny of the leading orators of that period, displaying in the midst of flashy and histrionic declamation so much of vigorous and pow- ul eloquence, had been *avocats!*"—(*Quarterly Review*, vol. l. p. 286.)

Roman histories are checked by the hostile narratives of the barbarians of the East and West. The conclusion of his great, and, we may add, immortal work, the historian has commemorated in language strongly expressive of the emotions with which his mind was filled in contemplating the completion of that edifice which he had at length reared to perpetuate his fame. "I have presumed," says he, "to mark the moment of conception; I shall now commemorate the hour of my final deliverance. It was on the day, or rather the night, of the 27th of June 1787, between the hours of eleven and twelve, that I wrote the last page, in a summer-house in my garden. After laying down my pen, I took several turns in a *berceau*, or covered walk of acacias, which commands a prospect of the country, the lake, and the mountains. The air was temperate, the sky was serene, the silver orb of the moon was reflected from the waters, and all nature was silent. I will not dissemble the first emotions of joy on recovery of my freedom, and, perhaps, the establishment of my fame. But my pride was soon humbled, and a sober melancholy was spread over my mind, by the idea that I had taken an everlasting leave of an old and agreeable companion, and that whatsoever might be the future date of my history, the life of the historian must be short and precarious."[1]

With the manuscript of the three last volumes he set out from Lausanne, after a quiet residence of four years, and at the end of a fortnight arrived at the house of his friend Lord Sheffield, where he remained during his stay in England. The arrangements with the bookseller and printer were soon settled; but after the whole had passed through the press, the day of publication was delayed that it might coincide with the fifty-first anniversary of his birthday (8th May 1788), when the double festival was celebrated by a literary dinner at the house of the publisher, Mr Cadeli, where the historian "seemed to blush," whilst they read some complimentary stanzas written by Mr Hayley for the occasion. The sale of these volumes was rapid, and the work being generally read, was of course variously judged. The style was exposed to much academical criticism; a religious clamour was revived upon nearly the same grounds as before; and the reproach of indecency was loudly echoed by the more rigid censors of morals. This last charge he professes he could never understand, and assigns several reasons why it appeared to him unaccountable. First, an equal freedom in the former part, especially in the first volume, had passed without notice, or at least without censure: secondly, he considered himself as justified in painting the manners of the times, and regarded the vices of Theodora as forming an essential feature in the reign and character of Justinian: thirdly, he adds, that his English text is chaste, and that all the licentious passages in the notes are left in the obscurity of a learned language. But in offering such a vindication, or rather such an apology, the historian seems to have forgotten that it is no excuse of an offence against morals or decorum that, for a time, it may have escaped observation or censure; that sensuality may be censured without being lasciviously described; that it is not philosophically just to exhibit individual vices, in strong relief, as forming a general picture of the manners of a particular country; and that licentious passages are but thinly veiled by being "left in the obscurity" of languages which are taught at every school. In the opinion of a distinguished French critic, M. Villemain, Gibbon was dead to all lofty and generous emotions. This, however, is not doing justice to the historian. On most subjects, his mind was alive to the noblest sentiments, and calmly yet firmly arrayed on the side of humanity, justice, and the best interests of mankind; on two, the virtue of women and the magnanimity of Christians, he was incurably prejudiced. Porson, his bitterest and most malignant critic, admits that in his history, "his reflections are just and profound: he pleads eloquently for the rights of mankind and the duty of toleration; nor does his humanity ever slumber unless when women are ravished and Christians persecuted."

In the preface to his fourth volume, Gibbon, whilst he gloried in the name of Englishman, announced his approaching return to the banks of the Leman Lake; nor did his year's residence in England, on this occasion, induce him to alter his resolution, or even to entertain a wish of settling in his native country. A few weeks after the publication of his history, he accordingly set out for Switzerland, and, on the 30th of July 1788, arrived at Lausanne, where, after a full repast on Homer and Aristophanes, he involved himself in the philosophic maze of the writings of Plato. But the cheering prospect of happiness which had again wooed him to his favourite retreat was soon obscured by the illness and death of his friend Deyverdun; whilst the great political movement which had now begun to agitate France extended itself to Switzerland, and, throwing men's minds into a ferment of hope and fear, of anticipated improvement and foreboding apprehension, served to interrupt the tranquillity which had long reigned in that peaceful country. A swarm of emigrants of both sexes, attracted by similarity of manners and languages, as well as by the vicinity, flocked to Lausanne, and bringing with them a spirit of political discussion inflamed by passion and by prejudice, provoked hostility to their opinions, even whilst their misfortunes called forth sympathy. The language of disappointment on the one hand begot that of presumption on the other; domestic harmony was embittered by an infusion of party spirit; the ladies and gentlemen in Switzerland, as elsewhere, became suddenly transformed into politicians; and whilst the partisans of the old absolute monarchy denounced the advocates of constitutional freedom as rebels against their king and traitors to their country, the zealous missionaries of the new political faith scattered the seeds of discontent in those cities and villages, which, for more than two centuries and a half, no commotion had agitated. Of the manner in which the historian at this period employed his time we have little account. He appears to have amused himself by writing the Memoirs of his Life, which it was reserved for his friend Lord Sheffield to give to the world; and also to have projected a series of biographical portraits of eminent Englishmen from the time of Henry VIII., a design in the execution of which little or no progress seems to have been made. His habits of industry had by this time become impaired, and his studies, instead of being prosecuted as formerly with reference to a great object, were now so far restricted as merely to constitute the amusement of his morning hours.

He remained in Switzerland as long as he considered it prudent to do so, and only quitted that country when the execution of Louis XVI. and the declaration of war which almost immediately followed on the part of Great Britain, rendered it no longer a safe asylum for an Englishman who, it was well known, entertained strong anti-revolutionary pinions. Mr Gibbon left Lausanne in May 1793, arrived n June at Lord Sheffield's house in Downing Street, and oon afterwards settled, for the summer, with that noble- an at Sheffield Place. In October he went to Bath to ay a visit of kindness to his father's widow, and then proeeded to Althorp, the seat of Earl Spencer, from which he eturned to London. His health was visibly declining, and e now for the first time disclosed, by a letter to his friend ord Sheffield, the immediate cause, which he had hither- concealed from every human being, except a confiden- al servant. This complaint was originally a hernia, which ad at length produced hydrocele, and required imme- iate surgical treatment. Tapping afforded temporary elief; but as the original complaint was of about thirty ears standing, it had completely undermined his consti- ition, which could not for any length of time support e discharge; and he died, on the 16th of January 1794, reserving his senses and composure to the last. Absurd ports as to the manner of his death were circulated at e time, and implicitly believed by many credulous per- ons. But all these stories have been refuted by the au- oritative relation of his friend and biographer, who has ated the real circumstances attending his demise with qual clearness and simplicity. Mr Gibbon did not at y time show the least sign of alarm or apprehension of eath; and, in fact, it does not appear that he ever thought imself in danger, or conceived his departure from this rthly scene to be so near at hand.

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[1] "I will add two facts," says he, "which have seldom occurred in the composition of six, or at least five quartos. 1. My first rough manuscript, without any intermediate copy, has been sent to the press. 2. Not a sheet has been seen by any human eyes, excepting those of the author and printer; the faults and the merits are exclusively my own." This must be taken with a slight deduction, inasmuch as it appears from a previous part of his Memoirs, that he three times composed the first chapter of the first volume, and twice the second and third, before he was satisfied with them; and also, that although "he was soon disgusted with the modest practice of reading the manuscript to his friends," this had nevertheless been, to a certain extent, done by him.

The personal character of Mr Gibbon, which was upon e whole highly estimable, may be correctly appreciated om the Memoirs which he left behind him. In these his ntiments are disclosed without the reserve which he em- oyed in his more laboured compositions, and his mental ilings are detailed with an ingenuous candour which com- ands our respect and confidence. He frankly confesses e vanity of the author and the pride of the gentleman; e vanity of one of the most successful authors of modern mes, and the pride of a gentleman of amiable manners d high accomplishments. It must, however, be admit- d that his anxiety for fame sometimes obscured the lus- e of his social qualities, separated him too widely from s literary contemporaries, and occasionally led him to eak of his opponents with a contemptuous arrogance at riance with the general tone of his bland and moderate aracter. His conversation, though not enlivened by wit, r adorned with those lighter graces in which the French greatly excel all other nations, is yet said to have been ch in various information, communicated in a calm and greeable, though somewhat peculiar manner; but in mpany he seldom brought forward his vast treasures of owledge, and was more ambitious to be thought a man the world than a mere scholar or author. "As to his anners in society," says M. Suard, who knew him well, without doubt the agreeableness (*amabilité*) of Gibbon as neither that yielding and retiring complaisance, nor at modesty which is forgetful of self; but his vanity *mour-propre*) never showed itself in an offensive manner. nxious to succeed and to please, he wished to command tention, and obtained it without difficulty by a conver- tion animated, sprightly, and full of matter. All that as dictatorial (*tranchant*) in his tone betrayed not so uch that desire of domineering over others, which is ways offensive, as confidence in himself; and that con- lence was justified both by his powers and by his suc- ss. Notwithstanding this, his conversation never car- ed one away (*n'entraînait jamais*); its fault was a kind arrangement which never permitted him to say any ing unless well." In this elaborate and artificial struc- re of his conversation, we are irresistibly reminded of e characteristic qualities and defects of his style, in hich, according to Porson, the thread of his verbosity is sometimes finer than the staple of his argument, and where, in endeavouring to avoid vulgar terms, he occasionally dignifies trifles, and clothes common thoughts in a dress which would be rich enough for the noblest ideas.

But although Gibbon has disclosed much of his character in his Memoirs, there are some points left unexplained, concerning which it would be very desirable to be better informed. He has told us much of the progress of opinions in his mind; of his conversion to popery, which, considering at what age it occurred, he has treated with disproportionate gravity; and of his reconversion to protestantism, which he has related with more brevity and obscurity. But at the latter of these points he stops short; we leave him a good Protestant in the hands of M. Pavilliard, and, after a considerable interval, we find him transformed into an implacable enemy of Christianity, without the pretence of a quarrel, or any previous declaration of hostilities. By what process was this singular transition effected? by what train of reading or interchange of sentiments did he contract this causeless inveteracy? Porson has charged him with often making, where he cannot find, an occasion to insult our religion, "which," says that incomparable Hellenist, "he hates so cordially that he might seem to revenge some personal injury." The accusation is no doubt a little too sweeping; yet whence arose the undeniable antipathy on which it is grounded? On this subject we are left entirely to conjecture; but, without venturing to affirm any thing, it may not unreasonably be attributed to his intimacy with the French writers, particularly Helvetius, and to his correspondence with Hume, to whom he looked up with the reverence of a disciple; connections which probably led him to think that the farther he departed from the Christian faith, the nearer he approached to the perfection of the philosophical character.

As an historian, the universal acknowledgment of the literary world has placed him in the highest rank; and if his taste had equalled his knowledge, if in his narrative the grace of simplicity had concealed the artifice of elaboration, he would, even in that rank, have stood without a rival. But in all the diversified charms of interesting and pathetic relation he is as much inferior to Robertson, as he excels that writer in extent and variety of knowledge, in deep and penetrating sagacity, in comprehensive concentration, and, above all, in the unrivalled mastery which he exercised over his vast stores of learning;—and if, in these respects, he is likewise superior to Hume, which can scarcely be disputed, he at the same time falls far short of what he has himself characterised as the careless inimitable beauties of that elegant and philosophical historian. Yet, with every deduction that can reasonably be made, enough will remain to support the high reputation of his great work, and to entitle its author to the respect and admiration of every succeeding age. If his laborious system of compilation, the depth and accuracy of his research, partook of the patient plodding erudition of the north, both the merits and defects of his manner of composition were essentially French; and it is not difficult to discern the influence of Voltaire and his school on the philosophical views no less than the sarcastic periods of the historian. Yet it is not in France alone, but likewise among the profound inquiring scholars of Germany, that Gibbon maintains his ground. His chapter containing a condensed abstract of the Roman law was translated by Hugo, in order that it might serve as a text-book for his own prelections on that system of jurisprudence; and the recent editors of the later historians of Rome, particularly of Ammianus Marcellinus, and of the Byzantine Collection, defer to his interpretations, sometimes of the text, always of the meaning of their authors; whilst, even where their own researches have thrown further light on the periods comprehended in his work, their language is uniformly that of acknowledgment of his general accuracy, and of respect for his elevated genius. In a word, Gibbon anticipated that happy union, which we can scarcely hope to see more perfectly consummated, of the indefatigable erudition of the Germans, with the lucid arrangement of the French, and their lively manner of developing their views and relating facts; condensing and perfecting the whole with the masculine boldness and solidity of English judgment. In Gibbon indeed there were wanting a more free and natural style, a purer moral taste, and a philosophy superior to the narrow prejudices of a sect; but, with these exceptions, there is every thing to be admired in him as an historian. An erudition vast, solid, and varied; a criticism equally exact and ingenious; an interest of narration, if not always equal, at least sufficiently sustained to prevent languor; views sometimes profound, often comprehensive, almost always just; reflections original, striking, and piquant; and the art of connecting the facts of the history with enlarged ideas, of which the writer himself did not perhaps perceive all the consequences, but which excite reflection in the mind of the reader; such are the obvious merits of Gibbon as an historian, such the qualities which ensure the permanence of his fame. His defects, though much less apparent, and in some measure concealed from common observation by the extreme artifice of his composition, may nevertheless be brought out with equal distinctness. The first and the greatest of these is that want of elevation of sentiment, which is the more apt to impose on our reason, that the historian never thinks himself so reasonable as when he regards virtue and vice with equal indifference. The imagination of Gibbon was active, and his temperament cold; he was easily induced to admire that which astonished; he invariably misjudged sentiments and emotions which he had never experienced. After labouring to depreciate the heroic courage of the Christian martyrs, he takes pleasure in celebrating the ferocious exploits of Timur and his Tartars; material grandeur, so to speak, strikes him more forcibly than moral greatness; the transports of sublime virtue affect not his soul, whilst the outbreakings of barbarous force seduce his imagination and mislead his judgment. Having no fixed principles in morals, politics, and public economy, or in regard to the constitution of society and the history of civilization, he betrays an uncertainty in his opinions which is sometimes embarrassing; his work does not tend towards one great end; its march is not steady and uniform; in a word, it is the production of an enlightened man, endowed with that philosophical spirit which examines, decomposes, and describes with ability all the details of the events of history, rather than the work of a great philosopher, who, from an immense accumulation of facts, deduces those high conceptions and those truths of a superior order which apply to all histories and to all ages.[1]

Gibbon spoke and wrote French with correctness and elegance; but the style of his English compositions, particularly of his history, has been alternately admired and censured. Porson, who was by no means inclined to spare him, has the candour to admit that his style is emphatic and expressive, and that his sentences are harmonious. But this seems to us inadequate eulogy. For, however overloaded, and at times measured almost to monotony, the style of Gibbon deserves the higher praise of animation, which keeps the attention continually awake,—of descriptive richness, which brings both manners and local scenery in living freshness before the imagination,—and of energy, which deeply impresses his more sententious truths upon the memory. "Gibbon may be overlaboured, but he is rarely diffuse, and never dull; he may overstrain the attention, but he never permits us to sleep; he may want simplicity, but he never wants force." Conciseness, vivacity, and often brilliancy, are his most striking characteristics; and if he has neither the careless, easy transparency of Hume, nor the sustained majesty of Robertson, he is more animated than the one, and more picturesque than the other.[2]

In the year 1796, Lord Sheffield published, in two volumes quarto, Gibbon's *Miscellaneous Works*, including those Memoirs of his own Life and Writings to which we have so often referred. This publication likewise contains a large collection of letters, either written by or addressed to the historian; abstracts of the books he had read, with reflections thereon; extracts from a journal of his studies; a collection of remarks and detached pieces on various subjects; outlines of his History of the World; his *Essai sur l'Etude de la Littérature*, republished; Critical Observations on the design of the sixth book of the Æneid; a Dissertation on the subject of *L'Homme au Masque de Fer; Mémoire Justificatif pour servir de Réponse à l'Exposé de la Cour de France;* his Vindication of his History; Antiquities of the House of Brunswick; and an address to the public on the subject of a complete edition of our ancient historians. But of all these miscellanies, his journal, abstracts, and remarks are the most curious and instructive in a literary point of view. They ontain much valuable criticism; exhibit a plan of indus- y such as few men ever pursued with equal constancy; how an amount of labour approaching to what we read f the indefatigable scholars of the sixteenth and seven- eenth centuries; and serve to teach scholars of all ages hat no station of permanent eminence can ever be reached ithout persevering exertion, and that, apart from intel- ectual application, knowledge becomes useless. wit ridi- ulous, and genius itself contemptible.

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[1] The French Revolution showed, in a strong light, Mr Gibbon's want of fixed opinions; and the just horror which it inspired had the effect of leading him into a new exaggeration. He then maintained that he had only attacked Christianity because the Christians destroyed Polytheism, which was the ancient religion of the empire. "The primitive church of which I have spoken a little familiarly," said he, in a letter to Lord Sheffield, "was an innovation; and I was attached to the ancient establishment of paganism." If this was not an after-thought, it would afford a key to much that has been considered doubtful, or difficult of explanation, in the history of the historian's opinions. In his Memoirs we meet with the following passage: "I beg leave to subscribe my assent to Mr Burke's creed on the Revolution of France. I admire his eloquence, I approve his politics, I adore his chivalry, and I can almost excuse his reverence for church establishments. I have sometimes thought of writing a dialogue of the dead, in which Lucian, Erasmus, and Voltaire should mutually acknowledge *the danger of exposing an old superstition to the contempt of the blind and fanatic multitude.*

[2] The following beautiful and discriminating observations on the taste and style of Gibbon are extracted from a review of his posthumous works, by Sir James Mackintosh, which originally appeared in the *Monthly Review:* "The reader will not learn without wonder that Swift and Addison were among the earliest models on which our celebrated historian laboured to form his taste and his style. If the composition of these writers continued to be the object of his imitation, the history of literature does not exhibit so striking an example of a man of such great talents so completely disappointed in his purpose. It may be observed that, even in the very act of characterising Swift and Addison, he has deviated not a little from that beautiful simplicity which is the peculiar distinction of these pure and classical writers. Nor can we think that Mr Gibbon, however he may have in some measure emulated the historical merit, has exactly trodden in the literary footsteps of Dr Robertson. Inferior, probably, to Mr Gibbon, in the vigour of his powers; unequal to him, perhaps, in comprehension of intellect, and variety of knowledge; the Scottish historian has far surpassed him in simplicity and perspicuity of narration; in picturesque and pathetic description; in the sober use of figurative language; and in the delicate perception of that scarcely discernible boundary which separates ornament from exuberance, and elegance from affectation. He adorns more chastely in addressing the imagination; he narrates more clearly for the understanding; and he describes more affectingly for the heart. The *defects* of Dr Robertson arise from a less vigorous intellect; the *faults* of Mr Gibbon from a less pure taste. If Mr Gibbon be the greater man, Dr Robertson is the better writer." (See *Notice of the Life, Writings, and Speeches of Sir James Mackintosh*, prefixed to the fragment entitled *History of the Revolution in England* in 1688, London, 1834.)

(Gibbon's *Miscellaneous Works*, vol. i.; *Memoirs*, &c.; *listoire de la Décadence et de la Chute de l'Empire Ro- ain, traduite de l'Anglais d'Edouard Gibbon*, by M. uizot, preceded by a Notice of the Life and Character f Gibbon by M. Suard, and accompanied with critical nd historical notes, for the most part relating to the his- ory of the propagation of Christianity, Paris, 1828; Cha- eaubriand, *Etudes ou Discours sur la Chute de l'Empire Romain*, Paris, 1830; *Quarterly Review*, vol. l. p. 273 t seqq. Chalmers, art. Gibbon; *Biographie Universelle*, rt. Gibbon.) (A.)

GIBBOUS, a term in *Medicine*, denoting any protube- ance or convexity of the body, such as hunched or hump- acked.

GIBBOUS, in *Astronomy*, a term used in reference to the nlightened parts of the moon, while she is moving from the rst quarter to the full, and from the full to the last quar- er; for all that time the dark part appears horned or fal- ated, and the illuminated part hunched out, convex, or ibbous.

GIBELINES, or GHIBELINES, a famous faction in Italy, pposed to another called the GUELPHS. Those two fac- ons ravaged and laid waste Italy for a long series of years; o that the history of that country, for the space of two cen- uries, is little more than a detail of their mutual violence and laughter. The Gibelines stood for the emperor against he pope; but concerning their origin and the reason of heir names we have only a very obscure account. Ac- ording to the generality of authors, they rose about the ear 1240, upon the Emperor Frederick II. being excom- nunicated by Pope Gregory IX. Other writers maintain, hat the two factions arose ten years before, though still nder the same pope and emperor. But the most probable pinion is that of Maimbourg, who says that these factions arose in consequence of a quarrel between two ancient and llustrious houses on the confines of Germany; that of the Henries of Gibeling, and that of the Guelphs of Adorf.

GIBEON, a city seated on an eminence about forty fur- ongs northward from Jerusalem. The Gibeonites were lescended from the Hivites, the old inhabitants of that country, and possessed four cities, of which Gibeon was the apital.

GIBLETS, the offals or entrails of a goose, including he heart, liver, feet, gizzard, &c. The word is supposed o be formed from the French *gobeau*, a mouthful. Gib- ets form a considerable article in cookery.

GIBRALTAR, a famous promontory, or rather penin- ula, of Spain, situated in north latitude 36. 6., and west lon- gitude 5. 17. To the ancients it was known by the name of *Calpe*, and was also called one of the *Pillars of Hercules*; by the Arabians it is called *Gebel Tarek*, that is, the Mount of Tarek, from the name of the Saracen general who conquered Spain in the beginning of the eighth century. The whole is one immense rock. "Its form," says Major Imrie, "is oblong; its summit a sharp craggy ridge; its direction is nearly from north to south; and its greatest length, in that direction, falls very little short of three miles. Its breadth varies with the indentations of the shore, but it nowhere exceeds three quarters of a mile. The line of its ridge is undulated, and the two extremes are somewhat higher than its centre. The summit of the Sugar Loaf, which is the point of its greatest elevation towards the south, is 1439 feet; the Rock Mortar, which is the highest point to the north, is 1350; and the Signal House, which is nearly the central point between these two, is 1276 feet above the level of the sea. The western side of the mountain is a series of rugged slopes, interspersed with abrupt precipices. Its northern extremity is perfectly perpendicular, except towards the north-west, where what are called the Lines intervene, and a narrow passage of flat ground that leads to the isthmus, and is entirely covered with fortification. The eastern side of the mountain mostly consists of a range of precipices; but a bank of sand, rising from the Mediterranean in a rapid acclivity, covers a third of its perpendicular height. Its southern extremity falls, in a rapid slope, from the summit of the Sugar Loaf, into a rocky flat of considerable extent, called Windmill Hill.

"The principal mass of the mountain rock consists of a gray dense (or what is generally called primary) marble; the different beds of which are to be examined in a face of 1350 feet of perpendicular height, which it presents to Spain in a conical form. These beds, or strata, are of various thickness, from twenty to upwards of forty feet, dipping in a direction from east to west, nearly at an angle of thirty-five degrees. In some parts of the solid mass of this rock are found testaceous bodies entirely transmuted into the constituent matter of the rock, and their interior hollows filled up with calcareous spar; but these do not often occur in its composition, and its beds are not separated by any intermediate strata." (*Transactions of the Royal Society of Edinburgh*, vol. iv.)

The town lies along the bay upon the west side of the mountain, on a declivity; by which, generally speaking, the rains pass through it, and keep it clean. The old town was considerably larger than the new. Many of the streets are narrow and irregular, and the buildings are of different materials; some of natural stone, extracted from the quarries, others of a factitious or artificial stone, and a few of brick. The people are supplied with fresh provisions, chiefly from the coast of Barbary, as well as fruit, roots, and vegetables of all sorts. Besides what is properly called the town, there are several spacious and commodious public edifices erected, such as barracks for the soldiers, with apartments for their officers, magazines of different kinds, storehouses for provisions, &c. The population of the town, exclusive of the garrison, is above 12,000, being partly British, and partly Spaniards, Italians, Jews, and even Moors, who are all attracted by mercantile enterprise. This town may be said to have two ports; the first lying to the north, which is proper only for small vessels; the other very commodious for large vessels, which has a fine stone quay. The bay is very beautiful and capacious, being in breadth about five miles, and in length eight or nine, with several small rivers running into it. It is very advantageous to the place. There is no ground to be found in the middle of it at one hundred fathoms depth, so that a squadron may lie there in great safety; the breezes from it are very refreshing; and it contributes likewise to the subsistence of the inhabitants by supplying them with abundance of fish.

This important fortress seems to have been first particularly noticed as a place of consequence in the year 712. At that time the general of the Caliph Alwalid landed with an army of 12,000 men on the isthmus between Mount Calpe and the continent; and, that he might secure an intercourse with Africa, he ordered a castle to be built upon the face of the hill. Part of this building still remains; and, from an inscription discovered above the principal gate, it appears to have been finished in 725. It continued in the possession of the Saracens till the beginning of the fourteenth century, when it was recovered by Ferdinand king of Castille. In 1333, however, it was obliged to surrender to the son of the Emperor of Fez, who came to the

Gibson.

assistance of the Moorish king of Granada. An attempt was made upon it in 1349, by Alonzo king of Castille; but when the fortress had been reduced to the last extremity, a pestilential fever broke out in the Spanish camp, which carried off the king himself, with great part of his army; after which the enterprise was abandoned.

The fortress continued in the possession of the Saracen descendants of the prince of Fez until the year 1410, when it was taken possession of by Joseph III. king of Granada. A design of attacking it was formed by Henry de Guzman in 1435; but the enterprise having miscarried through his imprudence, he was defeated and slain. However, it was at length taken after a gallant defence, by his son John de Guzman, in 1462; and since that time it has remained in the hands of the Christians. In 1540 it was surprised and pillaged by Piali Hamet, one of Barbarossa's corsairs; but the pirates having fallen in with some Sicilian galleys, were by them defeated, and all either killed or taken.

In the reign of Charles V. the fortifications of Gibraltar were modernized and greatly strengthened. It yielded, however, to a British force sent against it under Sir George Rooke in 1704, and has ever since remained subject to Britain. Since the English became masters of it, its fortifications have been so much improved as to render it impregnable. The memorable siege commenced by the Spaniards in the course of the American war was signalized by the glorious defence of General Elliot, and by the total destruction, in 1782, of an apparatus of floating batteries, mounting above 200 pieces of cannon, from which both France and Spain had anticipated the most splendid success.

The possession of Gibraltar is esteemed of great consequence to Britain. It not only gives us the command of the Straits, and their navigation, but affords refreshment and accommodation to our fleets in time of war, and to our merchantmen at all times; which, to a maritime power, is a great advantage. It is otherwise highly favourable to our trade in the Mediterranean and Levant. It saves us the expense of squadrons or convoys, upon any disputes or disturbances that may happen among the neighbouring powers, and which would otherwise be necessary for the protection of our navigation.

GIBSON, Richard, an English painter, commonly called the *Dwarf*, was originally page to a lady at Mortlake, who, observing that his genius led him to painting, had the generosity to get him instructed in the rudiments of that art. Having devoted himself to Sir Peter Lely's manner, he copied his pictures to admiration, especially his portraits; and his paintings in water colours were also esteemed. He was in great favour with Charles I. who made him page of the back stairs; and he had the honour to instruct in drawing Queen Mary and Queen Anne when they were princesses. He married one Mrs Anne Shepherd, who was also a dwarf, on which occasion King Charles I. honoured their marriage with his presence, and gave away the bride. Mr Waller wrote a poem on this occasion, entitled The Marriage of the Dwarfs; in which are these lines:

> Design or chance makes others wive.
> But nature did this match contrive;
> Eve might as well have Adam fled,
> As she deny'd her little bed
> To him for whom heav'n seem'd to frame
> And measure out this only dame.

Mr Fenton, in his notes on this poem, observes that he had seen this couple painted by Sir Peter Lely; and that they were of an equal stature, each being three feet ten inches high. They had nine children, five of whom arrived at maturity, and were well proportioned, being of the usual standard of mankind. But what nature denied this couple in stature, she gave them in length of days; for Mr Gibson died in the seventy-fifth year of his age, and his wife having survived him almost twenty years, died in 1709, aged eighty-nine.

Gibson, *Dr Edmund*, bishop of London, was born in Westmoreland in 1699. He applied himself early and vigorously to learning, and displayed his knowledge in several writings and translations, which recommended him to the patronage of Archbishop Tennyson. He was appointed domestic chaplain to his grace; and soon afterwards became rector of Lambeth, and archdeacon of Surrey. Becoming thus a member of the convocation, he engaged in a controversy, which was carried on with great warmth by the members of both houses, and defended his patron's rights, as president, in eleven pamphlets; he then formed and completed his more comprehensive scheme of the legal duties and rights of the English clergy, which was at length published under the title of *Codex Juris Ecclesiastici Anglicani*, in folio. Archbishop Tennyson having died in 1715, and Dr Wake bishop of Lincoln having become archbishop of Canterbury, Dr Gibson succeeded the latter in the see of Lincoln, and in 1720 was promoted to the bishopric of London. He now not only governed his diocese with the most exact regularity, but by his great care promoted the spiritual affairs of the church of England colonies in the West Indies. He was extremely jealous of the privileges belonging to the church; and therefore, though he approved of the toleration of the Protestant Dissenters, he continually guarded against all the attempts made to procure a repeal of the corporation and test acts; but his opposition to those licentious assemblies called *masquerades* gave great umbrage at court, and effectually excluded him from all further favours. He spent the latter part of his life in writing and printing pastoral letters, visitation-charges, occasional sermons, and tracts against the prevailing immoralities of the age. His pastoral letters are justly esteemed as the most masterly productions against infidelity and enthusiasm. His most celebrated work, the *Codex*, has been already mentioned. His other publications are, 1. An edition of Drummond's *Polemo-Middinia*, and James V. of Scotland's *Cantilena Rustica*, with notes; 2. the *Chronicon Saxonicum*, with a Latin translation, and notes; 3. *Reliquiæ Spelmannianæ*, the posthumous works of Sir Henry Spelman, relating to the laws and antiquities of England; 4. An edition of Quintilian *De Arte Oratoria*, with notes; 5. An English translation of Camden's *Britannia*, with additions, two volumes folio; and, 6. A number of small pieces, which have been collected together and printed in three volumes folio. His intense application to study impaired his health; notwithstanding which, he attained the age of seventy-nine. He expired in September 1748, after an episcopate of nearly thirty-three years.

GIDEON, the son of Joash, of the tribe of Manasseh. He dwelt in the city of Ophrah; and had a very extraordinary call to deliver the Israelites from the oppression of the Midianites, to which they had become subject after the death of Barak and Deborah. Having effected their deliverance by supernatural aid, he was chosen judge of Israel in the year of the world 2759, and died in 2768.

GIESSEN, a city of the grand duchy of Hesse, in Germany, in the province of Upper Hesse. It stands on the river Lahn, at its junction with the Wieseck, and is the seat of the several boards of government, of justice, and of the ecclesiastical superintendent. The university, founded in 1607, is flourishing, and has twenty-three professors and between two and three hundred students. It has connected with it two public libraries, a botanical garden, and various museums. It contains 720 houses and 7000 inhabitants, including the university. Long. 9. 38. E. Lat. 50. 36. N. It is the capital of a bailiwick of the same name, comprehending two cities, one market-town, and thirty-five villages, with 3219 houses and 20,450 inhabitants.

Gifford.

GIFFORD, William, a distinguished critic, satirist, id dramatic annotator, was born at Ashburton, in Devonire, in April 1757. Although his immediate ancestors ssessed considerable property in their native county, and ere there accounted gentlemen, yet a series of indiscreons had deprived them of the greater part of their subance; and when the subject of this memoir was born, his ither only possessed two small estates. The elder Gifford, hose roving propensities had driven him to sea, and also d him "to wander in some vagabond society," as his son forms us, established himself after his marriage, as a umber and glazier, at South Molton. But his habits were isettled and desultory; he went again to sea, and once ore returned without having acquired any wisdom from s misfortunes; and he died at last, "of a decayed and ined constitution, before he was forty." When this event ppened, his son William had not completed his thirteenth ear. He had been sent to school to read, write, and ciher; but, according to his own account of himself, he ere made "a most wretched progress." In less than velve months after the death of his father, his mother folwed her husband to the grave, and after various vicissides young Gifford was sent on board of a coasting vesl, by the person under whose guardianship he had been aced. This individual, who was his godfather, and into hose hands the effects of Gifford's parents had fallen, relled him from his nautical pursuits, principally, it would ppear, on account of the outcry which the people of Asharton raised against him for the manner in which he had eated his young charge. Gifford was now sent to school, here he made great progress, especially in arithmetic; but om this he was in a short time withdrawn, and apprenticed a shoemaker. He was now in his fifteenth year, and he as articled to serve until he was twenty-one. But he oroughly hated his new profession, and whenever leisure forded him opportunities, he prosecuted his favourite udy of mathematics. Few facilities for study fell to his t, but his ingenuity supplied the deficiency; and the eans which he adopted of improving himself, as well as e irrepressible perseverance which he displayed, affords striking instance of the force of genius in compensating d overcoming the disadvantages of untoward circumances. He also began to write verses, though not at this eriod for amusement, but only when he wanted money r his mathematical pursuits. But his devotedness to his udies seems to have rendered him indifferent to the conerns of his master, whose indignation was accordingly oused. He requested young Gifford to give up his books d papers; and this being refused, he proceeded to the arret of the delinquent, which he thoroughly sacked. Beg now deprived of his sole means of improvement, almost f enjoyment, Gifford began to display a degree of sulleness, reserve, and discontent, which made him an object of islike to his fellow-workmen. However, in this humble d obscure condition, poor beyond the common lot, he ttracted the notice of Mr Cookesley, a surgeon of the own in which he resided. This excellent individual deep- interested himself in behalf of Gifford, and set on foot a ubscription to purchase his freedom from the latter part of is indentures, and to pay for his education; a scheme hich completely succeeded. Thus, by an act of generoty, which it is pleasing to record, was the humble shoeaker rescued from his abject state, and placed in circumances which enabled him to gain the highest literary hoours, and to sit in judgment upon the most gifted men of is time.

After having passed two years at school, he was pronouned fit for the university; and by the active benevolence of Ir Cookesley he was enabled to proceed to Oxford, where e obtained the situation of Bible reader in Exeter College. Whilst at this place, he undertook a translation of Juvenal, poetry having now become his delight. A subscription for publishing it was set on foot; but during the progress of this undertaking his benefactor died; a circumstance which ultimately, and perhaps fortunately, prevented him from publishing a translation of the great Roman satirist, at least for a time. By an accidental occurrence, however, he became known to Lord Grosvenor, who invited him to his house. He accordingly quitted Oxford, and took up his residence with that nobleman, under whose hospitable roof he prosecuted the translation of Juvenal, until called upon to accompany the son of his patron to the Continent. With this young nobleman he spent, in two successive tours, many years, "of which," he says in his autobiography, "the remembrance will always be dear." Although Mr Gifford was principally engaged upon his translation of Juvenal, its publication was preceded by several other productions, by which at the time he obtained great popularity. The first was the *Bavaid*, a paraphrase on the first satire of Persius. This production appeared in 1794, and was levelled at a class of poetasters who deluged the daily prints of the time with their weak and effeminate lucubrations, which were likewise deformed by the most fulsome adulation of each other. The satire had the effect of completely extinguishing this tuneless tribe. Mr Gifford's next production, which appeared the following year, was entitled the *Mæviad*; an imitation of Horace, and directed against the corruptions of the drama. This work was only partially successful, for the malady which it was intended to cure had its seat in public manners rather than in the affectation of individuals. In both of these works Mr Gifford displays the most caustic severity and personality; and it has been questioned whether the harmless generation of ephemeral songsters and dramatists deserved the abuse with which they were assailed. In 1800 he published his *Epistle to Peter Pindar*, an attack which brought him little else but disquietude; the laughter of the one satirist being quite as formidable as the gall of the other. About this period Mr Gifford became connected with a set of men of wit and genius, at the head of whom was Mr Canning, who resolved upon establishing a weekly paper for the purpose of exposing to ridicule the political agitators of the time. This print was called the *Anti-Jacobin*, and Mr Gifford became its editor. The ministerial connection thus formed was of some use to him, as by it he obtained the paymastership of the band of gentlemen pensioners; and at a subsequent period he was made a double commissioner of the lottery. In 1802 appeared his English version of Juvenal, a work which may be said to have engrossed the greater part of his life. It was ushered into the world with every possible advantage, headed by a dedication to Earl Grosvenor, and with the translator's autobiography prefixed to it. The translation is able and spirited, although it is occasionally diffuse and unharmonious, and not unfrequently coarse in its diction. In 1805 Mr Gifford published an edition of the Plays of Massinger in four volumes; and in 1816 the Works of Ben Johnson, in nine volumes. In his annotations upon both these dramatic poets he displays great acuteness and industry; but in exposing the blunders of previous commentators, he shows not a little of his characteristic acerbity. In 1821 he published a version of Persius; and since his death his editions of the dramatic works of Ford and Shirley have been given to the world, accompanied with able and acute notes.

It was, however, as editor of the *Quarterly Review* that Mr Gifford became most generally known. The success of the *Edinburgh Review*, in advocating liberal principles in politics, suggested to the opposite party the idea of a counterpoise in the shape of the journal above named, which was accordingly carried into effect in 1809, and Mr Gifford entrusted with its management. The scheme completely succeeded; and it is allowed by all parties, that as editor of this distinguished journal, Mr Gifford displayed uncommon skill and ability. No man possessed a finer tact in discerning the weak and bad points of an author, when his object was to turn him into ridicule; none could hold them up to laughter with more felicitous acrimony. From the time of his taking the charge of the *Quarterly Review* until his death, few circumstances of any moment occurred in the life of Mr Gifford, except the publication of the works already mentioned. He continued the editorship until about two years before his death, which took place on the 31st of December 1826.

From the prominent position which Mr Gifford occupied in the literary world, his character has been the subject of severe animadversion by one party, and of exaggerated eulogy by another. Of his great talents there can be no doubt. His sagacity and quickness of apprehension were striking, and the rapidity with which he acquired knowledge is proved by his having prepared himself for the university after being only two years at school. His wit was distinguished for caustic severity rather than for brilliancy, and he dealt more in invective than in polished repartee. As a poet he cannot be said to rank very high; but that he had a keen perception of the beauties of the noblest inspirations of the muse, and could point them out with great felicity, provided political feelings did not intervene to pervert his judgment, is proved by his many admirable criticisms, and by the confidence which Lord Byron and others reposed in his opinions. In private life Mr Gifford was modest and unassuming; and amongst the numerous parties, poetical, political, or religious, who occasionally suffered by his castigations, none of them ever ventured to recriminate by attacking the moral character of the editor of the *Quarterly Review*. The memoir of himself, which he prefixed to his version of Juvenal, is one of the most remarkable pieces of autobiography extant. It is written with ability and manly feeling, as well as with unaffected modesty and apparent candour. (R. R. R.)

GIFT, in the law of England, is a conveyance which passes either lands or goods, and is of a larger extent than a grant, being applied to things moveable and immoveable; yet as to things immoveable, when taken strictly, it is applicable only to lands and tenements given in tail. But *gift* and *grant* are too often confounded.

New Year's GIFTS, presents made on new year's day, as a token of the giver's good will, as well as by way of presage of a happy year. This practice is very ancient, the origin of it among the Romans being referred to Tatius king of the Sabines, who reigned at Rome conjointly with Romulus, and who, having considered as a good omen a present of some sprigs of vervain gathered in a wood consecrated to Strenia, the goddess of strength, which he received on the first day of the new year, authorized this custom afterwards, and gave to these presents the name of *Strenæ*. But however this may be, the Romans on that day celebrated a festival in honour of Janus; paid their respects at the same time to Juno; and avoided passing it in idleness, lest they should become indolent during the rest of the year. They sent presents to one another of figs, dates, honey, and other articles, to show their friends that they wished them a happy and agreeable life. Clients, that is to say, those who were under the protection of the great, carried presents of this kind to their patrons, adding to them a small piece of silver. Under Augustus, the senate, the knights, and the people, presented such gifts to the emperor, and in his absence deposited them in the Capitol. Of the succeeding princes, some adopted this custom, and others abolished it; but it always continued amongst the people. The early Christians condemned it, because it appeared to be a relic of paganism, and a species of superstition; but when it began to have no other object than that of being a mark of veneration and esteem, the church ceased to disapprove of it.

GIGG, GIGA, or JIG, in *Music* and *Dancing*, a gay, brisk, sprightly composition, yet in full measure, as well as the allemand, which is more serious. Ménage conceives the word to spring from the Italian *gieg*, a musical instrument mentioned by Dante. Others suppose it to be derived from the Teutonic *giga*, or *ghiighe*, a fiddle. This is a favourite air in most nations of Europe; its characteristic is duple time, and it consists of two strains, without any determinate number of bars.

GIGLEWICK, a township of the west riding of the county of York, in the wapentake of Staincliff and Ewercross. It stands at the base of a rock 300 feet in height, on the summit of which is the parish church, to which the ascent is by steps cut in the limestone. Within the parish are some valuable stone quarries. The population amounted in 1801 to 2201, in 1811 to 2428, in 1821 to 2817, and in 1831 to 3017.

GIJON, a city of Spain, in the province of Asturias. It is built at the foot of a hill, on the sea shore, and has a port, which is by far the best in the province, and in which the greater portion of its foreign commerce centres. The harbour is well defended by a castle on the hill near the city, and by batteries constructed on the mole. The entrance is very narrow and difficult, and the difficulty gradually increases, from the sea receding in such a manner as to alarm the merchants with the apprehension that their harbour will in a few years become wholly dry land. The city is very beautiful, the streets are wide and straight, and cross each other at right angles; and most of the houses are of recent construction, and well built. An institution for the promotion of scientific knowledge was formed here in 1794, and the pupils are instructed in mathematics, and the application of geometry to mechanics, navigation, and the other arts; and mineralogical and geological lectures are delivered. Its longitude is 5. 13. 39. west from London, and its latitude 43. 35. 10. north. This town contains 3200 inhabitants, who are employed in making earthenware, buttons, and cider.

GILBERT, or GILBERD, *William*, a physician, born at Colchester in the year 1540, was the eldest son of the recorder of that borough. Having spent some time in both universities, he went abroad; and on his return settled in London, where he practised with considerable reputation. He became a member of the College of Physicians, and physician in ordinary to Queen Elizabeth, who, we are told, gave him a pension to encourage him in his studies. From his epitaph it appears that he was also physician to King James I. He died in the year 1603, aged sixty-three, and was buried in Trinity Church, Colchester, where a handsome monument was erected to his memory. His books, globes, instruments, and fossils, he bequeathed to the College of Physicians, and his picture to the school gallery at Oxford. He wrote, 1. De Magnete, magneticisque Corporibus, et de magno magnete Tellure, Physiologia nova, London, 1600, folio; 2. De Mundo nostro sublunari Philosophia nova, Amsterdam, 1651, 4to. He was also the inventor of two mathematical instruments for finding the latitude at sea without the help of sun, moon, or stars. A description of these instruments was afterwards published by Thomas Blondeville, in his *Theoriques of the Planets*.

GILBERT, *Sir Humphrey*, a brave officer and skilful navigator, was born about the year 1539, in Devonshire, and descended of an ancient family. Though a second son, he inherited a considerable fortune from his father. He was educated at Eton, and afterwards at Oxford, where he did not probably continue long. It was intended that he should finish his studies in the Temple; but being introduced at court by his aunt Mrs Catharine Ashley, then the queen's service, he was diverted from the study of w, and commenced soldier. Having distinguished himlf in several military expeditions, particularly in that ainst Newhaven in 1563, he was sent over to Ireland to sist in suppressing a rebellion; and there, for his signal rvices, he was made commander-in-chief and governor ' Munster, and knighted by the lord deputy, Sir Henry dney, upon the first day of the year 1570. He returned on afterwards to England, where he married a rich heirs. Nevertheless, in 1572, he sailed with a squadron of ne ships to reinforce Colonel Morgan, who at that time editated the recovery of Flushing. On his return to ngland he appears to have resumed his cosmographical udies, to which he was naturally inclined; for, in the ear 1576, he published his treatise on the north-west ssage to the East Indies; and as Martin Frobisher saill in the same year, he probably did so in consequence ' this treatise. In 1578 he obtained from the queen a ery ample patent, empowering him to discover and posss in North America any lands then unsettled. He saill to Newfoundland, but soon returned to England withut success; nevertheless, in 1583, he embarked a second me with five ships, the largest of which put back on acunt of a contagious distemper on board. Gilbert landl on Newfoundland on the 3d of August, and on the 5th ok possession of the harbour of St John's. By virtue ' his patent he granted leases to several people; but ough none of them remained there at that time, they ttled afterwards in consequence of these leases, so that e deserves to be remembered as the real founder of our ast American empire. On the 20th of August he again ut to sea on board a small sloop, which on the 29th foundered in a hard gale of wind; and thus perished Sir Humhrey Gilbert, a man of quick parts, a brave soldier, a good athematician, a skilful navigator, and an enterprising enius. We learn also that he was remarkable for his loquence, and much admired for his patriotic speeches oth in the English and Irish parliaments. He wrote A iscourse to prove a Passage by the north-west to Caaia and the East Indies, 1576, which is preserved in akluyt's Collection of Voyages (vol. iii. p. 11). The tyle is superior to that of most of the writers of the age, nd shows the author to have been a man of considerable eading.

GILBERTINES, a religious order so called from St Gilert of Sempringham, in the county of Lincoln, who foundd the same about the year 1148. The monks of this order bserved the rule of St Augustin, and were accounted caons; the nuns observed that of St Benedict. The founder f this order erected a double monastery, or rather two diferent ones, contiguous to each other, the one for men, the ther for women, but separated by a very high wall. St Gilert himself founded thirteen monasteries of this order, viz. our for men alone, and nine for men and women together, hich had in them seven hundred brethren and fifteen hunred sisters. At the dissolution there were about twentyive houses of this order in England and Wales.

GILCHRIST, Dr Ebenezer, an eminent Scotch phyician, was born at Dumfries in 1707. He began the study f medicine at Edinburgh, which he afterwards prosecuted t London and Paris. He obtained the degree of doctor f medicine from the university of Rheims; and in the ear 1732 he returned to the place of his nativity, where e afterwards constantly resided, and continued the pracice of medicine till his death. It may with justice be said, hat few physicians of the past century exercised their rofession in a manner more respectable or more successful han Dr Gilchrist; and few have contributed so largely to he improvement of the healing art. Having engaged in usiness at an early period of life, his attention was wholly evoted to observation. Endowed by nature with a judgment acute and solid, and a genius active and inventive, he soon distinguished himself by departing, in various important particulars, from established but unsuccessful modes of practice. Several of the improvements which he introduced have procured him great and deserved reputation both at home and abroad. His practice, in ordinary cases, was allowed to be judicious, and placed him high in the confidence and esteem of the inhabitants of that part of the country where he lived. But his usefulness was not confined to his own neighbourhood. Upon many occasions he was consulted by letter from the most distant parts of the country. In different collections are to be found several of his performances, which prove that he had something new and useful to offer upon every subject to which he applied himself. But those writings which do him the greatest honour are two dissertations on nervous fevers, in the medical essays and observations published by a society in Edinburgh; and a treatise on the use of sea voyages in medicine, which first made its appearance in the year 1757, and was afterwards reprinted in 1771. Dr Gilchrist died in 1774.

GILD, or Guild. See Guild.

GILDAS, the oldest British historian, and surnamed the Wise, was born in Wales in the year 511. It is uncertain where he was educated; but it appears from his own writings that he was a monk. Some writers say that he went over to Ireland; and others, that he visited France and Italy. They agree however in asserting, that after his return to England he became a celebrated and most assiduous preacher of Christianity. Dupin says he founded a monastery at Venetia in Britain. Gildas is the only British author of the sixth century whose works are printed; they are therefore valuable on account of their antiquity, and as containing the only information we have concerning the times of which he wrote. The only work, however, attributed to him with certainty is his *Epistola de excidio Britanniæ, et Castigatio ordinis ecclesiastici*, London, 1525, in 8vo, Bâle, 1541, in 12mo, and by Gale in his *Rerum Anglicarum Scriptores veteres*, 1684, 1687, in folio. In this production he laments the miseries and almost total ruin of his countrymen, and severely reproves the corruption and profligacy of his age. The first part contains a vague account of events from the Roman invasion to his own times, and on this account is valuable, notwithstanding the inelegance and obscurity of the style. Gildas is also the supposed author of Canons and Regulations of Discipline for the use of Ireland, collected by Dom Luc d'Achery in the ninth volume of his *Specilegia*. The time and place of his death have not been ascertained.

GILDING, the art of spreading or covering over a thing with gold, either in leaf or in liquid. The art of gilding was not unknown amongst the ancients, though it never arrived among them at the perfection to which the moderns have carried it. Pliny assures us that the first gilding seen at Rome was after the destruction of Carthage, under the censorship of Lucius Mummius, when they began to gild the ceilings of their temples and palaces; the Capitol being the first place on which this enrichment was bestowed. But he adds, that luxury advanced on them so rapidly, that in a little time you might see all, even private and poor persons, gild the walls, vaults, and other parts of their dwellings.

We need not doubt that they had the same method as ourselves, of beating gold, and reducing it into leaves; though it should seem that they did not carry it to the same extent, if it be true which Pliny relates, that they only made 750 leaves of four fingers square out of an ounce. Indeed he adds that they could make more; that the thickest were called *bracteæ Prænestinæ*, by reason of a statue of the goddess Fortune at Præneste gilt with such leaves; and that the thinner sort was called *bracteæ questoriæ*.

Gilding.

The modern gilders also make use of gold leaves of different thickness; but there are some so fine that a thousand do not weigh above four or five drachms. The thickest are used for gilding on iron and other metals, and the thinnest on wood. But we have another advantage over the ancients in the manner of using or applying the gold. The secret of painting in oil, discovered of late ages, furnishes us with means of gilding works capable of enduring all the injuries of time and weather, which to the ancients was impracticable. They had no way to lay the gold on bodies which would not endure the fire, but with the albumen of eggs or size, neither of which will endure the water; so that they could only gild such places as were sheltered from moisture.

The Greeks called the composition on which they applied their gilding on wood *leucophæum* or *leucophorum*; which is described as a sort of glutinous compound earth, serving in all probability to make the gold stick and bear polishing. But antiquaries and naturalists are not agreed as to the particulars of this earth, its colour, and ingredients.

The lustre and beauty of gold have occasioned several inquiries and discoveries concerning the different methods of applying it to different substances. Hence the art of gilding is very extensive, and contains many particular operations and various management.

A colour of gold is given by painting and by varnishes, without employing gold; but this is a false kind of gilding. Thus a very fine golden colour is given to brass and to silver, by applying to these metals a gold-coloured varnish, which, being transparent, shows all the brilliancy of the metals underneath. Many ornaments of brass were varnished in this manner, which is called gold *laquering*, to distinguish them from those which are really gilt. Silver leaves thus varnished are put upon leather, which is then called *gilt leather*. (See LAQUER.)

There are two methods of gilding on wood, which are severally termed size and oil gilding. The leaves of several metals are used for this purpose, viz. gold, silver, mosaic gold, Egyptian gold, Peruvian gold, and Dutch metal. Gold and silver alone are used when the work is to be burnished; the others only for the coarser sorts of oil-gilding, and that rarely, owing to their liability to blacken with the atmosphere, from being merely a composition of the baser metals.

The practical operations are nearly the same with respect to all the different metals; but as various *sizes* are required to prepare the work, we shall describe the manner of procuring them before we describe how they are employed: 1*st*, Strong size; 2*d*, clear size; 3*d*, burnish gold size, and oil gold size.

1*st*, Strong size is prepared from the parings of animal hides: the best, and that in most common use, is known at the tan-works by the name of bate shavings. To one pound of these shavings add a gallon of water, and boil them together for two or three hours, so that when cold they may become a very stiff jelly. After it has been strained it is fit for use. 2*d*, To prepare clear size, take of vellum two ounces, add one pint of water, and boil them for one hour, or until, when cold, they become a stiffish jelly, about half the strength of the above. 3*d*, To make gold size for burnishing, reduce one pound of fine pipe-clay to powder, take one quarter of an ounce of black lead, and half an ounce of French bole, and grind the two together on a painter's stone with water; mix in the clay, and add more water, until it attains the consistency of a thick paste; put in a quarter of an ounce of olive oil; grind the whole, and it is then ready for use.

The tools to be used are the tip, the cushion, and knife. The tip is a broad thin brush, made of the long hairs of the squirrel's tail glued between two cards. The cushion is a board covered with calf leather, the rough side up, and a fold of cotton between.

Warm the strong size, and mix with it the finest washed whitening until it is of the consistency of very thick cream; lay it on the work to be gilded with a sash tool; allow it to dry, and repeat the coats five or six times, allowing it to dry each time. If plain or moulded, take pumice-stone and smooth the work; allow it to dry, and smooth again with fine sand-paper; then take a portion of the gold size (No. 3), and mix it with a part of the clear size (No. 2), in a warm state, until it has been reduced to the consistency of cream; give the work four coats of this, allowing it to dry each time; rub it down with flour-emery paper, and coat again the parts to be burnished: the mat or flat part must be coated with the clear size (No. 2) reduced with equal part of water. Take the gold leaf and spread it on the cushion, cut it with the knife to the size required, take the tip, grease it slightly, to make the gold lift; and having drawn a wetted hair pencil over the part meant to be covered, lift the leaf with the tip and lay it on, repeating this until the whole is covered: allow this to stand for five or six hours, and rub carefully over the parts to be burnished with the burnisher. The burnisher is a piece of smooth pebble fixed into a handle. Any faults in the mat part should be mended with leaf, and coated over with clear size, and then the work is finished.

Oil-gilding.—Oil gold size is made by grinding Oxford ochre with drying oil, adding, when used, a little fat oil (fat oil is procured by spreading a thin film of linseed oil on water, or shaking it in a bottle with oxygen gas).

Work which is not to be exposed to damp or moisture should be prepared in the same manner as for burnishing, and in the place of burnish gold size it should get two coats of strong size (No. 1) a little reduced with water; and when dry-coated with the oil gold size, and allowed to stand till the breath lies on it, then lay the leaf as formerly described, pressing it down with cotton wool; dust it off with a brush, coat it with clear size, and the work is finished.

Out-door work is prepared entirely with oil-paint in place of size, and when dry it is coated with the oil gold size, and gilded in the same manner as described above; but no size is applied on the surface of the gold.

It will readily be perceived that burnish and mat gilding is a more laborious process than gilding in oil, consequently more expensive at the first. It has, however, the advantage over the oil, for inside work, of keeping longer clean, owing to the smoothness of its surface; for the best executed work in oil has a roughness which allows the smoke and dust more readily to adhere. On the other hand, when the work is to be exposed to the weather, oil gilding has a power of resisting its action scarcely to be conceived.

The method of applying gold upon metals is entirely different, and it is done in various ways. One of these is by previously forming the gold into a paste or amalgam with mercury. In order to obtain a small amalgam of gold and mercury, the gold must first be reduced into thin plates or grains, which are heated red hot, and thrown into mercury previously heated, till it begins to smoke. Upon stirring the mercury with an iron rod, the gold totally disappears. The proportion of mercury to gold is generally as six or eight to one. With this amalgam the surface of the metal to be gilded is to be covered; then a sufficient heat is to be applied to evaporate the mercury; and, lastly, the gold is to be burnished with a bloodstone.

This method of gilding by amalgamation is chiefly used for gilding copper, or an alloy of copper, with a small portion of zinc, which more readily receives the amalgam; and it is also preferable for its colour, which more resembles that of gold than the colour of copper. When the metal to be gilt is wrought or chased, it ought to be preiously covered with quicksilver before the amalgam is ap- lied, that this may be easier spread ; but when the surface f the metal is plain, the amalgam may be applied directly o it. It is to be observed that the use of the blood-stone ; now generally abandoned, and a steel burnisher substi- uted for it. The steel burnisher is case-hardened and then olished ; the clearer the polish is, the brighter will the ietal be burnished. The quicksilver or amalgam is made adhere to the metal by means of a little aquafortis, which ; rubbed on the metallic surface at the same time, and by vhich this surface is cleansed from any rust or tarnish that night prevent the union or adhesion of the metals. But ne use of the nitrous acid in this operation is not, as is generally supposed, confined merely to the cleansing the surface f the metal to be gilt, from any rust or tarnish which it may ave acquired, but also greatly facilitates the application f the amalgam to the surface of that metal. In the first lace it dissolves part of the mercury of the amalgam ; and vhen this solution is applied to the copper, the latter me- al, having a stronger affinity for nitrous acid than the mer- ury has, precipitates the mercury upon its surface, in the ame manner as a polished piece of iron precipitates cop- er upon its surface from a solution of blue vitriol. When ne metal to be gilt is thus covered over with a thin pre- ipitated coating of mercury, it readily receives the amal- am. In this solution and precipitation of mercury, the rincipal use of the nitrous acid in the process of gilding ppears to consist. The amalgam being equally spread ver the surface of the metal to be gilt, by means of a brush, ne mercury is then to be evaporated by a heat just suffi- ent for that purpose ; for if it be too great, part of the old may also be expelled, and part of it will run together, d leave some of the surface of the metal bare. Whilst ne mercury is evaporating, the piece should be from time time taken from the fire, that it may be examined, that ne amalgam may be spread more equally by means of a rush, that any defective parts of it may be again covered, d that the heat may not be too suddenly applied to it ; d when the mercury has evaporated, which is known by ne surface having entirely become of a dull yellow colour, ne metal must then undergo other operations, by which ne fine gold colour is given to it. First, the gilded piece metal is rubbed with a scratch brush, composed of brass ire, until its surface be made smooth ; then it is covered ver with a composition called *gilding wax*, and again ex- osed to the fire until the wax be burnt off. This wax is omposed of bees-wax, mixed with some of the following ubstances, viz. red ochre, verdigris, copper scales, alum, triol, borax ; but, according to Dr Lewis, the saline sub- ances alone are sufficient, without any wax. By this peration the colour of the gilding is heightened ; and the fect seems to be produced by a perfect dissipation of me mercury remaining after the former operation. This ssipation is well effected by this equable application of eat. The gilt surface is then covered over with a saline mposition, consisting of nitre, alum, or other vitriolic lt, ground together, and mixed up into a paste with wa- r or urine. The piece of metal thus covered is exposed a certain degree of heat, and then quenched in water. y this method its colour is further improved, and brought earer to that of gold. This effect seems to be produced the acid of nitre (which is disengaged by the vitriolic id of the alum, or other vitriolic salt, during the expo- re to heat) acting upon any particles of copper which ay happen to lie on the gilded surface. Lastly, some art- ts think that they give an additional lustre to their gilt ork by dipping it in a liquor prepared by boiling some llow materials, as sulphur, orpiment, or turmeric. The ly advantage of this operation is, that a part of the yel- w matter, as the sulphur or turmeric, remains in some of e hollows of the carved work, in which the gilding is apt to be more imperfect, and to which it gives a rich and solid appearance.

Iron cannot be gilt by amalgamation, unless, as it is said, it be previously coated over with copper by dipping it in a solution of blue vitriol. At Sheffield and Birmingham the metal is generally first covered with copper, and then gilded. This species of gilding, however, does not present any thing like a good colour, and, besides, it is by no means durable. Iron may also receive a gold coating from a saturated solution of gold in nitro-muriatic acid, or in aqua-regia, mixed with alcohol or spirit of wine, the iron having a greater affinity for the acid, from which it necessarily precipitates the gold. Whether any of these two methods be applicable to use, is uncertain ; but the method commonly employed of fixing gold upon iron is that above mentioned, of burnishing gold leaf upon this metal when heated so as to become blue ; and the operation will be more perfect if the surface has been previously scratched or graved.

Another method is mentioned by authors, of gilding upon metals, and also upon earthen ware, and upon glass ; namely, to fuse gold with regulus of antimony, to pulverize the mass, which is sufficiently brittle to admit that operation, to spread this powder upon the piece to be gilt, and to expose it to such a fire that the regulus may be evaporated, whilst the gold remains fixed. The inconveniences of this method, according to Dr Lewis, are, that the powder does not adhere to the piece, and cannot be equally spread ; that part of the gold is dissipated along with the regulus ; that glass is fusible with the heat necessary for the evaporation of regulus of antimony ; and that copper is liable to be corroded by the regulus, and to have its surface rendered uneven.

On the subject of gilding by amalgamation Dr Lewis makes the following observations. " There are two principal inconveniences in this business ; one, that the workmen are exposed to the fumes of the mercury, and generally, sooner or later, have their health greatly impaired by them ; the other, the loss of the mercury ; for though part of it is said to be detained in cavities made in the chimney for that purpose, yet the greatest part of it is lost. From some trials I have made, it appeared that both these inconveniences, particularly the first and most considerable one, might in good measure be avoided, by means of a furnace of a due construction. If the communication of a furnace with its chimney, instead of being over the fire, is made under the grate, the ash-pit door, or other apertures beneath the grate, closed, and the mouth of the furnace left open, the current of air, which otherwise would have entered beneath, enters now at the top, and passing down through the grate to the chimney, carries with it completely both the vapour of the fuel and the fumes of such matters as are placed upon it : the back part of the furnace should be raised a little higher above the fire than the fore part, and an iron plate laid over it, that the air may enter only at the front, where the workman stands, who will be thus effectually secured from the fumes, and from being incommoded with the heat, and at the same time have full liberty of introducing, inspecting, and removing the work. If such a furnace is made of strong forged (not milled) iron plate, it will be sufficiently durable : the upper end of the chimney may reach above a foot and a half higher than the level of the fire : over this is to be placed a larger tube, leaving an interval of an inch or more all round between it and the chimney, and reaching to the height of ten or twelve feet, the higher the better. The external air, passing up between the chimney and the outer pipe, prevents the latter from being much heated, so that the mercurial fumes will condense against its sides into running quicksilver, which, falling down to the bottom, is there catched in a hollow rim, formed by turning inwards a portion of

Gilding.

the lower part, and conveyed, by a pipe at one side, into a proper receiver.[1]

"Mr Hellot communicates, in the Memoirs of the French Academy for the year 1745, a method of making raised figures of gold on works of gold or silver, found among the papers of M. Dufay, and of which M. Dufay himself had seen several trials. Fine gold in powder, such as results from the parting of gold and silver by aquafortis, is directed to be laid in a heap on a levigating stone, a cavity made in the middle of the heap, and half its weight of pure mercury put into the cavity; some of the fetid spirit obtained from garlic root by distillation in a retort, is then to be added, and the whole immediately mingled and ground with a muller till the mixture is reduced into an uniform gray powder. The powder is to be ground with lemon juice to the consistence of paint, and applied on the piece previously well cleaned and rubbed over with the same acid juice; the figures drawn with it may be raised to any degree by repeating the application. The piece is exposed to a gentle fire till the mercury is evaporated so as to leave the gold yellow, which is then to be pressed down, and rubbed with the finger and a little sand, which makes it appear solid and brilliant; after this it may be cut and embellished. The author observes that, being of a spongy texture, it is more advisable to cut it with a chisel than to raise it with a graver; that it has an imperfection of being always pale; and that it would be a desirable thing to find means of giving it colour, as by this method ornaments might be made of exquisite beauty, and with great facility. As the paleness appears to proceed from a part of the mercury retained by the gold, I apprehend it might be remedied by the prudent application of a little warm aquafortis, which, dissolving the mercury from the exterior part, would give at least a superficial high colour: if the piece is silver, it must be defended from the aquafortis by covering it with wax. Instruments and ornaments of gold, stained by mercury where the gold is connected with substances incapable of bearing fire, may be restored to their colour by the same means.

"The foregoing process is given entirely on the authority of the French writer. I have had no experience of it myself, but have seen very elegant figures of gold raised upon silver, on the same principle, by a different procedure. Some cinnabar was ground, not with the distilled spirit, but with the expressed juice of garlic, a fluid remarkably tenacious. This mixture was spread all over the polished silver; and when the first layer had become dry, a second, and after this a third, was applied. Over these were spread as many layers of another mixture, composed chiefly of asphaltum and linseed oil boiled down to a due consistence. The whole being dried with a gentle heat on a kind of wire grate, the figures were traced and cut down to the silver, so as to make its surface rough; the incisions were filled with an amalgam of gold, raised to different heights in different parts according to the nature of the design; after which a gentle fire, at the same time that it evaporated the mercury, destroyed the tenacity of the gummy juice, so that the coating, which served to confine the amalgam, and as a guide in the application of it, was now easily got off. The gold was then pressed down and embellished as in the former method; and had this advantage, that the surface of the silver under it having been made rough, it adhered more firmly, so as not to be in danger of coming off, as M. Dufay says the gold applied in this way sometimes did. The artist, however, found the process so troublesome, that though he purchased the receipt for a considerable sum, he has laid the practice aside."[2]

Finally, some metals, particularly silver, may be gilt in a different manner. Let gold be dissolved in aqua-regia. In this solution pieces of linen are to be dipt, and burnt to black ashes. These ashes being rubbed on the surface of the silver by means of a wet linen rag, apply the particles of gold which they contain, and which by this method adhere very well. The remaining part of the ashes is to be washed off; and the surface of the silver, which in this state does not seem to be gilt, is to be burnished with a blood-stone, till it acquire a fine colour of gold. This method of gilding is very easy, and consumes a very small quantity of gold. Most gilt ornaments upon fans, snuff-boxes, and other toys of much show and little value, are nothing but silver gilt in this manner.

Gold may also be applied to glass, porcelain, and other vitrified matters. As the surface of these matters is very smooth, and consequently is capable of a very perfect contact with gold leaf, it adheres to them with some force, although they are not of a metallic nature. This gilding is so much the more perfect, that the gold is more exactly applied to the surface of the glass. The pieces are then to be exposed to a certain degree of heat, and burnished slightly to give them lustre.

A more substantial gilding is fixed upon glass, enamel, and porcelain, by applying to these substances powder of gold mixed with a solution of gum-arabic, or with some essential oil and a small quantity of borax; after which a sufficient heat is to be applied to soften the glass and the gold, which is then to be burnished. With this mixture any figures whatever may be drawn. The powders for this purpose may be made, first, by grinding gold leaf and honey, which is afterwards to be washed away with water; secondly, by distilling to dryness a solution of gold in aqua-regia; thirdly, by evaporating the mercury from an amalgam of gold, taking care to stir well the mass near the end of the process; fourthly, by precipitating gold from its solution in aqua-regia, by applying to it a solution of green vitriol in water, or some copper, and perhaps some other metallic substances.

GILEAD, the son of Machir, and grandson of Manasseh, had his inheritance allotted him in the mountains of Gilead, whence he took his name. The mountains of Gilead were part of the ridge which runs from Mount Lebanon southward, on the east of the Holy Land; and they gave their name to the whole country which lies on the east of the sea of Galilee, and includes the mountainous region called in the New Testament *Trachonitis.*

GILIBANTA, a small island in the Eastern Seas, near the coast of Cumbava, situated in long. 119. 36. E. lat. 8. 22. S.

GILL, JOHN, D.D., a Protestant dissenting minister of the Baptist denomination, was the son of Edward and Elizabeth Gill, and was born at Kettering in Northamptonshire, on the 23d November 1697. At a very early period of life his father, who was a deacon of the Baptist church at Kettering, discovered in him an uncommon capacity for learning; and his ability for literary pursuits afterwards appeared by the rapid progress he had made o whatever became the object of his study. He was sent n a grammar-school in the neighbourhood, where he soon urpassed those boys who were much his seniors in age nd also as pupils. He continued till he arrived at his leventh year at this school, where he read most of the atin classics, and likewise made considerable proficiency n the Greek language.

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[1] Dr Lewis's improvements, however, have been found too complicated, and simpler contrivances have been had recourse to. The following is the method lately introduced, and now in use. A sponge saturated with vinegar is fastened underneath the mouth and nostrils, and a vessel filled with cold water is placed at the vent of the furnace. This vessel attracts the principal portion of the fumes of mercury, and the remainder is attracted by the sponge. But still this is not able to attract all the smoke, and the gilders in large manufactories generally die at an early age.

[2] The process of M. Dufay is a very ancient one, and totally abandoned, or else only had recourse to for the purpose of amusement, or to observe chemical action.

He left the grammar-school, however, early in life. his was occasioned by the imperious conduct of his mas-er, who insisted that the children of dissenting parents hould, with other scholars who belonged to the establishnent, attend him to church on week days during the perormance of divine service. The dissenters considered his requisition as a stretch of power to which his engagenents with them gave him no claim; and as it was virtully making conformity a test by which his pupils were o expect the benefits of tuition, they resented his conuct, and the children of those parents who were in afuent circumstances were removed to seminaries where he same advantages might be obtained without being ubject to the impositions of clerical bigotry. But as the arents of Mr Gill had it not in their power to confer upon im the same privilege, the same steps could not be taken o facilitate his advancement in learning. In order to pave he way, however, for the completion of his studies, efforts vere made by several ministers, of different denominaions, to get him upon one or other of the funds in Lonon. For this purpose specimens of his progress in the ifferent branches of literature were transmitted to the netropolis; but in answer to these applications it was obected that he was too young, and that should he contiue, as it might be expected he would, to make such raid advances in his studies, he would pass through the ommon course before he would be capable of taking care f himself, or of being employed in any public service. But these formidable objections were of no weight with ur young scholar, whose love of learning was unconquerble. Insuperable difficulties, it is true, obstructed the vay in which literary eminence is usually acquired; but hese difficulties could neither repress his ardent desire of nowledge, nor damp the zeal and application with which e had devoted himself to his studies. For though his ime was daily allotted to the business of his father, yet e had so far improved the hours of leisure as to be able, efore he arrived at his nineteenth year, to read all the Greek and Latin authors that fell in his way. He studied ogic, rhetoric, moral and natural philosophy; and learnd the Hebrew language so as to read it with ease, withut any other assistance than Buxtorf's grammar and lexion.

Neither the pursuit of learning, however, nor the other ecessary avocations incumbent on Mr Gill, could eradiate those religious impressions which he had received in arly life. On the 1st of November 1716, he made a pubc profession of his faith before the Baptist church at Kettering, and was baptized the same day by Mr Thomas Vallis. Of this church Mr Gill had not been long a memer before he was called to the work of the ministry; soon fter which, he removed to Higham-Ferrers, with a view o pursue his studies under the direction of Mr Davis; ut his stay at the latter place was interrupted by an nvitation from London in 1719, to preach to the Baptist hurch in Horslydown, over which he was the same year, eing the twenty-second of his age, ordained pastor; and his office he held upwards of fifty-one years.

Mr Gill had not been long in London, before rabbinical earning, of which he had before acquired considerable nowledge, became an object of pursuit. To faciliate his rogress through the intricacies of this labyrinth, he conracted an acquaintance with one of the most learned of he Jewish rabbin. He read the Targums, the Talmud, the Rabbot, their ancient commentaries, the book Zohar, and whatever else of this kind he was able to procure. Of the oriental languages he made himself a complete master; in short, there was no branch of knowledge that could either enlarge or enrich biblical learning, which, however difficult, was not attempted and attained by him; and it may be truly asserted, that in this line he had but few equals, and that the annals of literature do not exhibit many by whom he was excelled.

In 1748, Mr Gill published a commentary on the New Testament, in three volumes folio. The immense reading and learning discoverable in this arduous work attracted the attention of the Marischal College and University of Aberdeen, and procured for him the degree of Doctor in Divinity. He died at Camberwell, on the 14th of October 1771, in the seventy-fourth year of his age.

His works are, A Commentary on the Old and New Testament, in nine volumes folio; A Body of Divinity, in three volumes quarto; The Cause of God and Truth, four volumes octavo; A Treatise concerning the Prophecies of the Old Testament respecting the Messiah; A Dissertation on the antiquity of the Hebrew Language, Letters, Vowel Points, and Accents; and Sermons on the Canticles, folio; besides a great number of sermons and controversial pieces.

GILL, a measure of capacity, containing a quarter of an English pint.

GILLINGHAM, a parish of Dorsetshire, in the hundred of Redlane, 105 miles from London, and five miles from Shaftesbury. It lies on the river Stour, and is the largest parish in the county, being forty miles in circumference. It is a fertile district, producing large quantities of excellent butter. A palace of one of the Saxon kings was erected here, which, by the remains that can be traced, appears to have been of stupendous magnitude and strength. A battle was fought here in 1016, when Edmund Ironside totally defeated a large army of Danish invaders. The population in 1801 amounted to 1873, in 1811 to 1992, in 1821 to 2246, and in 1831 to 2520.

GILLINGHAM, a parish of the county of Kent, in the hundred of Chatham and Gillingham, thirty-two miles from London. It is situated on a hill near to, and commanding a view of, the river Medway, and containing within its limits a part of the town of Chatham, and of Brompton. A large portion of it is covered with those fortifications which form the defences of the important naval arsenal of Chatham. The barracks for the marines consist of a handsome pile of buildings, and are deemed peculiarly healthy for the troops quartered in them. The population amounted in 1801 to 4135, in 1811 to 5135, in 1821 to 6209, and in 1831 to 6734.

GILLY SINDE, a river of Hindustan, in the province of Malwah, which has its source in the Vindhya Mountains, and afterwards flowing in a northerly direction, falls into the Sepra river, which afterwards joins the Chumbul.

GILOLO, one of the Molucca islands, in the Eastern Seas, which is of a large size and very irregular form, consisting of a long mainland, extending in length north and south 220 miles, and composed of four large peninsulas, separated from one another by deep bays. It extends from the latitude of 3. 10. south, to 0. 50. north. The island is generally very fertile, and abounds with bullocks, buffaloes, goats, deer, and wild hogs; but there are few sheep. The sago and fruit-trees flourish here in great abundance; the former yielding to the inhabitants their chief subsistence. This island also produces nutmegs and cloves; but, by the narrow and malignant policy of the Dutch, the trees which produced these spices were rooted up in all places near the sea-coast, or to which there was a ready access by sea. All foreign trade was also discouraged, in order to prevent the smuggling of spices; and the natives were even prohibited, under severe penalties, from manufacturing cloth. These violent edicts, however, the inhabitants contrived to evade, by secretly sending to the other islands for supplies of material. Ossa bay, on the east coast of the island, is an extremely narrow and deep inlet, penetrating about half way through the island. The town of Ossa, situated on the south side of the bay, in longitude 128. 22. east, and latitude 0. 45. north, affords every convenience for ships touching at the island, either for water, provisions, timber, spars, or other articles. There are several other towns in the island, viz. Maba, Patany, and Weda; but being seldom visited by Europeans, they are little known. This island was formerly under the control of the Dutch; but is at present independent of that or any other European nation, and under the government of several independent rajahs or chiefs. A considerable trade is carried on in their own vessels with Amboyna and the neighbouring islands, whence they import cutlery, cloth, China-ware, gold-lace, iron in bars, opium, piece-goods, and steel. The articles imported are nutmegs, cloves, mace, biche-de-mer, bird-nests, tortoise shells, &c.

GILPIN, Bernard, rector of Houghton, distinguished by his extraordinary piety and hospitality, was descended from an ancient and honourable family in Westmoreland, and born in 1517. As he was bred in the Catholic religion, so he for some time defended it against the reformers, and at Oxford held a disputation with Hooper, afterwards bishop of Worcester, and a martyr for the Protestant faith; but he was staggered in another disputation with Peter Martyr, and began seriously to examine the contested points by the best authorities. Accordingly, being presented to the vicarage of Norton, in the diocese of Durham, he soon resigned it, and went abroad to consult eminent professors on both sides; and after three years absence returned, a little before the death of Queen Mary, satisfied with the general doctrines of the Reformation. He was kindly received by his uncle Dr Tonstall, bishop of Durham, who soon afterwards gave him the archdeaconry of Durham, to which the rectory of Effington was annexed. When repairing to his parish, though the persecution was then at its height, he boldly preached against the vices, errors, and corruptions of the times, especially among the clergy, on which a charge, consisting of thirteen articles, was drawn up against him, and presented in form to the bishop. But Dr Tonstall found a method of dismissing the cause in such a manner as to protect his nephew without endangering himself, and soon afterwards presented him to the rich living of Houghton-le-Spring. He was a second time accused to the bishop, and again protected; when his enemies, enraged at this second defeat, laid their complaint before Dr Bonner, bishop of London, who immediately gave orders to apprehend him. Upon this Mr Gilpin prepared for martyrdom; and having ordered his house-steward to provide him a long garment, that he might make a decent appearance at the stake, he set out for London. Luckily, however, he broke his leg on the journey, which protracted his arrival until the news of the queen's death freed him from all further apprehension. Being immediately set at liberty, he returned to Houghton, where he was received by his parishioners with the most sincere joy.

Upon the deprivation of the Roman Catholic bishops, he was offered the see of Carlisle, which he declined; and confining his attention to his rectory, he discharged all the duties of his function in the most exemplary manner. To the greatest humanity and courtesy, he added an unwearied application to the instruction of those under his care. He was not satisfied with the advice he gave in public, but used to instruct in private, and brought his parishioners to come to him with their doubts and difficulties. He had a most engaging manner towards those whom he thought well disposed; nay, his very reproof was so conducted that it seldom gave offence; the becoming gentleness with which it was urged made it always appear as the effect of friendship. Thus, with unceasing assiduity, he employed himself in admonishing the vicious and engaging the well-intentioned; and by these means he in a few years effected a greater change in his neighbourhood than could well have been imagined.

But his hopes were not so much in the existing generation as in the succeeding one. It was an easier task, he found, to prevent vice than to correct it; to form the young to virtue, than to amend the bad habits of the old. He employed much of his time, therefore, in endeavouring to improve the minds of the younger part of his parish, suffering none to grow up in ignorance of their duty, but pressing it as the wisest part to unite religion with labour, and, amidst the cares of this life, to have a constant eye upon the next. He attended to every thing which might be of service to his parishioners. He was assiduous in preventing lawsuits among them. His hall is said to have been often thronged with people, who came to him about their differences. He was not indeed much acquainted with law, but he could decide equitably, and that satisfied them; nor could his sovereign's commission have given him greater weight or authority than his own character secured him.

His hospitable manner of living was the admiration of the whole country. He spent in his family every fortnight forty bushels of corn, twenty bushels of malt, and a whole ox; besides a proportional quantity of other kinds of provision. Strangers and travellers found a cheerful reception. All were welcome who came; and even their beasts had so much care taken of them, that it was humorously said, if a horse were turned loose in any part of the country, it would immediately make its way to the rector of Houghton.

Every Sunday, from Michaelmas till Easter, was a sort of public day with him. During this season he expected to see all his parishioners and their families. For their reception, he had three tables well covered; the first being intended for gentlemen, the second for husbandmen and farmers, and the third for day-labourers. This piece of hospitality he never omitted, even when losses, or a scarcity of provision, made its continuance rather difficult to him. He thought it his duty, and that was a decisive motive. Even when he was absent from home, no alteration was made in his expenses; the poor were fed as usual, and his neighbours entertained.

But notwithstanding all his painful industry, and the large scope he had for it in so extensive a parish, Mr Gilpin thought the sphere of his benevolence too confined. It grieved him extremely to see everywhere, in the parishes around him, so great a degree of ignorance and superstition, occasioned by the shameful neglect of the pastoral cure among the clergy of those parts. The bad consequences resulting from this induced him to supply, as far as he could, what was wanting in others. For this purpose, he used every year regularly to visit the most neglected parishes in Northumberland, Yorkshire, Cheshire, Westmoreland, and Cumberland; and that his own parish might not in the mean time suffer, he was at the expense of a constant assistant. In each place he staid two or three days; and his method was, to call the people about him, and lay before them, in as plain a way as possible, the danger of leading wicked or even careless lives; explaining to them the nature of true religion, instructing them in the duties they owed to God, their neighbour, and themselves, and showing them how greatly a moral and religious conduct would contribute to their present as well as future happiness.

Mr Gilpin's generous and hospitable manner of living as been already noticed. The value of his rectory was bout L.400 a year; an income, indeed, at that time very onsiderable, but yet in appearance very disproportionate o the generous things he performed with it; indeed he ould not have done these, unless his frugality had been qual to his generosity. His friends, therefore, could not ut wonder to find him, amidst his many great and contiual expenses, entertain the design of building and endowng a grammar-school; a design, however, which his exact conomy soon enabled him to accomplish, though the exense of it amounted to upwards of L.500. His school as no sooner opened than it began to flourish; and so reat a number of young people flocked to it, that in a ttle time the town was not able to accommodate them. Ie put himself, therefore, to the inconvenience of fitting p, for that purpose, a part of his own house, where he eldom had fewer than twenty or thirty children. Some f these were the sons of persons of distinction, whom he oarded at easy rates; but the greater part were poor hildren, whom he educated, clothed, and maintained at is own charge. He was at the expense likewise of boardng in the town many other poor children. He used to ring several every year from the different parts where e preached, particularly from Readsdale and Tinedale; laces which he was at great pains in civilizing, and in ooting out that barbarism which every year prevailed ss and less amongst them.

As to his school, he not only placed in it able masters, hom he procured from Oxford, but he himself likewise onstantly inspected it; and, that encouragement might uicken the application of his boys, he always took parcular notice of the most promising. He would call them *is own scholars*, and would send for them often to his partment, and there instruct them himself. One method sed by him to fill his school was a little singular. Whenver he met a poor boy upon the road, he would make ial of his capacity by a few questions, and if he found such as pleased him, he would provide for his educaon. And besides those whom he sent from his own chool to the universities, and there wholly maintained, e likewise gave to others, who were in circumstances to o something for themselves, what further assistance they equired. By these means he induced many parents to llow their children a liberal education, who would not therwise have done so. Nor did Mr Gilpin think it sufcient to afford the means only of an academical educaon to these young people; he endeavoured also to rener it as beneficial to them as he could. He still condered himself as their proper guardian; and he seemd to think himself bound to the public for their being ade useful members of society, as far as it lay in his ower to make them so. With this view he carried on punctual correspondence with their tutors; and made e youths themselves frequently write to him, and give im an account of their studies. So solicitous indeed as he about them, knowing the many temptations to hich their age and situation naturally exposed them, at once every other year he generally made a journey the universities to inspect their behaviour. Nor was is uncommon care unrewarded; for many of his schors became ornaments to the church, and men of exemary piety.

Whenever he heard of any in distress, whether of his vn parish or of any other, he was sure to relieve them. In s walks abroad, he would frequently bring home with him oor people, and send them away clothed as well as fed. e took great pains to inform himself of the circumstances his neighbours, that the modesty of the sufferer might ot prevent his being relieved. But the money best laid out as, in his opinion, that which encouraged industry. It was one of his greatest pleasures to make up the losses of his laborious neighbours, and prevent their sinking under them. If a poor man had lost a beast, he would send him another in its room; or if any farmer had had a bad year, he would make him an abatement in his tythes. Thus, as far as he was able, he took the misfortunes of his parish upon himself; and, like a true shepherd, he exposed himself for his flock. But of all kinds of industrious poor, he was most forward to assist those who had large families; persons in this situation never failed to experience his bounty when they wanted to settle their children in the world.

This benevolent and excellent divine, who merited and obtained the glorious titles of Father of the Poor, and the Apostle of the North, died in 1583, in the sixty-sixth year of his age.

GINGEE, a district in the Carnatic, situated between the twelfth and thirteenth degrees of north latitude. It is bounded on the east by the sea, along which is the travelling road from Madras to Pondicherry. The English had factories here in the middle of the seventeenth century. It is now comprehended in the southern division of the Arcot collectorship.

GINGEE, a town of the Carnatic, and capital of the above district, and a celebrated fortress, which stands on a stupendous rock, and is impregnable by all the ordinary modes of attack. It is said to have been built or improved on an old foundation of the Chola kings, by the son of Vijeya Runga Naik, the governor of Tanjore, in 1442. It was successively strengthened by the Mahommedan kings of Bejapore, who possessed it from 1669 to 1677, and by the Mahrattas, who held it in the year 1698. At this period it was besieged and taken by Zulficar Khan, the imperial general, who appointed Rajpoot governors. They affected independence, and assumed the rank of rajahs. In 1750 it was taken by surprise during a night attack by the French under M. de Bussy; but it surrendered to the British after the capture of Pondicherry in 1761. Like all the other hill forts in India, it is reckoned very unhealthy; and the French are said to have lost about twelve hundred of their number during the ten years they held possession of it; on which account it is garrisoned during the peace by a small number of native troops. Long. 79. 34. E. Lat. 12. 15. N.

GINGERAH, a fortified island on the western coast of India, at the mouth of a river, on the bank of which is situated the town of Dimda Rajepore. This place is celebrated in history, first as being one of the stations of the fleet commanded by the Siddees or Abyssinians, who were first in the service of the kings of Bijapoor, and deserted with their ships in the year 1661 to Aurungzebe; and, second, it was exposed to a long siege by the Mahratta chief Sevagee.

GIOIA, FLAVIO, a pilot or ship-captain, was born at Pasitano, a village situated near Amalfi, about the end of the thirteenth century. During a long period this navigator was generally regarded as the inventor of the mariner's compass; and so precise were the ideas of some writers on the subject, that they fixed the year 1302 or 1303 as the date of the invention. But every one now knows that the claims of Gioia have been disputed; that, according to some, he did not invent, but only improved, the compass; whilst, in the opinion of others, he had nothing whatever to do either with the invention or improvement of an instrument which, in a certain sense, may be said to have changed the face of the world. To render him justice, however, it is necessary to recall the most remarkable opinions which have been expressed on the subject, and, in particular, to indicate the facts by which these opinions are sought to be supported.

Polydore Virgil places the invention of the compass amongst those the authors of which are unknown. *Om-*

nino in aperto non est,[1] says he; and however superficial this writer may be, his testimony is of great weight against Gioia, as he was born in Italy only two hundred years after the celebrated navigator of Amalfi. Several learned men have attributed the invention of the compass to the Phœnicians, to the Tyrians, and to King Solomon respectively. Court de Gébelin is one of those who attribute it to the Phœnicians. Others, misled by an ill-interpreted passage of Plautus, have supposed that the Greeks and Romans were acquainted with the compass. In this number is Abundantius Collina, who, in a memoir entitled *De Acûs Nauticæ Inventore*,[2] has promulgated such a notion. But these opinions have been completely refuted by Turnebus, Bochart, and Dutens; by Trombelli, *De Acûs Nauticæ Inventore*;[3] by Grimaldi, *Sopra il primo Inventore della Bussola*;[4] by Montucla in his *Histoire des Mathématiques*; and more recently by Azuni, in a Dissertation on the Origin of the Compass, printed twice in Italian, and then in French, Paris, 1807, in 8vo. In fact, the ancients knew not the directive virtue of the magnet. The silence of all the authors of antiquity, who have spoken of the loadstone, particularly of Lucretius, Pliny, Claudian, and Plutarch, forms a negative proof of their ignorance of this quality which seems quite insuperable. Gerbert of Auvergne, born about the commencement of the tenth century, and afterwards pope under the name of Silvester II., being desirous, when he was bishop of Magdeburg, to construct a horizontal solar dial, found the north point by the help of an instrument with which he observed the pole star; *in Magdeburg horologium fecit, illud recte constituens, considerata per fistulam quamdam stella Nautarum duce*.[5] Father Costadau, Collina, and others, have thought that, in the instrument here mentioned, they recognized the compass. But Montucla has refuted this erroneous opinion, and shown that the instrument of Gerbert was merely a tube (*fistula*), which he directed towards the pole star in order to determine the meridian line. Evidence more convincing, however, attests that the navigators of the Mediterranean were acquainted with the magnetic needle, and knew how to make use of it more than a century before the time of Gioia.

Albert, surnamed the Great, in his treatise *De Mineralibus*,[6] mentions a passage of a work, erroneously attributed to Aristotle, which he renders in these terms: *Angulus magnetis quidam est, cujus virtus apprehendendi ferrum est, ad zoron, hoc est, septentrionalem; et hoc utuntur nautæ: angulus vero alius magnetis illi oppositus trahit ad aphron, id est, polum meridionalem*. Whether this remarkable passage be found in Aristotle or not is of little importance with reference to the period when Albert lived (he was born in 1193, and died in 1280); indeed it is necessary to go farther back than his time, for the citation must have been made from some work still more ancient; and even if the treatise *De Mineralibus* were not the work of Albert, this would not diminish the importance of the passage which the author, whoever he may be, has therein inserted, and which not only shows that the directive power of the magnet was then known, but that this power was applied by mariners for the purposes of navigation. Besides, the same text is cited by Vincent of Beauvais, in the first part of his *Bibliotheca Mundi*;[7] and this part, entitled *Speculum Naturale*, must have been completed in the year 1250, as appears from book xxvii. chapter 102. Brunetto Latini, in his *Trésor*, composed first in French (Paris, 1260), and then translated by himself into Italian, also speaks of the compass in language not to be mistaken.[8] There is another text which has also become famous in this discussion; we mean that of the *Bible-Guyot*, from verse 622 to verse 658, in which we find the compass clearly indicated under the names of *manière* or *marinière*, *manette* or *marinette*, according to the various readings of the different manuscripts. This text may be seen entire in the *Fabliaux* and *Contes*, published by Barbazan and Méon.[9] The satire, called the *Bible-Guyot*, is generally attributed to Guyot, a French monk of Provins, who must have flourished about the end of the twelfth century, since he appeared at the court of the Emperor Frederick I. in 1181. But supposing this rhythmical piece were, as some have thought, the work of Hugues de Bercy, a contemporary of Saint Louis, this difference would only bring down the date by fifty, or at the most sixty years. Lastly, a passage equally clear in the work of the Cardinal de Vitry, fixes the date beyond all doubt. James of Vitry, a native of Argenteuil, and bishop of Ptolemaïs in Syria, went to Palestine during the fourth crusade, that is, about the year 1204; on his return from this voyage, he discharged the functions of legate of Pope Innocent III. in the army which, in 1210, the Count de Montfort led against the Albigenses; and having again set out for the Holy Land, he returned thence under Honorius III. a considerable time before the death of this pope, and died in the year 1244. But if, as is commonly supposed, he wrote his description of Palestine, which forms the first book of his history, and is entitled *Historia Orientalis*, during his second sojourn in the East, this would fix its composition between the years 1215 and 1220; and, besides, he speaks of a fact which he had observed since the year 1204. Now, in his 91st chapter, he thus expresses himself: *Acus ferrea, postquam adamantem contigerit, ad stellam septentrionalem, quæ vel utaxis firmamenti, aliis vergentibus, non movetur, semper convertitur; unde valde necessarius est navigantibus in mari.* [The iron needle, after contact with the loadstone, constantly turns to the north-star, which, as the axis of the firmament, remains immovable, whilst the other stars revolve; and hence it is essentially necessary to those navigating on the ocean.] The sense of these words presents no difficulty or obscurity. The question is not one relating to a new discovery, but to a usage already established, to an instrument regarded as absolutely necessary to mariners, to a species of knowledge which had in fact become general and common.

As Albert the Great, Guyon, and the Cardinal de Vitry, were all Frenchmen, and as Brunetto Latini composed his work during his stay in France, whilst James of Vitry must ave crossed the Mediterranean in French vessels, the Benedictine authrors of the Literary History of France have ence concluded that the compass is a French invention ; nd, in support of this conclusion, they have referred to the sage (undoubtedly French) adopted by all nations of trang upon the card of the compass a *fleur-de-lis* to indiate the north. This opinion has been adopted by M. zuni, and maintained by all the means which extensive udition could supply, in the dissertation to which we have ready referred. But other writers have claimed for the rabians the honour of this invention. Amongst these may e mentioned Tiraboschi, in his *Storia della Letteratura taliana ;* Andres, in his *Origine e Progressi d'ogni Letratura ;* Bergeron, in his *Abrégé de l'Histoire des Sarrans ;* and Riccioli, in his *Geographia et Hydrographia rermata.* All the writers who have maintained this opinion, owever, rest solely upon vague assertions, and are unable produce any positive proofs. On the other hand, Charn is persuaded that the Arabians received the compass om Europe ; whilst Renaudot has gone so far as to main-in that there exists not any Arabian writing in which ention is made either of the compass, or even of the dictive virtue of the magnet.[1] Nor has any authority been oduced against the latter opinion, except the work of ailak Kaptchaki, entitled, in Arabic, Treasure of Merchants the knowledge of Stones ;[2] and the passage of this writer, iginally discovered by M. Silvestre de Sacy, confirms the inion of Renaudot rather than destroys it, since the auor, who wrote in the year 681 of the hegira, relates a fact which he had been witness in the year 640 [1242 of our a], and since these dates are *posterior* to the times of uyot de Provins and Cardinal de Vitry. Ebn-Iounis, an rabian astronomer, in his *Grand Hakemite Table*, a work mposed in the year 1007 of our era, and published in rench by M. Coussin,[3] also furnishes a negative proof of e most conclusive kind that the Arabians of his time were acquainted with the compass ; for neither among the inruments of which he makes mention, nor among the obrvations which he records, does he ever speak of or allude such a thing in any way. But there always remains tween these two epochs, that is, between the year 1007 d the year 1290, the passage attributed to Aristotle, hich must necessarily have been derived from some Araan author.

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[1] Polydor. Virg. *De Invent. Rer.* lib. iii. c. 18.

[2] *Bonon. Instit. Comment.* tome ii. part 3.

[3] *Bonon. Instit. Comment.* tome ii. part 3.

[4] *Recueil de l'Acad. de Cortone*, tome iii.

[5] Dithmar. *Chronic.* apud Leibnitz, *Scriptores Rer. Brunsw.* tome i. p. 399.

[6] Lib. ii. tract. 3, cap. 6.

[7] Lib. ii. cap. 19.

[8] His words are, "Pour ce nagent le mariniers à l'enseigne de ces deux étoiles que l'on appelle Tramontaines......et chacun des deux faces [de l'aimant] alse la pointe de l'aiguille à celle tramontaine à que cette face gist." (*Trésor*, lib. i. cap. 113.)

[9] Tome ii. p. 327. It commences with these verses:

> De notre père l'apostoile
> Volsisse qu'il semblast l'estoile
> Qui ne se muet...

and it terminates with the following:

> Molt est l'estoile, et belle et clerè,
> Tiex devroit estre notre père.

The authors who have written on China have attacked e claims of Gioia with most success. Father le Compte, ailla, Father Gaubil in his *Histoire de l'Astronomie Chiise*, and Barrow in his *New Voyage to China*, declare emselves convinced that the Chinese made use of the mpass long before our era. Hager, in a dissertation pubhed in Italian, under the title of *Memoria sulla Bussola ientale*, has developed this opinion, and endeavoured to ove not only that the compass is an invention of the hinese, but that this people transmitted it to us by means their communications with the Arabians. On this hythesis, it appears wonderful that the compass, said to have en in use in the Indian Sea one or two thousand years fore Christ, should not have been known either to the yptian navigators under the Ptolemies, or to the Greeks Constantinople in the middle ages. Chardin had left the estion in doubt. But M. de Guignes goes farther, and aintains that the sources whence Father Gaubil derived s information are modern romances ; and he censures at historian for having supposed that he had detected e mention of a compass in texts which are recognised as ulous.[4] Nevertheless, it cannot now be doubted that e Chinese were acquainted with the compass, if not at the early epochs of which Father Gaubil speaks, at least long before the Europeans ; and great weight has been given to this opinion by the judgment which Barrow, Macartney, and other recent travellers, have formed on the subject.

But be this as it may, the writers who have attributed the invention to Gioia are innumerable. Amongst others, Grimaldi, a learned Neapolitan, has collected in favour of his countryman, in the dissertation which we have already cited, a number of positive authorities, and has supported them with very imposing names. Nor can it be dissembled that, during a long period, the opinion of all Europe supported the claim of Gioia, and that there must have been some important fact or circumstance to produce an assent so general in his favour. What, then, is the precise title which the mariner of Amalfi possesses to public gratitude? Father Fournier appears to have resolved this problem in his *Hydrographie ;*[5] and Montucla, adopting the opinion of Fournier, has developed it with a clearness calculated to satisfy every mind. The compass used in the Mediterranean during the twelfth and thirteenth centuries consisted only of a magnetic needle, which was made to float in a vase or bason by means of two straws or a bit of cork, which supported it on the surface of the water. Such is the description which the author of the *Bible-Guyot* has given of the instrument ; and hence the names of *calamite* or of *grenouille* (frog), under which it is designated in some authors. The compass known to the Arabians, in the thirteenth century, according to Bailak Kaptchaki, was no other than that here described. " It is easy to perceive," says Montucla, " how inconvenient this was, and how often the agitation of the sea would render it useless.....But the Amalfitans imagined the convenient suspension which we now employ, by placing a magnetised needle on a pivot which permits it to turn to all sides with facility. It is not known that at first they went farther than this. Afterwards it was attached to a card divided into thirty-two points (*rumbs de vent*), and named *Rose des Vents ;* and then the box containing it was suspended in such a manner that, whatever motion the vessel might experience, it would always remain horizontal. The English claim, *jure an injuria*, this addition to the compass, but on what ground I know not, having seen no proof in support of such a pretension." If the import of the verse of Antonius Panormitanus, which is considered as one of the strongest proofs in favour of the claim of Gioia, be examined with attention, it will perhaps be observed that allusion is made, not to an invention, but a great and important improvement. The verse in question is as follows :

> Prima dedit nautis *usum* magnetis Amalphis.

The poet does not appear to affirm that the town of Amalfi had given to mariners the *knowledge* of the magnetic needle, but only that it had given, or rather facilitated, the *usage* thereof.

Such, then, appears to have been the merit of Gioia, namely, having rendered truly useful an instrument of which, though previously known in an unimproved state, little or no use could then be made. The timidity of pilots, in the twelfth and thirteenth centuries, when they were already in possession of the *calamite* or *grenouille*, and the boldness which they displayed when provided with the compass of Amalfi, evidently attest the importance of the service rendered to modern navigation by Gioia. To improve in this manner is really to invent. It is possible that the French may have added the *Rose des Vents*, or card, to the suspended needle of Gioia, which would account for the *fleur-de-lis* being employed to indicate the north, as already mentioned. It is also possible that the English may have conceived the idea of including the needle, its pivot, and the card, in a *box* or *boxel*, whence probably the names of *bussola* and *boussole*. The Germans, moreover, claim the names of the winds, East, South, North, West, and even the name of the compass. But these particularities are of little importance. What appears to be established is, that the discovery of the directive virtue of the magnet was made anterior to Gioia; that, before his time, navigators both in the Mediterranean and the Indian Seas employed the magnetic needle; but that, by a very important improvement, in the suspension of the needle, Gioia is entitled to be considered as the real inventor in Europe of the compass such as we now possess it. No history of the life of this navigator is known. Some writers call him Giri; but the name of Gioia is that most generally adopted. Musanzio, in his *Tables Chronologiques*, complains that Vossius and other learned men call him Giri, and describe him as a native of Melfi, "instead," says he, "of Gioia of Amalfi, who invented the compass in the year 1303."[1] (*Biographie Universelle.*) (A.)

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[1] *Anciennes Relations des Indes*, p. 288, 291.

[2] *Bibliothèque Royale des Manuscrits*, No. 970, in folio.

[3] *Notices des Manuscrits de la Bibliothèque Royale*, tome vii.

[4] *Mémoires de la Académie des Inscriptions*, tome xlvi. p. 549, 551.

[5] Liv. xi. chap. i.

GIORGIONE, or Giorgio Barbarelli, an eminent painter, was born at Castelfranco, near Trevigi, in 1478. He learned the rudiments of his profession from Giovanni Bellini at Venice, and is said to have derived his first notions of the force of well-adapted lights and shadows, by carefully studying the works of Leonardo da Vinci. Giorgione was one of the first of the Venetian school who broke through the timid and constrained style to which the art was confined at the time of Bellini, and introduced a freedom of outline, a boldness of handling, and a new and animated manner of colouring, unknown before him. De Piles remarks, "that it is a matter of wonder to consider how, all of a sudden, he soared from the low and dry manner of Bellini's colouring, to the supreme height to which he raised that lovely part of painting, by joining extreme force with extreme sweetness." Yet, as Pilkington observes, when we reflect that nature and Da Vinci were his models, and that he had a genius happily qualified to study them judiciously, we may more easily account for that excellence by which he was distinguished. His pictures were much admired by Titian, who copied his style, and improved upon his effects of chiaro-oscuro. His untimely death prevented his acquiring so extensive a celebrity as Titian did; but, as Phillips observes, "in the race of rivalship between these extraordinary artists, it seems probable, had Giorgione's life been prolonged, he might have surpassed Titian in splendour and vivacity, both of colour and of execution." Several of Giorgione's grand compositions in fresco have perished, and those which remain are so materially injured that little of their original beauty is discernible. His easel pictures were few, and now, on account of their scarcity as well as merit, are exceedingly valuable.

In the department of portrait painting Giorgione may be ranked with the greatest masters. His figures are justly esteemed for their grace, dignity, expression, and truth of character. His carnations have more the appearance of real flesh than of being a fine imitation of it. The landscapes of this artist are also admirable. Of his oil pictures the principal are, Christ bearing his Cross, in the church of St Roch at Venice; at Trevigi, St Mark appeasing the Tempest; in the Monte di Pieta, a Dead Christ; and at Milan, the Finding of Moses. Giorgione died of the plague, in the prime of life, in 1511. (Z. Z.)

GIRALD, Barry, or *Giraldus Cambrensis*. See Barry.

GIRALDI, Lilio Gregorio, an ingenious critic, and one of the most learned men modern Italy has produced, was born at Ferrara in the year 1479. He was at Rome when it was plundered by the Emperor Charles V.; and having thus lost all he had, and being at the same time tormented by the gout, he struggled through life with ill fortune and ill health. He nevertheless wrote a number of works, which were collected and published at Basil, 1580, in two vols. folio, and at Leyden in 1696. Authors of the first rank have bestowed the highest eulogies on Giraldus, particularly Cassaubon and Thuanus.

GIRAR, a fortress of Hindustan, in the province of Malwah, belonging to the Mahrattas. Long. 79. 18. E. Lat. 24. 23. N.

GIRDERS, in *Architecture*, the largest pieces of timber in a floor. Their ends are usually fastened into the summers or brest-summers; and the joists are framed at one end to the girders.

GIRDLE, a belt or band of leather or other matter, tied about the reins, to keep that part more firm and tight.

It was anciently the custom for bankrupts and other insolvent debtors to put off and surrender their girdle in open court. The reason of this was, that our ancestors used to carry all their necessary utensils, as purse, keys, and the like, fastened to the girdle; and hence the girdle became a symbol of the state, or condition of the individual. History relates that the widow of Philip I. duke of Burgundy, renounced her right of succession, by putting off her girdle upon the duke's tomb.

The Romans always wore a girdle to tuck up the tunica when they had occasion to do any thing; and this custom was so general, that such as went without girdles, and allowed their vestments to hang loose, were reputed idle and dissolute persons.

Maiden's or *Virgin's* Girdle. It was a custom amongst the Greeks and Romans for the husband to untie his bride's girdle. Festus relates, that it was made of sheep's wool, and that the husband untied it in bed; he adds, that it was tied in the Herculanean knot, and that the husband unloosed it, as a happy presage of his having as many children as Hercules, who at his death left no less than seventy behind him.

The poets attribute to Venus a particular kind of girdle called *cestus*, to which they annexed the faculty of inspiring the passion of love.

GIRGENTI, a province or intendancy in the island of Sicily, comprehending, besides the Vale of Mazzara on the continent, the islands of Pantalaria and of Lampedosa in the Mediterranean Sea. It is divided into the three districts of Girgenti, Bivona, and Sciacca, and contains 288,877 inhabitants. The capital, which bears the same name, is a city near the sea, on an elevated spot, but watered by the river whose name it has taken. It contains a cathedral and several other churches, 2844 houses, and 14,882 inhabitants. The haven, which is about four miles from the city, is neither deep nor capacious; but being the only one on the southern coast of Sicily, it is a considerable resort for vessels, who repair to it to procure cargoes of wheat, barley, almonds, pistachio nuts, soda, and sulphur, which commodities are abundantly produced in the vicinity. There are in the neighbourhood many remains of remote antiquity, illustrative of the ancient state of this city, which is said to have once contained 300,000 souls. Long. 13. 43. E. Lat. 37. 23. N.

GIRONS, St, an arrondissement in the department of Arriège, in France, having an extent of 603 square miles. It is divided into six cantons and eighty-two communes, and contains 79,084 inhabitants. The chief place is a town of the same name, in a valley watered by the Salat. There re some manufactories of woollen goods, and also some anneries. The population amounts to 2504. Long. 1. . E. Lat. 42. 58. N.

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[1] Table xxxviii. p. 219.

GIRONDE, a department in the south-west of France, reated out of the ancient principality of Guienne. It is ounded on the north and north-east by the department of he Lower Charente, on the east by those of Dordogne and f Lot-Garonne, on the south by the Landes, and on the est by the ocean. It comprehends 4406 square miles, r, according to the Royal Almanac, 1,082,520 hectares. he civil divisions are six arrondissements, forty-eight antons, and 580 communes, containing a population of 54,225 persons. The whole department is a fine level lain, excepting that on the eastern side there are some entle elevations. That division consists of a soil composed f broken tuffstein, fertile sand, and calcareous matter, nd is well cultivated and highly productive; on the west- rn side, and especially towards the south of the depart- ent, the land is either a morass or barren sands, where, or leagues together, no human habitation is visible, and othing to be seen but a few wandering sheep, some cork- rees, and numerous fir-trees. The latter seem to flourish, nd to yield large quantities of turpentine, pitch, and tar.

None of the departments of France is better watered han the Gironde; most of the streams, which are nume- ous, discharge their water into that river which gives its ame to this division of the country. Several of these ivers are navigable, and by their means fuel is conveyed om the woods, which cover one tenth of the surface, to e several cities whose consumption requires it. The hief object of cultivation is the vine; the wine is chiefly ed, known by the names of Medoc, Haut-Brion, St Emil- an, Latour, Lafitte, and Chateaux-Margaux, but by the eneric names of Bordeaux or claret. The most valued hite wines are known as Carbonnieux, Serons, Graves, arsac, Prignac, Sauterne, Baume, and Sainte-Croix-du- ont. The management of the grapes, as well as of the ine, is well understood; and the produce of the vineyards, esides wine, is very considerable in brandy, liqueurs, pirits of wine, and vinegar.

The corn of the department is insufficient for the con- umption; and large quantities, chiefly of rye, are brought om other districts for the maintenance of the poor. here are few horses bred or kept, and the plough is for e most part worked by oxen, which, as well as the cows, re of an indifferent race. The sheep are not numerous, nd commonly afford meat and wool of an inferior quality. esides grapes, the other fruits are abundant, especially hestnuts, almonds, and figs. The other products of the il are cork, stone coal, turf, hemp, and flax. There are mines except those of iron, which yield but little. Table lt is made on the coast, sufficient for the consumption in e œillets of St Vivian, which produce 1200 tons annually. he manufacturing industry is extensive as to the num- er of articles fabricated, but confined chiefly to the city Bordeaux, the capital. The principal goods are linens d cottons, snuff, glass, china and earthen ware, dyestuffs, ather, ironmongery, cordage, and sailcloth. The com- erce exclusively from Bordeaux is extensive, as well the French colonies as to other parts of the world, to hich native commodities are exported, and the produc- ons of such countries returned.

GIROUT, a town of Hindustan, in the province of Alla- bad, and district Etawah. Long. 78. 44. E. Lat. 27. 3. N.

GISBOROUGH, a market-town of the north riding the county of York, in the wapentake of East Langbo- ugh. It is situated at the mouth of the river Tees, here a bay is formed, having good anchorage for ships. his place worked some mines of alum; but the discovery others of greater richness has caused them to be given up. A priory once stood here, richly endowed, but there are no other remains of it except the superb arch of the east window. The narrow vale in which the town stands is highly fertile. The market is held on Saturday, and is well supplied. It is 248 miles from London. The population amounted in 1801 to 1719, in 1811 to 1834, in 1821 to 2180, and in 1831 to 2210.

GITTITH, a Hebrew word occurring frequently in the Psalms, and generally translated *wine-presses*. The conjectures of interpreters are various concerning this word. Some think it signifies a sort of musical instrument; others, that the psalms with this title were sung after the vintage; and others, again, that the hymns of this kind were invented in the city of Gath. Calmet is rather of opinion that it was applied to the class of young women or songstresses of Gath by whom they were sung. Dr Hammond thinks that the psalms with this title were all set to the same tune, and made on Goliath the Gittite.

GIURGEWO, a city of the Turkish province of Nicopoli. It stands on the northern bank of the Danube, and in the principality of Wallachia, but the garrison is Turkish. It has a strong fortress, and the city itself is fortified. The inhabitants amount to 7000, Greeks, Armenians, and Wallachians, with very few Turks, excepting the military, who chiefly reside within the fortress of Turn, which commands the city. Lat. 43. 52. 45. N.

GLACIERS, a name given to extensive fields of ice amongst the Alps. Mr Coxe observes of these mountains in general, that they are composed of many parallel chains, the highest of which occupy the centre, and the others gradually diminish in proportion as they recede from thence. The central chain appears covered with pointed rocks, all parts of which, that are not absolutely perpendicular, lie hid under perpetual snow and ice even in summer. On each side of this ridge are fertile and cultivated valleys, interspersed with numerous villages, and watered by numerous streams. The elevated peaks of the central chain are covered with snow; but their declivities, excepting those which are extremely steep, have all a covering of ice as well as snow; the intermediate parts being filled with vast fields of ice, terminating in the cultivated valleys above mentioned. The same phenomena, though on a smaller scale, occur in those chains which are at a distance from the principal one. In those which are most remote, no ice, and scarcely any snow, is observed, unless upon some of the most elevated summits; and the mountains diminishing in height and ruggedness, appear covered with verdure, until at last they terminate in small hills and plains.

Thus the glaciers may be divided into two sorts; one occupying the deep valleys situated in the bosom of the Alps, and distinguished by the name of ice valleys; the other being those which clothe the declivities and sides of the mountains. These two kinds of glaciers are distinguished by Mr Coxe into the upper and lower glaciers.

The lower glaciers are by far the most considerable, some of them extending several leagues in length. They do not communicate with each other, as has been generally supposed, few of them being parallel to the central chain; but, stretching mostly in a transverse direction, they are bordered at the higher extremity by inaccessible rocks, and at the lower extend into the cultivated valleys. The thickness of the ice varies in different parts. In the Glacier des Bois, which extends more than fifteen miles in length, and upwards of three in breadth, Saussure found it generally from eighty to a hundred feet; but he was credibly informed, that in some places it was not less than six hundred feet, and even more. These vast masses of ice usually rest on an inclined plane; where, being pushed forward by their own weight, and but weakly supported by the rugged rocks beneath them, they are intersected by large crevices, and have an appearance of walls, pyramids, and the like, according to the position of the eye in viewing them. In those parts, however, where they lie upon even ground, or have only a gentle inclination, the surface of the ice is nearly uniform, the crevices being few and narrow, and the glacier being crossed by travellers on foot without any difficulty. The surface of the ice is rough and granulated, so that people may walk upon it, excepting at such places as have a steep descent. It is opaque, full of small bubbles about the size of a pea, very porous, and greatly resembles a mixture of snow and water congealed. A vast quantity of stones and earth falls down from the mountains upon the glaciers, and is by them thrown off on each side according to the descent of the ice. The place upon which these rest is harder and more elevated than the rest of the ice, and is very difficult to walk upon; the earth is likewise laid upon them in such regular heaps, that it appears to have been done by art. This collection of earths and stones is termed by the natives the *moraine*.

The upper glaciers may be subdivided into those which cover the summits, and those which extend along the sides of the Alps. Those upon the very summits, however, though they have the appearance of ice, are not so in reality, but consist entirely of snow hardened by the extreme cold. Saussure found that which covered the top of Mont Blanc to be penetrable, though with difficulty, by a stick; but below this hard crust was a soft snow without coherence. The sides are covered with a mixture of ice and snow, produced by the power of the summer sun in dissolving the snow, which afterwards congeals into hard ice.

Several conjectures have been hazarded concerning the formation of these extraordinary bodies of ice. Coxe agrees with Gruner in opinion, that they are produced by the continual dissolution of the snow in summer, and its congelation by the succeeding frosts. Hence, on the summits of the mountains, where the sun has very little power, the glacier is soft, and contains no ice; but as we descend the mountains the consistence becomes firmer, because there is a considerable mixture of snow water, the congelation of which augments the hardness; and in the valleys, the glacier is hardest of all, because the portion of water is there much superior to that of the snow. Hence it seems plain that the glaciers derive their origin from the melting of the snow on the upper parts of the mountains, and the congelation of the water as it advances; and to this cause Saussure adds the quantity of snow which often rolls down into the valleys, and congeals along with the water just mentioned.

GLACIS, in building, an easy gradual slope or declivity.

Glacis, in *Fortification*, that mass of earth which serves as a parapet to the covered way, sloping easily towards the champaign or field.

GLADBACH, a town of Prussia, in the government of Cleves, and the capital of a circle of the same name. It is a place which has grown up in a few years to great manufacturing prosperity. It makes large quantities of linen and cotton goods, and many silks; and though within the town the inhabitants do not exceed 2000, yet the villages in contact with it, and forming the suburbs, contain more than 5500 persons.

GLADIATORS, in *Antiquity*, persons who fought chiefly in the arena of the amphitheatre at Rome, for the entertainment of the people. The gladiators were generally slaves, and fought from necessity; though sometimes freemen took to the same profession, like our prize-fighters, for a livelihood. The Romans borrowed this cruel diversion from the Asiatics; and some suppose that there was policy in the practice, the frequent combats of gladiators tending to accustom the people to despise danger and death.

The origin of these combats seems obvious. From the earliest times it had been the custom to sacrifice captives, or prisoners of war, to the manes of the great men who had died in battle. Thus Achilles, in the *Iliad* (lib. xxiii.), sacrificed twelve young Trojans to the manes of Patroclus; and in Virgil (lib. xi. ver. 81), Æneas sent captives to Evander to be sacrificed at the funeral of his son Pallas. But in process of time they came also to sacrifice slaves at the funerals of all persons of condition; and this was even esteemed a necessary part of the ceremony; but as it would have appeared barbarous to massacre them like beasts, they were appointed to fight with each other, and to endeavour to save their own lives by killing their adversary. This seemed somewhat less inhuman, because there was a possibility of avoiding death, by an exertion of skill and courage. The profession of gladiator thus became an art; and hence arose masters of the art, men learned in fighting and exercise. These masters, whom the Latins called *lanistæ*, bought slaves to be trained up to this cruel trade, and afterwards sold them to such as had occasion to present the people with so horrible a show.

The exhibitions were at first performed near the sepulchre of the deceased, or around the funeral pile; but they were afterwards removed to the circus and amphitheatres, and became ordinary amusements. The first show of gladiators, called *munus gladiatorium*, was, according to Valerius Maximus, exhibited at Rome by Marcus and Decius Brutus, upon the death of their father, in the year of the city 490. On this occasion there were probably only three pairs of gladiators. In 537 the three sons of M. Æmilius Lepidus the augur, who had been thrice consul, entertained the people with the cruel pleasure of seeing twenty-two gladiators fight in the forum. In 547, the first Africanus diverted his army at New Carthage (Carthagena), with a show of gladiators, which he exhibited in honour of his father and uncle, who had begun the reduction of Spain. In process of time the Romans became so fond of these bloody entertainments, that not only the heir of any great and rich citizen lately deceased, but all the principal magistrates, presented the people with shows of this nature, to procure their favour. The ædiles, prætors, consuls, and, above all, the candidates for offices, made their court to the people by entertaining them frequently with these fights; and even the priests were sometimes exhibitors of these barbarous shows; for we meet with the *ludi pontificales* in Suetonius (*August.* cap. 44), and with the *ludi sacerdotales*, in Pliny (*Epist.* lib. vii.). As for the emperors, it was so much their interest to ingratiate themselves with the populace, that they obliged them with combats of gladiators upon almost all occasions; and as these multiplied, the number of combatants likewise increased. Accordingly, Julius Cæsar, in his ædileship, diverted the people with the exhibition of three hundred and twenty couples. Titus exhibited a show of gladiators, wild beasts, and representations of sea-fights, which lasted a hundred days; and Trajan continued a solemnity of this nature for a hundred and twenty-three days, during which time he brought out a thousand pairs of gladiators. Before this time, and under the republic, the number of gladiators was so great, that when the conspiracy of Catiline broke out, the senate ordered them to be dispersed into the garrisons and secured, lest they should join the disaffected party.

These sports at length became so common, and their consequences in a variety of respects proved so dangerous, that Cicero caused a law to be enacted that no person should exhibit a show of gladiators within two years before he appeared as a candidate for any office. Julius Cæsar gave orders that only a certain number of men of this profession should be in Rome at a time; Augustus decreed that only two shows of gladiators should be presented in a year, ators

nd never above sixty couples of combatants in a show; nd Tiberius provided by an order of senate, that no per- on should have the privilege of gratifying the people ith such a solemnity unless he was worth 500,000 ses- erces. The same exhibitions were also regulated by Ner- a. The Emperor Claudius restrained them to certain ccasions; but he soon afterwards annulled what he had ecreed; private persons began to exhibit them as usual, nd some carried the brutal satisfaction so far as to have nem at their ordinary feasts.

The master of the gladiators made them all swear that ney would fight to death; and, if they failed, they were ut to death by fire, swords, clubs, whips, or the like. It as a crime for the wretches to complain when they were ounded, or to ask for death or seek to avoid it when vercome; but it was usual for the emperor or the people grant them life when they exhibited no signs of fear, ut waited the fatal stroke with courage and intrepidity. ugustus even decreed that life should always be granted nem.

From slaves and freemen the inhuman sport at length pread to people of rank and condition; so that Augustus as obliged to issue an edict providing that none of the enatorian order should become gladiators; and soon after- ards he imposed the same constraint on the knights. evertheless Nero is related to have brought upwards of ur hundred senators and six hundred Roman knights pon the arena; though Lipsius supposes both these num- ers to be falsified, and not without reason reduces them forty senators and sixty knights. But Domitian refined n the practice of Nero, and exhibited combats of women the night time.

Constantine the Great is said to have first prohibited ne combats of gladiators in the East; at least he forbade nose who were condemned to death for their crimes eing employed in these exhibitions; and there is still xtant an order to the *præfectus prætorii*, dated at Bery- us in Phœnicia the 1st of October 325.

The Emperor Honorius forbade them at Rome on occa- on of the death of Telemachus, who coming from the East Rome at the time of one of these spectacles, went down to the arena, and used all his endeavours to prevent the ladiators from continuing the sport; upon which the spec- tors of the carnage, fired with indignation, stoned him to eath. It must be observed, however, that the practice as not entirely abolished in the West before the time of heodoric king of the Ostrogoths. Honorius, on the oc- sion first mentioned, had prohibited them; but the pro- ibition does not seem to have been enforced. Theo- oric, in the year 500, finally abolished them.

Some time before the day of combat, the person who resented the people with these shows gave notice of his ntention by programmes or bills, containing the names f the gladiators, and the marks by which they were to e distinguished; for each had his peculiar badge, which as commonly a peacock's feather, as appears from the choliast of Juvenal on the 158th verse of the third satire, nd also from Turnebus (*Advers.* lib. ii. cap 8). They lso gave notice how long the shows would last, and how nany couples of gladiators were to exhibit; and it even ppears, from the seventh satire of the second book of Ho- ace, that they sometimes made representations of these nings in painting, as is practised among us by those who ave any thing to exhibit at fairs.

The day being come, they began the entertainment by ringing two kinds of weapons; the first being staves or ooden foils, called *rudes*, and the second effective wea- ons, as swords, poniards, and the like. The first were alled *arma lusoria*, or *exercitoria*; the second *decretoria*, s being given by decree or sentence by the prætor, or by nim at whose expense the spectacle was exhibited. They began to fence or skirmish with the first, which usually formed the prelude to the battle; and from these, when well warmed, they advanced to the second at the sound of the trumpets, with which they fought naked. Then they were said *vertere arma*. The terms of striking were *petere et repetere*; of avoiding a blow, *exire*: and when one of the combatants received a remarkable wound, his adversary or the people cried out, *Habet*, or *hoc habet*. The first part of the engagement was called *ventilare, præludere*; and the second, *dimicare ad certum*, or *versis armis pugnare*; and some authors think, with much probability, that it is to these two kinds of combat that St Paul alludes in the passage (1 Cor. ix. 26, 27) where he says, "I fight not as one that beateth the air; but I keep my body, and bring it into subjection."

If the vanquished surrendered his arms, it was not in the victor's power to grant him life; it was the people during the time of the republic, and the prince or people during the time of the empire, who were alone empowered to grant this boon. The reward of the conqueror was a branch of palm tree, and a sum of money, probably collected amongst the spectators; sometimes they gave him his congé, or dismissed him by putting one of the wooden foils or *rudes* in his hand; and sometimes they even granted him his freedom, putting the pilæus on his head. The sign or indication by which the spectators showed that they granted the favour, was *premere pollicem*, which M. Dacier takes to be a clenching of the figures of both hands between one another, and so holding the two thumbs upright, close together; and, when they desired to have the combat finished and the vanquished slain, *verterunt pollicem*, they bent back the thumb, as we learn from Juvenal. (Sat. iii. ver. 36.) The gladiators challenged or defied each other by showing the little finger; and, by extending this, or some other, during the combat, they owned themselves vanquished, and begged mercy from the people. *Victi ostensam digiti veniam a populo postulabant*, says the old scholiast on Perseus.

Glamorganshire.

GLAMORGANSHIRE, a county of South Wales, stretching, in a circular line, along the northern shore of the Bristol Channel, from east to west about forty-two miles, and extending to the mountains in some parts to the distance of twenty-two or twenty-three miles. It is bounded on the north by Caermarthen and Brecknock, on the east by Monmouthshire, and on the south and west by the Bristol Channel. Its whole area is 822 miles, or 526,080 statute acres, in which are included the watercourses, roads, and sites of buildings, which occupy a large surface.

The county may be divided into two districts of a very opposite character, according to the nature of the soil, rather than into those ten hundreds by which its parts are politically denominated. About one half the county, on the sea-shore, is rich and fertile land, and produces excellent crops of wheat, oats, beans, and barley. The soil is generally of moderate consistence, and of a loamy nature, some parts being mixed with clay, others with sand, and almost all resting on a calcareous substratum. It is easily ploughed, very friable, and, when laid down in grass, yields excellent herbage, by which many cattle are fattened, and much good butter is made. The manure principally used is lime, which is rendered very cheap from the vicinity of coals to the limestone district.

The inland part of the county rises gradually from hills to mountains, and in that district the agriculture is in a very backward state. The soil between these hills and mountains is composed generally of a black peat, but sometimes of a brown gravelly earth. Lime applied to the former is beneficial for a few years, but its good effect then ceases; and having but little cattle to make manure, and that manure being neglected to be preserved with due

Glamorganshire.

care, the agricultural produce of the district is insufficient for the subsistence of the inhabitants. On some of the mountain farms the land is sowed with corn as long as it will yield any increase without fallow or manure, and when so far exhausted it is left without cultivation for many years. Much of the unenclosed mountain tract is devoted wholly to feeding sheep, and the occupiers of land around them having rights of common without stint, so overstock them, that the animals seldom attain their full growth; but when removed to better pasture, and fattened, their mutton is excellent. The farms are mostly of very small value, varying in rent from L.5 to L.200 annually; the average of the whole is not L.50, though in many instances the rent has been tripled, and even quadrupled, within the last twenty years. The ploughing is generally executed by oxen, and their ploughs being of clumsy construction, sometimes six or eight are used to perform the work, and yet perform it ill; in some cases two, in others four, are harnessed to plough with two horses before them. The most commendable part of the rural economy of the county is the construction of the houses, barns, and other farming erections. These are solidly and substantially built, and being uniformly white-washed on the outside, have a clean and neat appearance.

The agriculture of this county, valuable as it is in the more southern part, is the least productive source of its riches. The greater part of it abounds with minerals, which, owing to the great extension of good roads, of navigable canals and railways, within the last few years, have become a most important source of wealth. The northern and middle parts of the county comprehend a portion of that great mineral tract which begins at Pontypool in Monmouthshire, and terminates at St Bride's Bay in Pembrokeshire. The exterior stratum or boundary consists of a bed of limestone, within which are contained all the strata of the other minerals in the following position. On the north side of a line drawn from east to west through the middle of the district, all the strata rise gradually to the north, and on the south side of the same line they rise to the south till they come to the surface, except at the east end, where they rise to the eastward. In the centre of this tract, the iron and coal mines in the vicinity of Myrthr-Tydvil are both the richest and most abundant. The whole of the coal is at the depth of 440 feet beneath the surface of the ground, which is composed of argillaceous strata, with occasional veins of hard rock. The coal is about fifty-two feet deep, the thickness of the veins varying from twelve inches to nine feet in thickness. The ironstone lies under the stone at a depth of about 108 feet, and is separated by argillaceous earth and stone into eighteen different veins, each about four feet ten inches in thickness. When this ore is smelted, it yields iron to the amount of three tenths of the weight of the ore.

Coal is found in vast quantities both in the north and south divisions of the county, but of different natures. That in the south is of the bituminous kind, or coaking coal, like the coals of Newcastle. That of the north (when large, called stone-coal and small culm) is difficult to kindle, burns slowly, but emits an intense heat with little or no smoke, and without being distended. This latter is principally used by the maltsters and lime-burners.

Although the abundance and excellence of the coal and iron have caused the erection of blast-furnaces in many parts of the county, yet the largest and most numerous are those near the recently-built town of Myrthr-Tydvil, which, within a few years, has grown up from an obscure village to be the most populous village in the whole principality of Wales, and contained, in 1811, 11,000, and in 1831, 22,000 inhabitants.

There are seventeen blast-furnaces near this place, each of which can make from 100 to 180 tons of iron weekly. The most extensive of the works, that of Cyfartha, belonging to Messrs Crawshay and Company, produce annually upwards of 20,000 tons of pig-iron, and somewhat more bar-iron. The fires of the furnaces are blown by a steam-engine of fifty horse power, and an overshot wheel of fifty feet in diameter, which requires twenty-five tons of water each minute to keep it at work. The number of men employed at Messrs Crawshay's work is from 1500 to 2000, making, with their families, more than three thousand persons, whose yearly wages amount to more than L.140,000.

The next considerable manufactory is that commonly called tin plates. The cheapness of iron and coal causes the tin of Cornwall to be sent here, and spread over those iron plates, which are afterwards dispersed all over the world.

In like manner, the copper ore from Cornwall, from North Wales, and from Ireland, is attracted to Glamorganshire by the cheapness of coal; and it is smelted in works upon a most extensive scale, in the vicinity of Aberavon, Neath, and Swansea, whence it is forwarded by water-carriage to the places where it receives its final appropriations to the several purposes for which it is wanted. There are some extensive manufactories of earthen ware, which are increasing in their operations; and small concerns adapted for making soap, salt, and woollen cloths.

The most considerable exported production from this county is coals from the ports of Swansea and Neath. At the former of these ports, the facility of loading vessels is so great, that ships of three hundred tons burden enter with one tide, are loaded and enabled to sail sometimes the next, but usually the next tide but one. The quantity annually exported amounts to about 450,000 tons, and more might be shipped, but for some superior privileges in the city of Bristol, which favour the coal-mines of Monmouthshire and Gloucestershire.

The rivers of Glamorganshire are, 1*st*, The Taf or Tave, over which is the celebrated bridge of one arch, supposed to be the largest in the world, being one hundred and forty feet in the span, planned and executed by an untaught country mason, a native of the county; 2*d*, the Elay, a stream of short course, near Llantrissent; 3*d*, the Ogmore, crossing the county, and entering the sea near Bridgend; 4*th*, the Nedd or Neath, passing from Brecknockshire, through most romantic valleys, by Neath, to the sea at Britton Ferry; and, 5*th*, the Tawy, which discharges itself into Swansea Bay.

As these rivers are scarcely navigable, and the two which are so, but for a short distance, canals have been constructed for the conveyance of the heavy productions of the county, and have produced a wonderful effect both on its wealth and population. These are the Cardiff Canal, which affords water-carriage from Myrthr-Tydvil to Penarth Bay; the Neath Canal, which traverses the county from south to north; and the Swansea Canal, which runs to the north till it reaches Brecknockshire. The number of railroads communicating between the iron-works and coal-mines and the canals are too numerous to admit of being enumerated, and have proved very beneficial undertakings both to the constructors and to the public.

The peasantry of this county generally use the Welsh language, and either cannot or will not speak English. In the towns, however, the latter is very commonly spoken, and in the churches the service is occasionally conducted in it. There is, however, a portion of the county, to the south of the mountains round Oxwich Bay, where the Welsh language is quite unknown, whilst, on the opposite side of the same mountains, the inhabitants are unacquainted with English.

Glamorganshire returns to the House of Commons two members for the county, and one for the newly created rough of Myrthr-Tydvil, and also one for the old united roughs of Cardiff, Cowbridge, and Llantrissent. The pulation returns of the four decennial censuses give the habitants in 1801, 71,525; in 1811, 85,067; in 1821, 1,737; and in 1831, 126.200.

The county town is Cardiff, and it is the chief place r shipping the iron of Myrthr-Tydvil. Its pier is now cessible for ships of two hundred tons, but some imovements are in progress which will enlarge the harbour, d adapt it for the reception of vessels of a greater draught water than can now reach it. The chief towns, and eir population, are as follow :—Myrthr-Tydvil, 22,083; vansea, 13,256; Cardiff, 6187; Neath, 4034; Llansamlet, 87; and Llantrissent, 2789. Landaff, though a city and e seat of a bishop, has only 1299 inhabitants.

As the picturesque beauty of many parts of the county very great, it has ever been the favourite resort of many milies of respectability. That it was so in ancient times, e number of ruins of ancient castles clearly evince; and w parts of the island, excepting the immediate vicinity the metropolis, have so many gentlemen's seats within em. The principal of these are, Gnoll Castle, the seat the Mackworths, now Mr Grant; Cardiff Castle, Maris of Bute; Dunraven, Thomas Wyndham, Esq.; nlline Castle, Lord Vernon; Margram, Mr Talbot; assmont, Sir John Morris; Southall, John Lucas, Esq.; llyhir, Sir Gabriel Powell; Penllergaer, John Llewelyn, q.; Penrice Castle, R. M. Talbot, Esq.; Woodlands, eneral Ward; and Penderi, Thomas Morgan, Esq.; with ny others.

(See Rees's *South Wales;* Malkin's *Scenery of South ales; Parliamentary Returns.*)

GLAMOUR, or **GLAMER**, an old term of popular surstition in Scotland, denoting a kind of magical mist, lieved to be raised by sorcerers, and which deluded the ectators with visions of things that had no real existce, altered the appearance of those which really did ist, and produced other effects equally wonderful. The stern nations have a similar superstition, as we learn om the Arabian Nights Entertainments, and other works oriental fiction.

GLANVILL, or **GLANVIL, JOSEPH**, was born at Plyouth in 1636. He received his education in the unirsity of Oxford, and, in 1666, obtained the cure of bey-church at Bath; in 1678, he became prebend of e church of Worcester, and died at Bath on the 16th of ovember 1680, in the forty-fourth year of his age. This iter, the first who, in England, presented philosophical epticism under a systematic form, deserves more marked tention than has hitherto been accorded to him; nor can e observe without surprise that Brucker has not given m any place in his *Critical History of Philosophy.* There e two kinds of scepticism, essentially distinct; one which, professing absolute doubt, tends to condemn human ason to a mortal lethargy; and another which, produng only a relative doubt, serves rather to excite reason, a wise distrust of itself, to more severe and rigid examination. The first is only an arm of destruction; the cond is an instrument of censure and probation. It was is latter kind of scepticism to which Glanvil wished to ve systematic preparation, by tracing out an intermeate path between that dogmatism which blindly affirms ery thing, and Pyrrhonism, which denies every thing a manner equally blind. Two parties then existed in ngland; one of which abused the name of philosophy, order to accredit atheism, and the other abused the me of religion, in order to justify superstition. Glan- deplored this double aberration; he felt that philosoy itself required a reform, and he laboured to prepare ther than to produce it himself. It is in this light, and om this point of view, that his writings should be studied and judged. Of these, the two principal, both in English, are, first, *The Vanity of Dogmatising*, or Confidence in Opinions, manifested in a Discourse of the shortness and uncertainty of our knowledge of its principles, with Reflections on Peripateticism, and an Apology for Philosophy, 1661, in 8vo; and, secondly, *Scepsis Scientifica*, or confessed Ignorance the way to Science, an essay on the vanity of dogmatising, and confident opinion, London, 1665, in 4to. The latter of these works procured him the honour of being admitted a member of the Royal Society of London. Montaigne and Charron appear to have served as his guides, and he has borrowed much from both; he reviewed the principal objects of human knowledge, and endeavoured to show, in regard to each of these, the weakness and impotence of reason. The peripatetic doctrine, and the system of Descartes, which he appears to have especially had it in view to combat, themselves furnished him with arms; and in the rapid advancement of physical science at this period, he also endeavours to discover grounds for rendering more sensible our ignorance in the study of nature. Hobbes is the frequent object of his criticism. In general he seeks to prevent the abuse of rational speculations; and it is only in the observations to which they have led that he seeks for considerations fitted to inspire the distrust which he inculcates. His views respecting the sources of human error are presented with much perspicuity and method, often with striking novelty. The manner in which he treats the great question of causation is the more remarkable, because it appears to have opened the way to Hume in an investigation which has produced one of the greatest revolutions which philosophy has experienced in our time. According to him, we know only that things occur, and succeed one another, not how they are produced; we see their relation of coincidence, but not the tie which connects them; and hence the relation of the effect to the cause is, as far as we are concerned, a fact, and not a veritable law. Glanvil compares dogmatism to a narrow prison, in which the human mind is confined, and beyond the walls of which it cannot extend its view. The offspring of ignorance and of pride, dogmatism is, according to him, the father of errors; and scepticism is called in to apply a remedy, not by employing negations as arbitrary, but by weighing with impartiality the proofs. Doctrine like this was, however, liable to be mistaken or misrepresented; and we need not wonder, therefore, that, at the period when Glanvil wrote, he was considered by the greater number of readers as an absolute sceptic, and treated as such. The partisans of the prevailing systems regarded with more aversion the men who provoked discussion, than they did those persons who rejected their doctrines without examination. Hence Glanvil was very warmly attacked; but he justified himself in his answer to one of his opponents, which is subjoined to his *Scepsis Scientifica;* and he also undertook the defence of philosophy, conceiving that this belonged of right to those who desired to bring her back to her proper and legitimate sphere. It is singular enough, however, though by no means without example, that this writer, who had not only shown, but even exaggerated, the infirmity of human reason, paid himself a strange tribute to its weakness; for, after having combated scientific dogmatism, he not only yielded to vulgar superstitions, but actually endeavoured to accredit them in his Philosophical Considerations concerning the existence of Sorcerers and Sorcery, published in 1666, in 4to. The story of the pretended drum, which was said to have been heard every night in the house of an inhabitant of Wiltshire (Mr Mumpesson), a story which made much noise in the year 1663, and which is supposed to have furnished Addison with the idea of his comedy of the *Drum*, appears to have given occasion to this work. It might have been imagined that such a tale would have been treated with derision by Glanvil, and that the philosopher could have had no other object than to turn into ridicule the credulity of his country. For such a supposition, however, there seems to be little or no room, and, in point of fact, this production gave rise to a controversy, which only terminated with the life of Glanvil. At his death he left a piece entitled *Sadducismus Triumphans*, which was printed in 1681, 8vo, reprinted with some additions in 1682, and translated into German in 1701. He had there collected twenty-six relations or stories of the same description as that of the Drum, in order to establish, by a series of facts, the opinion which he had expressed in his Philosophical Considerations. Glanvil supported a much more honourable cause when he undertook the defence of the Royal Society of London, under the title of *Plus ultra*, or the Progress and Advancement of Science since the time of Aristotle, 1658, in 12mo. His object was to refute a foolish ecclesiastic who had alleged that Aristotle possessed individually more knowledge than could be found in the Royal Society, or even in all the men of the seventeenth century. By this production he drew upon himself a violent antagonist in the person of one Stubbe, a physician at Warwick; but, after an animated dispute, the doctor, by some mischance, lost his life, and his generous antagonist, in a funeral sermon which he preached on the occasion, pronounced an eulogium on his memory. Besides the works already noticed, Glanvil wrote, 1. Lux Orientalis, 1662; 2. Philosophia Pia, or Discourse on the Religious Character, and the Tendency of Experimental Philosophy; 3. Essays on several important subjects in Philosophy and Religion, 1676, in 4to; 4. An Essay concerning Preaching; and 5. Sermons. After his death in 1681, there were published sermons and other posthumous works in one volume 4to. The style of Glanvil is clear, easy, and animated; and to the student of the philosophy of the human mind his works are full of instruction. (A.)

GLARUS, one of the Swiss cantons, is bounded on the north and on the east by St Gall, on the south by the canton of Gray Bunden, and on the west by those of Uri and Schwytz. It extends over 467 square miles, and contains 26,570 inhabitants. The canton consists of two valleys between the snow-covered mountains Todi, 11,037, and Kistenberg, 10,690, feet in height, towards the south; and towards the north the mountains of less elevation, viz. the Garn, the Hausstoch, the Martinsloch, the Plattenburg, and the Schilt, which vary from 6300 to 8800 feet in height. Although the valleys are narrow, they are moderately fertile; but the chief supply for subsistence is derived from the pasture on the mountains, on which, during the summer season, more than 10,000 cows and 5000 sheep are fed. Though the small portion of arable land is well cultivated, it does not produce sufficient corn for the consumption of the inhabitants; but the deficiency is made up partly by potatoes and fruit, and partly by the exchange of Schabzuger cheese and wood, for what is wanted. A part of the inhabitants find employment in manufactures of woollen and cotton, of hosiery and caps, and in what was formerly of greater consumption than at present, namely, making slates for writing, which are sent by the Rhine to Holland. The government is a pure democracy, in which all the inhabitants who possess property have an equal share of political power, and equally assist in defending their country. The executive magistrate is the landamman. The religion is partly Protestant reformed, and partly Catholic. Those of the former sect are the majority, and choose all the magistracy for five years, and the latter for three years. When the Catholics are chosen to offices, they are selected by the Protestants; and when the Protestants' turn comes, the individuals are nominated by the Catholics. The two sects have their separate tribunals in civil and criminal matters. This canton contributes to the general confederacy 1615 francs yearly, and provides a contingent of 482 men for the common defence of the states.

GLARUS, a town, the capital of the Swiss canton of that name, is situated under the mountain Garnish, which is nearly 9000 feet in height. It contains about 3000 inhabitants, who are employed in various manufactures. The general assembly of the cantons is held in a meadow near the town. Long. 8. 57. 50. E. Lat. 47. 2. 43. N.

GLASGOW,

A GREAT commercial and manufacturing city of Lanarkshire, in Scotland, situated on the northern bank of the river Clyde. According to the determination of Dr Wilson, formerly professor of astronomy in the university of Glasgow, the latitude and longitude of the Macfarlane Observatory, in the College Garden of Glasgow, are, 55° 51′ 32″ north, and 4° 17′ 54″ west. Glasgow is therefore nearly eight miles farther south than Edinburgh, and 1° 1′ farther west. The difference between the clocks in Edinburgh and Glasgow is 4′ 27″·4.

See of Glasgow.—There is no authentic record of the origin of Glasgow. Its name in the Gaelic language is interpreted by some as signifying a grey smith, whilst others think it means a dark glen, in allusion to the ravine near the cathedral, where a primary settlement appears to have been made. Although Glasgow was an early seat of the church, historians do not agree as to the time when the see was founded. That it was next to St Andrews in point of antiquity is beyond all doubt. With regard to its founder, Kennet, in his *Parochial Antiquities*, says, it was instituted by Kentigern or St Mungo, in the year 560. Dr Kelyn, speaking of the see of St Asaph in Wales, observes that "the see was founded by St Kentigern, a Scot, in 583," and that "St Kentigern was then Bishop of Glasgow." From these authorities it may be inferred that St Mungo founded the see of Glasgow, and became the first bishop; and that when a cathedral of sufficient grandeur was finished, it would be dedicated to St Mungo. Baldrade, St Mungo's disciple, who founded a religious house at Inchinnan, is said to have succeeded him in the bishopric. There is no record of the town or of the see for more than five hundred years after this period. This great blank cannot be accounted for with any degree of certainty. Amongst other conjectures, there is one, that the church had been destroyed by the ravages of the Danes, who murdered or drove off the religious persons who had settled in Glasgow.

In the year 1115, David prince of Cumberland refounded the see; and having in the year 1124 succeeded his brother Alexander I. on the throne of Scotland, he promoted his chaplain, John Achaius, to the bishopric in 1129. In 1133 the cathedral was solemnly consecrated in presence of the king, who endowed it with the lands of Partick. In 1165 Pope Alexander III. issued a bull commanding the faithful to visit the cathedral of Glasgow. In 1176 Bishop Joceline enlarged the cathedral, and rebuilt a part of it in a style more magnificent than formerly. In 1300 Edward I. of England, assuming authority in Scotland, appointed Anthony Beik to the see of Glasgow; and at the same period Earl Percy took possession of the episcopal palace. This had no sooner taken place than Sir William Wallace, with his friend James Cleland, and a few chosen followers, indignant at the usurpers, gave them battle in the High

Seet, when Lord Percy was killed, and the English route In the year 1426 Bishop Cameron established the cnmissary court, and increased the number of prebendies of the cathedral to thirty-two. In 1450 Bishop Turnbl obtained a charter from James II. erecting the town a patrimony of the bishopric into a regality. In 1488, tt is, in Bishop Blackadder's time, the see of Glasgow ws made archiepiscopal. This bishop, along with the Earl o Bothwell, negotiated a marriage between King James I. of Scotland, and the Lady Margaret, eldest daughter o King Henry VII. of England, which they brought about, tthe mutual satisfaction of both kingdoms. This union ll the foundation of the title of the Scottish kings to the Eglish throne, to which in right of proximity of blood Kg James VI. of Scotland succeeded upon the demise o Queen Elizabeth.

The revenues which had been granted from time to time i support of the splendour of the see of Glasgow were vy considerable. The archbishops were lords of the lordsps of the royalty and baronies of Glasgow ; besides, there wre eighteen baronies of land which belonged to them whin the sheriffdoms of Lanark, Dumbarton, Ayr, Renfw, Peebles, Selkirk, Roxburgh, Dumfries, and the Stewary of Annandale, including 240 parishes. There was a a large estate in Cumberland within their jurisdiction, wich was named of old the spiritual dukedom. When the s was made archiepiscopal, jurisdiction was given over t bishops of Galloway, Argyle, and the Isles. At the l formation in 1560 Archbishop Beaton retired to France, ting with him all the relics, documents, and plate which ptained to the see and the archbishopric. Since the renation of the see there have been twenty-six Roman Catlic bishops; the first, John Achaius, elected in 1129, al the last, George Carmichael, in 1483: and four Rorn Catholic archbishops; the first, Robert Blackadder, i 1488, and the last, James Beaton, in 1551. From the l formation till the Revolution the church in Glasgow vs governed by fourteen Protestant archbishops; the ft, James Boyd, elected in 1572, and the last, John Patson, in 1687.

Corporation of Glasgow.—Glasgow was governed by a povost and bailies as early as the year 1268. In 1605 t constitution of the burgh was settled in three distinct ldies, viz. the town council, the merchants', and the trades' luses. The town council consisted of certain persons from t ranks of the merchants and trades. In 1801 some altation was made in the constitution; and from that perd till 1832 the corporation consisted of a provost, five llies, twelve councillors from the merchants and eleven tm the trades, a master of work, and a treasurer; the rbal and water bailie were chosen from the council, who cted themselves. One third went out of the council ery year, and could not return for three years. The rchants' house sent a list of three persons to the coun, from which they elected one to be dean of guild; and i the same manner the trades' house, when one of the tree was elected convener.

In 1832, after the passing of the burgh reform bill, the vn council was chosen by the parliamentary constituency, nsisting of upwards of 7000 persons who paid an yearly nt of L.10 and upwards. The city is divided into five rds, each ward electing six councillors. The dean of ild and convener are elected by their respective houses. hen added to the councillors, they elect a provost, five ilies, a treasurer, and master of work; one third of the uncillors go out of office every year, but may be immeately re-elected. The revenue of the city varies from 15,000 to L.16,000.

Previously to the passing of the reform bill the burghs Glasgow, Renfrew, Dumbarton, and Rutherglen elected e individual to represent them in parliament; but since that bill has been in operation, the above-mentioned constituency for Glasgow returns two members to parliament.

Progressive Population.—There is no enumeration of the inhabitants of Glasgow that can be relied on before the year 1610 ; but there are grounds for supposing that about the time of the Reformation, in 1560, the population amounted to 4500. In 1610 when the episcopal form of government was resumed in the church, Archbishop Spottiswood directed the population to be ascertained, upon which it was found to amount to 7644. In 1660, at the restoration of Charles II., it amounted to 14,678. In 1688, at the Revolution, the population had decreased to 11,948. This diminution has been accounted for by the civil war, during which a number of the inhabitants were driven into exile. In 1708, immediately after the union with England, it amounted to 12,766. In 1712 the convention of royal burghs directed a census of the population to be taken, when it amounted to 13,832. In 1740 the magistrates ascertained it to be 17,034. In 1755 the population was 23,546 ; this was ascertained for the Reverend Dr Webster, then preparing his scheme for the Widows' Fund of the Church of Scotland. In 1763 Mr John Woodburn, the city surveyor, found it to be 28,300. In 1780 it had increased to 42,832 ; but in this enumeration all the suburbs were for the first time included. In 1785, soon after the American war, the population amounted to 45,889. In 1791 the population having been ascertained for Sir John Sinclair's national statistical work, amounted to 66,578, including 4633, a part of the suburbs which had been omitted in the return. Previously to 1801 the general results only were preserved, but in that year government for the first time caused a census to be taken, and the population was found to be 77,385, viz. males 35,007, females 42,378. In this enumeration a part of the population of the suburbs was not included; but if it had been added, the amount would have been 83,769. In 1811 there was another government enumeration, according to which the population amounted to 100,749, viz. males 45,275, females 55,474. In 1819 Dr Cleland drew up the first classified enumeration of the inhabitants of Glasgow, according to which the population amounted to 147,197, viz. males 68,994, females 78,203. In 1821 there was another government enumeration, when the population amounted to 147,043, viz. males 68,119, females 78,924. In 1831, at the last government census, the population was 202,426, viz. males 93,724, females 108,702. The population of Glasgow and its suburbs may now, after three years increase, be taken at about 220,000.

Glasgow Bills of Mortality.—As the Glasgow bills of mortality, from which the probability of human life in large towns, and other important results, may be deduced, have met with unprecedented celebrity, we think it right to give a detailed account of the manner in which these bills have been prepared. Bills of mortality are understood to contain a list of births, marriages, and deaths, taken from parochial registers at stated periods, in connection with the population. The parochial register of births in Glasgow being so defective that no reliance could be placed on it, Dr Cleland, to whom the country is indebted for the Glasgow bills, obtained the necessary information in the following manner.

On the 6th of December 1829, he addressed a letter to each of the seventy-five clergymen and lay pastors in the city and suburbs who baptize children, requesting to be favoured with returns of the numbers they might baptize from the 14th of December 1829 to the 15th of December 1830, both days inclusive, being the year previous to the last government census. The letter was accompanied by a book, in which the sexes, and the particular parishes in which the parents resided, were to be inserted. He also requested the various societies of Baptists, the Society of

Friends, and Jews and others, who do not dispense the ordinance of baptism to infants, to favour him with the above particulars relative to children born to members of their societies; and at maturity he had the satisfaction of receiving returns from the whole; as also an account of the children of parents who, whilst disapproving of infant baptism, did not belong to any religious society. It appeared, that in the city and suburbs there were 6397 children baptized, or born to Baptists, &c. and of that number there were only 3225 inserted in the parochial registers, leaving unregistered 3172.

Although in Scotland there is no marriage act, as in England, restricting the solemnization of marriages to clergymen of the established church, this ordinance can only be regularly celebrated by persons duly called to the pastoral office, and not until a certificate of the proclamation of banns has been produced. Persons irregularly married are deprived of the privileges of the church till they appear before the kirk-session, acknowledge their fault, and be reponed or restored. From this circumstance, in connection with the solicitude of the female and her friends to have the marriage registered, the marriage-register of Glasgow and its suburbs may be held as correct for all statistical purposes.

The deaths are ascertained by the number of burials. The burying-grounds in the city and suburbs are placed under the management of fourteen wardens. These officers, who attend every funeral, enter in a memorandum book, at the grave, the name, age, and designation of the person buried, along with the amount of fee received, and the name of the undertaker. Having taken these and other particulars, the wardens afterwards enter the whole in a book, classified conformably to a printed schedule drawn up by Dr Cleland. At the end of the year they furnish him with an abstract from their books; and it is from a combination of these abstracts that he ascertains the number of deaths at the various ages. The abstract includes still-born children, and the deaths of Jews and members of the Society of Friends who have separate burying-places.

Dr Cleland having been appointed to take the sole charge of conducting the enumeration and classification of the inhabitants of the city of Glasgow and suburbs for the government census of 1831, he employed twelve parochial beadles, nineteen mercantile clerks, and one superintendent of police, to take the lists. Before the books were prepared, however, an advertisement was inserted in the Glasgow newspapers, requesting the inhabitants to favour him with their suggestions as to classification; and before the list-takers commenced their operations, bills were posted upon the public places and dwelling-houses of the city, informing the inhabitants of the nature of the inquiries, and that they had no reference to taxes, and, moreover, that non-compliance, or giving a false return, subjected them to a fine. When the books were returned to him, the public, through the medium of the press, were requested to call at an office appointed for the purpose, and to correct any omission or error which might have been made in their returns. The list-takers having made oath before the lord provost, that the name of every householder in the district assigned to them, his or her age, profession, religion, country, &c. had been faithfully entered in a book, and a similar description of his or her family taken down, he proceeded to classification, and formed tables and abstracts for each parish, containing numerous details not required for the government digest.

Glasgow Bill of Mortality for 1830.

A General List of Births, Baptisms, Marriages, and Burials, within the ten Parishes of the Royalty, and the Suburban Parishes of Barony and Gorbals

Births and Baptisms.	Males.	Females.	Total.
Returns from Clergymen and Lay Pastors	3281	3116	6397
Add still-born, from do.	246	225	471
Total	3527	3341	6868
Of this number there were registered only	1678	1547	3225
Number unregistered, exclusive of still-born	1603	1569	3172

The children were baptized as follows, viz.

By clergymen of the Church of Scotland	3123
By ditto of the Secession Church	664
By ditto of the Relief Church	671
By ditto of the Roman Catholic Church	915
By ditto of the Scotch Episcopal Church, Independents, Methodists, and other denominations, including births among Baptists, Society of Friends, Jews, &c.	1024
Total	6397

Marriages engrossed in the registers of the city, Barony, and Gorbals:—In the city, 857; Barony, 691; Gorbals, 371; total, 1919.

Burials engrossed in the Registers of the City, Barony, and Gorbals Burying Grounds.

	Males.	Females.	Total.
January	273	268	541
February	226	223	449
March	218	207	425
April	208	184	392
May	185	175	360
June	200	178	378
July	194	182	376
August	232	206	438
September	240	229	469
October	236	184	420
November	234	189	423
December	255	259	514
Total	2701	2484	5185
Of whom have died—			
Still-born	246	225	471
Under one year	463	414	877
1 and under 2	316	307	623
2 —— 5	263	237	500
5 —— 10	134	119	253
10 —— 20	144	132	276
20 —— 30	189	145	334
30 —— 40	169	144	313
40 —— 50	184	164	348
50 —— 60	177	175	352
60 —— 70	168	171	339
70 —— 75	109	102	211
75 —— 80	55	58	113
80 —— 85	48	48	96
85 —— 90	24	26	50
90 —— 95	9	10	19
95 —— 100	3	6	9
104	0	1	1
Total	2701	2484	5185

Detail of Burials in the City.—In the High Church ards, 1728; in the Crypt of the Cathedral, 3; in Black-ars, St David's, and North-west burying grounds, 204; the Crypt of St David's Church, 12; in the Episco-l Chapel burying ground, 4. Total burials within the ty, 1951. *In Barony Parish.*—In the Calton bury-g ground, 809; in Bridgetown ditto, 229; in Tollcross ditto, 192; in Shettleston ditto, 54; in Anderston ditto, 125; in Cheapside Street ditto, 123; in Woodside Street ditto, 268: in the Crypt of the Reverend Dr Mitchell's Church, Wellington Street, 31. Total burials in Barony parish, 1831. *In Gorbals Parish.*—In Gorbals burying ground, 1403. Total burials in city and suburbs, 5185.

Ages of Persons in Glasgow, and in the Suburban Parishes of Barony and Gorbals, in 1830.

	Under Five.	Five to Ten.	Ten to Fifteen.	Fifteen to Twenty.	Twenty to Thirty.	Thirty to Forty.	Forty to Fifty.	Fifty to Sixty.	Sixty to Seventy.	Seventy to Eighty.	Eighty to Ninety.	Ninety to a Hundred.	A Hundred and upwards.	Total.
Iales...	15422	13127	10491	8489	15177	12179	8685	5549	3228	1090	260	26	1	93724
emales	14855	12580	10720	12256	23008	14240	9329	6099	3692	1502	385	32	4	108702
'otal...	30277	25707	21211	20745	38185	26419	18014	11648	6920	2592	645	58	5	202426

Before exhibiting results, it may be right to mention, at about twenty years ago the causes of death were an-unced yearly in a periodical, along with the gross number burials; but as no confidence could be placed in such atements, Dr Cleland has, since that period, declined to blish a list of diseases; but being aware, that if a correct t could be obtained at the census of 1831, when the po-lation, births, marriages, and deaths, were ascertained, would be very beneficial in a medical point of view, he dressed letters to upwards of 130 medical gentlemen in e city and suburbs, requesting that they would favour m with a return of the diseases of which their patients ed during the period in which he had requested the clergy-en to give him a note of baptisms. As he only succeed-l with a small portion of the members of faculty, how-er, the attempt became fruitless; and in all probability y future attempt will be unsuccessful, till a compulsory t of the legislature regarding parochial registers be ob-ined. Dr Cleland having been intrusted with drawing and classifying the government population returns for 21, he took the same precautions as to births, marriages, rials, and population, as in 1831, in the view of being le to ascertain the ages of the population, and the periods life at which death ensued, at particular epochs when e population could be accurately ascertained.

That Glasgow is a place of average health for statistical rposes may be inferred from the daily state of the wea-er, which Dr Cleland published in 1831, by which it ap-eared that the average quantity of rain which fell yearly ring thirty years preceding that period amounted to ra-er less that twenty-three inches. But, more particular-, the degree of health may be known, and tables formed r ascertaining the probability of human life, from a series of the mortality bills, where the ages of the living and those of persons who have died are stated in connection with the population, and a table of longevity for Scotland, which he prepared in 1821, by which it appeared that on an average of all the counties of Scotland, there was one person eighty years of age for every $143\frac{92}{100}$ of the population, whilst in the county of Lanark, with a population of 316,790, including 263,046 who live in towns, viz. in Glasgow 202,426, and in other towns 60,620, there was one such person for every $169\frac{71}{100}$, showing a degree of health in the population of Glasgow nearly equal to that of the whole of Scotland.

The following results have reference to Glasgow and its suburbs, which partake of a mercantile and manufacturing population, or something between Liverpool and Manchester, the town population being 198,518, and the rural 3908: In 1831 the population was found to be 202,426, the burials 5185, and the rate of mortality consequently $39\frac{4}{100}$. The births being 6868, there is one birth for every $29\frac{47}{100}$ persons. The number of marriages being 1919, there is $3\frac{57}{100}$ births to each marriage, and one marriage for every $105\frac{48}{100}$ persons. The number of families being 41,965, there are $4\frac{82}{100}$ persons to each family. It is very satisfactory to know, that with the same machinery in 1821, the population being 147,043, the burials 3686, the rate of mortality was $39\frac{89}{100}$, or, in other words, as near as may be to the mortality in 1831. By reference to the bills of mortality between the years 1821 and 1831, similar results will be obtained. Dr Cleland states, that in all the authentic bills of mortality he had ever seen, there were more males born than females; but taking the population above fifteen years, the number of females preponderates. The following results for Glasgow are derived from the census of 1831.

Births—Males....................3,527	Females.............3,341	Excess of males.............186
Males under five years........15,422	Females...........14,855	Excess of males.............567
Males under ten years.........28,549	Females...........27,435	Excess of males...........1,114
Males under fifteen years.....39,040	Females...........38,155	Excess of males.............885
Males under twenty years...47,529	Females...........50,411	Excess of females.........2,882
Males under thirty years......62,706	Females...........73,419	Excess of females.......10,713
Males—entire population.....93,724	Females..........108,702	Excess of females.......14,978
Burials—Males...................2,701	Females.............2,484	Excess of males.............217

Description of householders:—Married men, 30,032; idowers, 1790; bachelors, 1437; male householders, 3,259: Widows, 6824; spinsters, 1882; female house-lders, 8706: Total families, 41,965. Country to which e population belongs: Scotch, 163,600; English, 2919; ish, 35,554; foreigners, 353; total, 202,426. Religion f the population: Established, 104,162; Dissenters, Epis-palians, and Jews, 71,299; Roman Catholics, 26,965; tal, 202,426.

It appears from a recent report of a committee of the House of Commons, on the evidence of persons distinguished by their knowledge in political science, such as Dr Bowring, Dr Burrows, Mr Grimaldi, and others, that the public registers in this country are so inefficient as to render it impossible to determine the law of mortality among the working classes of the empire, either generally or locally. Mr Wheeler, clerk to the company of parish clerks, stated that in London the returns for the mortality bill are made up in each parish by two *old pauper women*, who are utterly incompetent to give correct information, and frequently receive most fallacious reports; and Mr Finlaison, the government actuary, stated that no faith whatever could be put in bills of mortality as they are now prepared. In order to procure an approximation of the rate of mortality which prevails among the working classes in this country, that distinguished political inquirer resorted to the public registers at Ostend in Flanders, where he made an observation on the mortality of that town for a period of twenty-six years ending in 1832. The result of his investigations was, that in a population consisting of about 11,000 souls, the rate of mortality was as one in thirty-six and one eighth. Mr Finlaison stated, in evidence, that "he was enabled to determine that Ostend is (notwithstanding the opinion that prevails in England) a very healthy situation, and no doubt is equal to the average of England; at least the only knowledge of the law of mortality as prevailing among the lower orders in England, on which he was able to depend, is derived from that which he obtained in Flanders." Thus it appears that the law of mortality in England is derived from data of about 11,000 souls in a foreign country, whilst the mortality of Glasgow is ascertained from a population of upwards of 200,000 souls; and as to the principles upon which the amount of mortality is ascertained, Mr Milne, the celebrated political inquirer, and actuary to the Sun Life Office, London, stated as his opinion, in reference to the Glasgow bills published by Dr Cleland in 1831, that "the law of mortality in a large manufacturing town may now be determined, though it could not heretofore, for want of the necessary data." Glasgow may, therefore, fairly claim precedence in whatever relates to the probability of human life in large manufacturing towns.

University.—The University of Glasgow is a corporate body, consisting of a chancellor, rector, dean, and principal, with professors and students. It was originally founded, like most other establishments of the same nature, by authority of the see of Rome. Pope Nicolas V. by a bull dated the 7th of January 1451, erected and established it.

The university at this time had received no endowments, and was for years possessed of no property except the university purse, into which were put some small perquisites on conferring degrees, and the patronages of two or three small chaplainaries. At first the university had no buildings of its own. It held its meetings in the chapter-house of the Blackfriars, or in the cathedral. But these defects were in some measure supplied by the liberality of James, first Lord Hamilton, an ancestor of the noble house of Hamilton, who, in the year 1459, gave to the principal and other regents of the College of Arts, for their use and accommodation, a tenement, with its pertinents, in the High Street of Glasgow, to the north of the Blackfriars, together with four acres of land in the Dow-hill. In the deed the noble donor required the principal and regents, on their first admission, to declare on oath that they would commemorate James Lord Hamilton, and Lady Euphemia, his spouse, the Countess of Douglas, as the founders of the college. Amongst other benefactors of the college distinguished by their donations chiefly for the support of poor students, were Ann duchess of Hamilton, Robina countess of Forfar, William earl of Dundonnell, the Duke of Chandos, the Duke of Montrose, Leighton archbishop of Glasgow, Boulter bishop of Armagh, Mr Snell, Dr Williams, Dr Walton, Mr Zachary Boyd, and Dr William Hunter.

The Reformation produced great disorder in the university, its members being clergymen of the Catholic persuasion, and its chief support being derived from the church. In 1577 James VI. prescribed particular rules with regard to the college, and the formation of its government, and made a considerable addition to its funds. The charter by which the king made these regulations, and gave that property, still continues to be the magna charta of the college, and is known by the name of *Nova Erectio*.

The business of the university is transacted in three distinct meetings, viz. those of the senate, the *comitia*, and the faculty. The meeting of senate consists of the rector, the dean, the members of faculty, and the other professors. The rector presides in this meeting, except when affairs are managed for which the dean is competent. Meetings of the senate are held for the election and admission of the chancellor and dean of faculty, for the admission of the vice-chancellor and vice-rector, for electing a representative to the general assembly, for conferring degrees, and for the management of the libraries and other matters belonging to the university. The constituent members of the *comitia* are the rector, the dean, the principal, the professors, and the matriculated students of the university. The rector or vice-rector presides in this meeting. Meetings of the comitia are held for the election and admission of the rector, for hearing public disputations in any of the faculties previously to the conferring of degrees, for hearing the inaugural discourses of the principal and professors previously to their admission to their respective offices, and for promulgating the laws of the university, and other acts of the university and college courts. The meeting of faculty, or college meeting, consists of the principal, the professors of divinity, church history, oriental languages, natural philosophy, moral philosophy, mathematics, logic, Greek, humanity, civil law, medicine, anatomy, and practical astronomy. The principal presides in this meeting, and has a *casting*, but not a *deliberative* vote. The members of faculty have the administration of the whole revenue and property of the college, consisting of heritage, feus, teinds, and bequests, with the exception of a few particular bequests, in which the rector and other officers of the university are specially named. They have likewise the right of exercising the patronage of eight professorships vested in the college. They present a minister to the parish of Govan, and have the gift of various bursaries. In the exercise however of one of their privileges, viz. the election of professors, the rector and dean of faculty have a vote.

The officer of highest dignity in the university is the *chancellor*, who is elected by the members of senate. He is the head of the university, and by himself or his deputy has the sole privilege of conferring academical degrees upon persons found qualified by the Senatus Academicus. The office of chancellor is held during life. The *rector* is annually elected by the dean, the principal, the professors, and the matriculated students. The electors are divided, according to their respective birthplaces, into four nations; Glottianna, Transforthana, Loudoniana, and Rothseana. As the majority of the members of each nation constitutes one vote, in case of an equality, the rector going out of office has the casting vote; and, in his absence, the rector immediately preceding. The election is always held on the 15th of November, except when it falls upon Sunday, and then the election is held on the following day, and the same person is generally re-elected for a second year. It is the duty of the rector to preserve the rights and privileges of the university, to convoke those meetings in which he presides, and, with his assessors, whom he himself appoints, to exercise that academical jurisdiction amongst the students themselves, or between the students and citizens, which is bestowed upon most of the universities of Europe. The *dean of faculties* is elected by the senate. This office is held for two years, and by virtue of it he is entitled to give directions with regard to the course of study, and to judge, together with the rector, principal, and professors, of the qualifications of those who desire to be created masters of arts, doctors of divinity, &c. The foundation of the office of *principal*, almost coeval with that of the university, was onfirmed by James VI. in 1577. It is in the appointment the king. The principal has the ordinary superinten- nce of the deportment of all members of the university, d is *primarius* professor of divinity. The *professors* of e university of Glasgow may be distributed, according to e departments of knowledge to which they are respec- vely assigned, into four distinct faculties, those of arts, eology, law, and medicine.

The faculty of arts comprehends the professors of Latin humanity, Greek, logic, ethics, natural philosophy, ma- ematics, practical astronomy, and natural history. To is faculty may be added the professors of mathematics, tronomy, and natural history. The faculty of theology cludes, besides the principal, who in right of his office first professor of divinity, three other professorships, ose of divinity, church history, and oriental languages. he faculty of law consists of a single professorship, that of vil law. The faculty of medicine comprehends the pro- ssorships of anatomy, medicine, materia medica, surgery, idwifery, chemistry, and botany. The professors of Greek, gic, ethics, and natural philosophy, whose chairs were the rliest endowed in the university, are denominated regents, nd enjoy, in right of their regency, certain trifling privi- ges beyond their brother professors. The regius pro- ssors are those whose chairs have been recently founded, dowed, and nominated by the crown, and they are mem- rs of senate only, not of the faculty of college, viz. natu- l history, surgery, midwifery, chemistry, botany, and ma- ria medica.

The university library was founded in the fifteenth cen- ry. It contains an extensive and valuable collection of oks, amongst which are many beautiful editions of the assics. It is always increasing by donations of copies every new work published in this country, as well as by oks purchased by the fees received at matriculation, as- sted by fees received from graduates, and by an annual yment from all students, who are entitled to the use of e library under certain limitations.

A small botanic garden adjoining the college was prepar- d for the use of the lecturer in botany in 1753; but hav- ng from various causes become unfit for its purposes, a ery valuable botanical garden, consisting of eight acres, as formed in the neighbourhood of the city by the citi- ens of Glasgow. The university subscribed L.2000 to- ards its erection, for the privilege of their professor of otany lecturing in the hall in the garden, and government as subsequently given a similar sum in support of it. This garden, which was opened in the spring of 1818, for e variety of rare plants from almost every part of the orld, is not exceeded by any botanical garden in the ingdom.

The founder of the Hunterian museum was the celebrat- d William Hunter, who was born in the parish of East Kil- ride, in the neighbourhood of Glasgow, in 1710. By his ill in 1781, he bequeathed to the principal and professors f the college his splendid collection of books, coins, paint- ngs, anatomical preparations, &c. and appropriated L.8000 r the erection of a building for their reception. The col- ection is valued at L.65,000, viz. medals L.30,000, books .15,000, pictures L.10,000, miscellaneous L.10,000. The ollection has been considerably increased of late years. The public are admitted every lawful day, on payment of ne shilling.

There are twenty-seven bursaries connected with the ollege, varying from L.5 to L.40. They are held from our to six years. Besides these there are two very valu- ble exhibitions. In the year 1688, Mr John Snell, with view to support episcopacy in Scotland, devised to trus- ees a considerable estate near Leamington, in Warwick- hire, for educating Scotch students at Baliol College, Ox- ord. By the rise in the value of land, and the improvements which have from time to time been made on that estate, the fund now affords about L.130 per annum to each of ten exhibitioners. Another foundation by John Warner, bishop of Rochester, of L.20 per annum to each of four Scotch students of the same college during their residence at Oxford, is generally given to the Glasgow exhibitioners, so that four of them have a stipend of L.150 per annum. The exhibitions are tenable for ten years, but vacated by marriage, or on receiving preferment of a certain amount. The right of nomination belongs to the principal and professors of the faculty.

Candidates to be eligible to Snell's exhibitions must, first, be natives of Scotland, which the master of Baliol requires to be proved by the production of an extract from the parish register of births; secondly, they must have attended as public students at least two sessions at the university of Glasgow, or one session there and two at some other Scottish university; and, thirdly, they must not be graduates of any university. Warner's exhibitions are in the gift of the Archbishop of Canterbury and Bishop of Rochester, who usually nominate on the recommendation of the master of Baliol College. Amongst the distinguished persons of several professions who have been educated on Mr Snell's foundation, may be mentioned, Dr John Douglas, bishop of Salisbury, Dr Adam Smith, and Dr Matthew Baillie.

This university has had from its origin men of the highest talent and literary eminence among its professors and office bearers. The names of Melville, Baillie, Leishman, Burnet, Simpson, Hutchison, Black, Cullen, Adam Smith, Reid, Miller, and Richardson, are conspicuous; and the names of Henry Dundas, Edmund Burke, and other distinguished individuals, are to be found in the list of rectors.

Grammar-School.—This seminary is of remote antiquity, but, like some similar institutions of long standing, little is known of its early history. There was a grammar-school at Glasgow in the early part of the fourteenth century. It depended immediately on the cathedral church, and the chancellor of the diocese had not only the appointment of the masters, but also the superintendence of whatever related to education in the city. The grammar-school continued to be a distinct establishment after the erection of the university, and considerable care appears to have been taken to supply it with good teachers. In 1494 Mr Martin Wan, chancellor of the metropolitan church of Glasgow, brought a complaint before Bishop Blackadder against one Dwne, a priest of the diocese, for teaching scholars in grammar, and children in inferior branches, by himself apart, openly and publicly in the said city, without the allowance and in opposition to the will of the chancellor. The bishop, having heard parties, and examined witnesses, decided, with the advice of his chapter, and of the rector and clerks of the university, in favour of the chancellor. In the sixteenth century the situation of the master of the grammar-school was highly respectable; he was to be found among the *non-regentes* nominated to elect the rector and to examine the graduates. On the 28th of October 1595 the presbytery directed the regents in the college "to try the Irish scholars in the grammar school, twitching the heads of religion." At that period the school met at five o'clock in the morning. On 26th March 1601 the session decided that the school-house in the Greyfriars Wynd was in a ruinous state, and directed it to be rebuilt. Mr John Blackburn, who was master of the grammar-school and lord rector of the university in 1592–1593, resigned his mastership in 1615, on being appointed minister of the Barony Church.

The records of the town council have been searched in vain for the plan or system by which the school was conducted prior to the year 1707. Since that period it has undergone various changes in the management and system of education. Sometimes the school was under the control of a rector, and at other times the office was laid aside. Sometimes the office during the course consisted of five, and at others of only four years. In 1830 the office of rector was abolished, and each of the four masters had the entire charge of finishing his own scholars during the four years. But in 1834 this seminary underwent a material alteration. From being a grammar-school, it may now be considered as an academy. Two of the masterships for Latin and Greek have been suppressed, and in lieu of these, teachers of English grammar, elocution, French, Italian, German, writing, arithmetic, geography, and mathematics, have been introduced, and the name of the seminary has been changed to that of the High School. The school is under the immediate management of a committee of the town council, aided by the advice and assistance of the clergy of the city, and by the professors of the university.

Anderson's University.—This establishment, founded by Mr John Anderson, professor of natural philosophy in the university of Glasgow, on the 7th of May 1795, and endowed by him with a valuable philosophical apparatus, museum, and library, was incorporated by a seal of cause from the magistrates and council of this city on the 9th of June 1796. The university is subject to the inspection of the Lord Provost, and other official persons, as ordinary visitors, and is placed under the immediate superintendence of eighty-one trustees, who are elected by ballot, and remain in office for life, unless disqualified by non-attendance. The trustees consist of nine classes of citizens, viz. tradesmen, agriculturists, artists, manufacturers, physicians and surgeons, lawyers, divines, philosophers, and, lastly, kinsmen or namesakes. The trustees elect annually by ballot nine of their number as managers, to whom the principal affairs of the institution are intrusted during the year. The managers elect by ballot from their number, the president, secretary, and treasurer. Although the views of the venerable and celebrated founder embraced a complete circle of liberal education, adapted to the improved state of society, it was found convenient at first to limit the plan to natural philosophy, chemistry, mathematics, and geography.

The business of the university commenced on the 21st of September 1796, by Dr Garnet's reading, in the trades' hall, to persons of both sexes, popular and scientific lectures on natural philosophy and chemistry, illustrated by experiments. Soon after this period the managers rented, and then purchased, extensive premises in John Street. Dr Garnet having been appointed professor of experimental philosophy and chemistry in the Royal Institution of London, which had been formed on the model of this primary one, resigned his professorship; and on the 18th of October 1799, Dr George Birkbeck was appointed as his successor. In addition to what had been formerly taught, he introduced a familiar system of instruction, which he demonstrated by experiments, free of expense. Dr William Anderson and Dr James Cleland recommended about 500 operatives to this class. This mode of tuition, by which philosophical subjects are explained in ordinary language, divested of technicalities beyond the comprehension of the students, is continued with great success, at a small expense, and has been productive of the happiest effects on a valuable class of society. Dr Birkbeck resigned his professorship on the 5th of August 1804, and returned to London. Dr Andrew Ure was appointed his successor on the 21st of the following month; and during a period of twenty-five years discharged the duties of his office with great ability, when he also went to London to reside.

The affairs of the university becoming more and more prosperous, the trustees purchased from the city the grammar-school buildings in George Street; and having made considerable additions and alterations, the premises now contain numerous halls for the professors, and for the museum, which has of late become very rich in its several departments. The university buildings were opened in November 1828, since which time the classes have been well attended, and *soirées* have been introduced with the happiest effect. The subjects professed in 1834, were, first, literature, philosophy and popular science, natural philosophy, logic, ethics, rhetoric, mathematics, natural history, modern languages, oriental languages, drawing and painting in oil and colours, and popular lectures on the veterinary art; and, secondly, surgery, chemistry, medical jurisprudence, theory of medicine, anatomy, physiology, and midwifery.

Mechanics' Institution for the Promotion of the Arts and Sciences.—This society was formed, in 1823, by the mechanics of Glasgow, with the view of disseminating mechanical and scientific knowledge among their fellow operatives, particularly those branches more immediately connected with their daily occupations. Lectures were given on natural philosophy and chemistry, when a fee of three shillings was paid by each student, which was afterwards increased to ten shillings. From the formation of the society to the present time the number of students have averaged yearly about 500. Free admission is annually given to the lectures on chemistry and mechanics, and also to the library, to poor apprentices, one being admitted for every twenty tickets sold. In this manner 220 have been admitted since the commencement of the institution. In 1831 the society removed to large premises built for them in Hanover Street. A colossal statue of James Watt is placed on the pediment of the building, by a subscription of one shilling from each student in successive years. In the building there are commodious apartments for the numerous models and apparatus, and the library, which now consists of 3030 volumes on science and general literature. In the session of 1834 there were three professors, who gave lectures on natural philosophy, chemistry, popular anatomy, physiology, and phrenology; the fee for the course being eight shillings.

Public Green.—There is probably no town of equal extent in the empire which can boast of such a park as the green of Glasgow, whether its extent (about 140 imperial acres), its use to the inhabitants, or its picturesque effect, be considered.

Mills.—The town's mills on the Molindinar Burn, erected about the middle of the fourteenth century, supplied from the Hogganfield and Frankfield Lochs, are not of so much use to the inhabitants as formerly, since steam-mills have been introduced. The water and steam-mills on the river Kelvin, at Partick and Clayslap, belonging to the corporation of bakers, are very extensive, and of a superior construction. The establishment contains a large steam-mill, seven water-wheels, twenty-two pairs of stones (Bordeaux burrs), six boultin, and three shealing-machines. The granaries and kilns are proportionate to the mills, which can grind 12,000 bushels of wheat weekly. The bakers got a grant of their old mill at Partick, from the Regent Murray, for their services at the battle of Langside, on 13th May 1568.

Markets.—The markets for meal, butcher-meat, fish, &c. have been much neglected of late. The great increase of the town has induced persons at a distance to resort to shops instead of markets. The live-cattle market is however entitled to particular notice. Prior to the year 1818 the principal butchers in this city were frequently obliged to travel a circuit of seventy or eighty miles to purchase cattle in lots, and to rent expensive parks in the neighbourhood of the city to graze them in; but since the erection of the live-cattle market the mode of supply is completely changed. In 1818 the magistrates fitted up a spacious market-place between the great roads to Edinburgh by Gallowgate and

Duke Street, in which there is a commodious inn, stables, sheds, a byre to contain 120 bullocks in view, and 260 pens to contain 9360 sheep. This market-place, said to be the most complete in the kingdom, occupies an area of 29,560 square yards, or rather more than six imperial acres, is paved with whinstones, and enclosed with stone walls. Since its formation, graziers and dealers from Aberdeenshire to Dumfriesshire, and from Berwickshire to Argyleshire, find it their interest to send their cattle to this market, where they find a ready sale, and return in cash. It is admitted that this market has been of great use to all classes of the community, excepting perhaps the more wealthy butchers. The dealers are benefited by a regular sale, without running the risk of bad debts. The public have a more regular and plentiful supply of butcher-meat of the best quality. The butcher is saved the trouble and the public the expense of travelling. The butcher of small capital, who formerly had not the means of getting good meat, can now go to market; and if his capital be equal to the purchase of a bullock and a dozen of sheep or lambs, he can compete with his more wealthy brethren. Monopoly is now unknown. The dues of the market are let by public sale at L.1075 per annum. Dr Cleland has the sole merit of projecting and completing this important establishment.

The sales in 1833 were 165,560 head of cattle, and sheep and lambs, viz. bullocks and cows 18,360, sheep and lambs 147,200, exclusively of calves and pigs. In 1822 a few rumps of beef were sent by the Edinburgh butchers to the Glasgow market; and this traffic has increased so much, that during 1833, 7210 rumps were sent to Glasgow, the average value of each rump being 20s. Messrs Allans alone purchased 6676 rumps. The advantages arising from this market has induced the Irish graziers to send cattle to it. On the 18th of December 1834, the Green Isle steamer arrived at Glasgow from Drogheda, loaded exclusively with cattle and pigs. This was the first cattle-carrying steamer that arrived in the Clyde. The traffic is to be continued.

Public Buildings.—In a work of this nature an architectural description of the public buildings in Glasgow would be superfluous; we shall therefore confine ourselves to merely mentioning a few of the most prominent of those appropriated for ecclesiastical purposes, and a few for the civil concerns of the city. For ecclesiastical, the first in order is the cathedral, which is allowed to be the most splendid edifice of old English architecture that is to be found in Scotland. Its length from east to west is 319 feet, width sixty-three feet, height of the nave ninety feet, and of the choir eighty-five feet. In this edifice there are 147 pillars, and 159 windows of various dimensions, many of them of exquisite workmanship. The crypt under the choir is not equalled for architectural effect in the kingdom. St Andrew's, St David's, and St Enoch's churches, and the Albion Street and George Street chapels belonging to the dissenters, are fine specimens of architecture. For civil purposes, the Royal Exchange is prominent. This building, from designs by Mr David Hamilton, a native of Glasgow, is remarkable both for its extent and its architectural decorations. The Hunterian Museum, from designs by Mr William Stark, is a beautiful model of a Greek temple. The Royal Infirmary and the Lunatic Asylum are at once ornamental, and appropriate for their respective purposes.

Streets and Squares.—The streets, with the exception of some of those in the old part of the town, are all sixty feet wide; and the houses are built of stone and covered with slate. There are four squares, viz. Blythwood's, George's, St Enoch's, and St Andrew's. The three former are planted with shrubbery, and St Andrew's Church stands in the centre of the latter.

Burying Grounds.—There are twenty burying grounds in the city and suburbs. The necropolis, formed by the merchants' house, in 1830, in their elevated park adjoining the cathedral, in imitation of the cemetery of Père la Chaise in Paris, stands unrivalled in the kingdom for picturesque effect.

Monuments and Statues.—Amongst others may be enumerated an equestrian statue of William III. erected at the Cross; an obelisk in honour of Lord Nelson, in the Green; a pedestrian statue of Sir John Moore, in bronze, on a granite pedestal, by Flaxman, in George Square; a pedestrian statue of William Pitt, in marble, by Flaxman, in the town-hall; a trophy monument in honour of Lieutenant-colonel Cadogan (71st or Glasgow regiment), in marble, by Hamilton, in the nave of the cathedral; a pillar surmounted by a statue in honour of John Knox, by Forrest, in the necropolis; a pedestrian statue of James Watt, in bronze, on a granite pedestal, in George Square, by Chauntry; also a pedestrian statue of James Watt, in marble, by Chauntry, in the Hunterian Museum; and an architectural monument, with a statue of William M'Gavin, by Forrest, in the necropolis.

Gaol and Court-Houses.—For a number of years previously to 1807, the gaol at the cross had become deficient in almost every requisite, situated in the centre of the city, without court-yards, chapel, or infirmary. It contained no more than thirty-two apartments for the accommodation of prisoners of every description, collected occasionally from the populous counties of Lanark, Renfrew, and Dumbarton, and invariably at the justiciary circuits, having very slender accommodation for the local courts of justice, whilst that for the circuit court of justiciary was quite inadequate. Impressed with the necessity of affording more suitable accommodation for the courts of justice, and more convenient and healthful apartments for prisoners, the magistrates and council, on the 13th of February 1807, resolved to erect a new gaol and public offices, in a healthy situation adjoining the river, at the bottom of the public green. This building, which cost L.34,800, contains, exclusively of the public offices, 122 apartments for prisoners. As there is a water-closet in each gallery, every individual prisoner, debtor and delinquent, has access to one of them, and to an unlimited supply of pure filtrated water from the water company's pipes; and pipes are introduced into each court, from which they are daily washed, and the air in them frequently cooled in hot weather. There are two rooms, with ante-rooms, insulated from the gaol, for persons under sentence of death, and so constructed that irons are never used. It is believed that this is the only prison in the kingdom where persons under sentence of death are not put in irons. Every room is provided with the necessary utensils at the expense of the corporation. There is a well-aired infirmary-room, though seldom or never used, from the healthiness of the prisoners; and the chapel is seated to contain about 200 persons. The governor's house is so constructed that from his sitting parlour he can overlook both court-yards. The justiciary hall is so spacious as to contain upwards of 500 persons. The number of incarcerations in the gaol for debt have of late years happily decreased, whilst the incarcerations for delinquency have been rather on the increase. The average number committed yearly during five years ending on the 31st of December 1833, was 667. From 1765 to 1830, eighty-nine persons were executed in Glasgow, of which number five were females. During the first twelve years there were only six persons executed, whilst in the last twelve there were thirty-seven. During sixty-six years previously to 1831, there were twenty-six in which there were no executions, fifteen in which there was one each year; ten, two; seven, three; four, four; one, five; and two in which there were six. From the 29th of September 1830, to the 20th of January 1834, twelve persons have been executed in Glasgow, viz. eleven males and one female, of whom six were for murder, one for rape, one for hamesucken, one for robbery, and three for housebreaking and theft. From the 4th of May 1818, to the 8th of October 1834, six persons received sentence of death, but had their punishment commuted to transportation for life, viz. four males and two females, of whom one for murder, one for hamesucken and rape, one for robbery, and one for housebreaking and theft; the two females for forged bank-notes.

Bridewell.—The Bridewell in Duke Street was opened on the 8th of May 1798, and supported by the corporation funds for upwards of twenty-four years. This building, which still remains, consists of six stories, and contains 105 cells. Although but ill suited for classification, it answered the purpose for a number of years; but, from the great increase of population, and consequently of crime, in the city and county, it was agreed that the new buildings should be so large as to contain the city and county prisoners, combining the improvements which experience have pointed out. The authorities having procured an act of parliament for assessing the city and county for building and maintaining a Bridewell, they erected a set of buildings so well suited for the purpose, as to be the admiration of all those who have made prisons and prison discipline their study. This prison, which adjoins the former one, was opened on the 25th of December 1824. It combines all the advantages of modern improvement, security, seclusion, complete classification, and healthful accommodation.

Abstract Accounts for the year ended the 2d August 1834.

To repairs on the buildings		L.156 10 0	
Salaries and wages		835 14 11	
			L.992 4 11
By amount of prisoners' labour, &c		L.2182 6 2	
To victuals, bedding, clothes, washing, medicine, coal, candle, furniture, machinery, utensils, stationery, &c	L.1664 6 0		
Cash paid prisoners for surplus earnings	116 5 3		
		1780 11 3	
Surplus to be deducted from salaries and wages			401 14 11
Balance, being the cost of Bridewell for the year ended 2d August 1834			L.590 10 0

Table showing the number of Prisoners, and the different periods of confinement.

Days.																
Periods of confinement	2	4	5	7	8	10	14	15	20	21	30	35	40	42	50	60
Number of prisoners	1	1	2	5	3	11	46	7	26	8	349	7	3	17	3	1114

Months.											Convicts and untried Prisoners.	Males.	Females.	Total.
Periods of confinement	3	4	6	8	9	10	12	15	18	24				
Number of prisoners	25	12	69	5	3	1	25	1	6	1	216	1035	932	1967

The average period of confinement according to sentence is sixty-three and a half days; according to residence in the house, fifty-nine and a half days.

The greatest number at one time confined was on the 12th of November 1833, viz. 372, males 199, females 173. Smallest number at one time, 27th February 1834, 231, viz. males 123, females 108. Average number daily in the house 320, viz. males 162, females 158.

Males above seventeen years of age	813	
Males below seventeen years of age	222	
		1035
Females above seventeen years of age	864	
Females below seventeen years of age	68	
		932
Total commitments		1967
Remained on 2d August 1833		356
Prisoners in all		2323
Liberated during the year		2030
Remaining on the 2d of August 1834		293

It appears from the above statement, that besides the sum of L.116. 5s. 3d. paid to inmates, the produce of the work performed maintained all the prisoners, with a surplus of L.401. 14s. 11d., which surplus goes to lessen the expense of repairs on the buildings, and the salaries and wages. The whole deficiency, amounting to L.590. 10s., divided by 1967, the number committed, shows that the net expense to the public for every committal is no more than 6s., the average period of residence being fifty-nine and a half days. Taking another view, the deficiency of L.590. 10s., when applied to 320, the daily average of inmates, shows the expense of each prisoner to be L.1. 16s. 11d. per annum, 2s. 10d. per month, or about 8½d. weekly. This establishment, so creditable to the city and county, is conspicuous for the economy with which it is managed.

Police.—Till the appointment of a statutory police in 1800, the citizens of Glasgow performed the duties of watching and warding. The buildings in Albion Street are very extensive, and were the first in Scotland erected for the exclusive purpose of police.

Of the concerns of the establishment, which is placed under the management of the magistrates, and one commissioner for each ward chosen by the rate payers, the following is an abstract for 1834: Disbursements, L.15,033. 13s. 6½d. The receipts arise from one shilling per pound on rents exceeding L.15, and on lower rents proportionally. Besides the superintendent, collector, clerk, surveyor, and surgeon, there are eight heads of departments, three lieutenants, fifty-eight officers, 135 night watchmen, eight coal weighers, twenty-one lamp-lighters, fifty firemen, and twenty supernumeraries; in all, 308 persons on the establishment. There are 2050 gas lamps with single jets, and forty-seven with three jets; in all, 2097 lamps. Of this number between 800 and 900 are taken down in the summer months.

Theatre.—Previously to the Reformation, and for some time afterwards, pantomime representations of the history of our Saviour, his miracles and passion, were exhibited in the city. It does not appear that any theatrical representation was allowed in this city from the Reformation in 1560 till 1750. At the latter period Mr Burrell's dancing hall in the High Street was used for that purpose, being for years after the theatre in the Canongate of Edinburgh was opened, which was the first regular theatre in Scotland after the Reformation. In 1752, a booth or temporary theatre was fitted up adjoining the wall of the archbishop's palace, in which Digges, Love, Stampier, and Mrs Ward performed. Messrs Jackson, Love, and Bete, comedians, built a regular theatre in the Grahamston suburb, which was opened in the spring of 1764 by Mr Bellamy and other respectable performers. On the first night of performance, the machinery and scenery were set on fire by some disorderly persons. When the stage was refitted, the theatre was occasionally kept open, but with very indifferent success; and at one o'clock on the morning of the 16th April 1782 it was burned to the ground. There was no theatre in Glasgow from this period till January 1785, when the Dunlop Street Theatre, erected by Mr Jackson, was opened by Mrs Siddons, Mrs Jordan, and other performers. From this period the taste for theatricals increased so much, that a subscription was set on foot for a theatre upon a large scale; and on the 24th of April 1805 the most magnificent provincial theatre in the empire was opened in Queen Street, at an expense of L.18,500. It was let on lease for L.1200 per annum; but it was soon found that the taste for theatricals did not keep pace with the sums laid out for accommodation and splendour. The premises were then let at the reduced rent of L.800 to others, who also failed to implement their engagement; and even when the rent was lowered to L.400, it was paid with difficulty. The property was then sold at a price only equal to the outstanding debts and ground rent; so that the shareholders got nothing. This splendid edifice was burned to the ground on the forenoon of the 10th of January 1829, a gas-light having come in contact with the ceiling of one of the lobbies leading to the upper gallery. After this catastrophe the old theatre in Dunlop Street was enlarged and embellished by Mr Alexander, and is found to be quite large enough for the play-going people of Glasgow and neighbourhood.

Rise and Progress of the State of Society.—Prior to the Reformation in 1560 the inhabitants of Glasgow were in a state of abject ignorance and superstition, and so disorderly, that even the ministers of religion found it necessary to wear arms in the pulpit. For about a century after the Reformation the people were very poor, and the accommodation in their houses bad. Prior to the famous meeting of the general assembly of the church, held in Glasgow in 1638, when the struggle took place as to whether the episcopal or the presbyterian form of religion should obtain in the church, the magistrates sent to Flanders for a hundred muskets, thirty pikes, four cwts. of powder, the same quantity of match, and ordered a conscription of a hundred young men to be drilled for the approaching meeting; and intestine feuds were so prevalent that weaponschawing was strictly enforced. At this period the circulating medium seems to have been exceedingly scarce, as Provost Stewart sent two men through the town to collect what silver things they could find, to be sent to Edinburgh in support of the struggle. On the 1[illegible]th of March 1698 the magistrates of Glasgow granted an allowance to the jailor for keeping warlocks and witches imprisoned in the tolbooth, by order of the lords commissioners of justiciary. During the failure of the crops in 1799 and 1800, a number of the citizens of Glasgow purchased L.117,500 worth of grain, and sold it at low rates to the poor, at a loss of L.15,000. In 1816, during a stagnation of trade, a subscription of L.9653 was divided among 2[illegible]30 persons. In 1818, L.6626 was subscribed for the relief of persons afflicted with typhus fever. In 1819 large sums were raised for those who could not find employment; on that occasion 2040 heads of families, who never pawned before, were under the necessity of doing so, and articles were pawned to the number of 7380.

In 1712 the population was 13,832; in 1831, 202,426. In 1712, the rental amounted to L.7840; in 1831, in the royalty, without the suburbs, to L.319,372. In 1712 there were only 202 shops, at from L.5 to 10s.; in 1831, 3184 shops, at from about L.250 to about L.5. In 1740 the dwelling-houses of the higher classes of citizens contained only one public room, a dining-room, and even that was only used when they had company, the family at other times eating in a bed-room. Entertainments were few and simple; and the dinner hour was one o'clock. The husband went to his business after dinner, and the wife gave tea at four o'clock to her female friends. Shopkeepers locked their shops during the breakfast and dinner hours. At this period the people were in general religious, and particularly strict in the observance of the Sabbath; some of them, indeed, to an extent that was considered by others extravagant and fanatical. There were families who did not sweep or dust their houses, did not make the beds, nor allow any food to be dressed, on Sundays. The magistrates employed what they called *compurgators*, to perambulate the streets during divine service, and seize all persons whom they found strolling about. At this period the houses, with few exceptions, were covered with thatch. Entertainments are now given more frequently, and the mode of giving them is materially changed. The value of the table service, and the style of the furniture, in the houses of a great number of the Glasgow merchants, are inferior to none in the land.

Previously to the opening of the tontine coffee-room, it was usual to transact business in public houses, over a mixture of whisky and small beer, called pap-in. The opening of the tontine coffee-room in 1781 set aside this pernicious tippling practice, and tended greatly to abolish the distinction of rank in mercantile concerns. For some time after the coffee-room was opened there were but few subscribers at 21s. On the 10th of December 1834 the subscribers in this room amounted to 545, at 25s. admission money. In 1825 the western club was opened; there are now 280 members. The entrance money is L.21, and the annual subscription L.5. 5s. The members are admitted by ballot. The Royal Exchange Coffee-room in Queen Street was opened on the 6th of September 1830. There are now 1264 subscribers, at an annual subscription of 42s.; so that, independently of those who use the minor reading rooms, there were in 1834, 2089 persons in Glasgow who frequented the above rooms.

Until 1776 there were no foot pavements in the city; but in that year a foot pavement was made at the south-east end of Candlerigg Street. There are now upwards of a hundred miles of foot pavements in the city. At the autumn circuits of 1779, 1782, and 1796, there were no criminal business at the Glasgow circuit courts. At the spring circuit of 1828, 115 persons were accused of crimes, of whom 83 were convicted. In 1781 the revenue of the Glasgow Post-Office amounted to L.4341. 4s. 9d.; in 1833, to L.36,481. In 1785 the public markets and a few shops were the only places where the inhabitants could be supplied with necessaries. Now the markets are nearly deserted; butcher-meat is chiefly sold in shops, and numerous haberdashers and drapers occupy warehouses instead of shops. With the exception of Hutcheson's Hospital, the Town's Hospital, the Merchants' and Trades' Houses, the fourteen incorporated trades, and a few benefit societies, the numerous charitable and benevolent institutions of Glasgow have all originated during the last forty years, as is elsewhere shown. The first common sewer in Glasgow was made in 1790. There are now in forty-five streets rather more than seven miles of sewers. In 1792 the first steam-engine for spinning cotton was erected in Glasgow.

Prior to 1804 the city was scantily supplied by twenty-nine public and a few private wells. In 1806 the Glasgow Water Company was incorporated, and in 1808 the Cranston Hill Company. From their commencement till 31st May 1830, the companies had laid out L.320,244. 10s. 1d. on their works, which are now considerably extended. In 1831 there were 38,237 renters of water in the city and suburbs. Rates for 1834,—Houses rented under L.4, 5s. per annum; ditto L.4 and under L.5, and not above L.6, 7s. 6d.; all above L.6, 6¼ per cent., or 1s. 3d. per pound on rental. Public works; high service, *i. e.* in the more elevated parts of the city, L.12. 10s. for 1000 gallons per day; low service, L.6 ditto; workmen for drinking, 6d. per head; founderies, 1s. per man; lowest charge for a public work, L.4; counting-houses, 5s. to 10s. 6d.; water-closets in ditto, 5s. to 10s. 6d.; horses, 4s.; cows, 3s.

Bridges.—Bridges are a sort of edifices very difficult to execute, on account of the inconvenience of laying foundations and walling under water. There are three stone bridges and one timber bridge over the Clyde at Glasgow.

The original timber bridge over the Clyde having gone into decay about 1340, Bishop Rae built a stone bridge at Stockwell Street in 1345. The bridge was originally twelve feet wide, and consisted of eight arches. In 1777 an addition of ten feet was made to its breadth, and two of the northmost arches were built up for the purpose of confining the river within narrower bounds. The communication between the city and the south-west parts of Scotland for more than four hundred years was by this bridge. In 1820 and 1821 it was greatly improved by the formation of footpaths suspended on very tasteful iron framings. The bridge, as it now stands, is 415 feet long and thirty-four wide within the railing.

The foundation stone of Jamaica Street bridge was laid on the 29th of September 1768, by the Right Worshipful Provost George Murdoch, acting provincial grand master mason for Glasgow. The bridge had seven arches, was thirty feet wide within the parapets, and five hundred feet in length. The design was given by Mr William Mylne, architect in Edinburgh, and was executed by Mr John Adam.

The foundation stone of Hutcheson's bridge was laid in 1794, by Provost Gilbert Hamilton, near the foot of the Saltmarket, to connect the lands of Hutchesontown with the city. It had five arches, was 406 feet long and twenty-six feet wide within the parapets. On the 18th of November 1795, during an uncommonly high flood in the river, it was unfortunately swept away, after the parapets were nearly completed. The foundation stone of a new bridge was laid on the 18th of August 1829, by the Right Worshipful Robert Dalglish, substitute grand master mason for Glasgow, and preceptor of the hospital. This bridge is built on the site of the former one, from a design by Mr Robert Stevenson, civil engineer; it is thirty-six feet wide within the parapets, and 406 feet long, and has five arches. Mr John Steedman was contractor.

The Jamaica Street Bridge, although considered elegant and spacious for the time when it was built, had a very inconvenient ascent. The trustees therefore resolved to take it down.

The timber bridge at Portland Street is thirty feet wide within the railing, has a carriage-way and two side pavements. It was designed by Mr Robert Stevenson, and executed by Mr William Robertson in 1832.

The increase of trade and population in the city and adjacent districts having been such as to render the Jamaica Street or Broomielaw Bridge unfit for its purposes, the trustees therefore resolved to remove it, and to erect in its stead a bridge which would afford more suitable accommodation, such as the increasing population of the neighbouring districts required. Having obtained an act of parliament, they procured a design from Mr Thomas Telford, civil engineer, and contracted with Messrs John Gibb and Son for building the bridge. It is to be faced with Aberdeen granite, and to have a very gentle acclivity; it is to be 560 feet long over the newals, to have seven arches, and to be sixty feet wide over the parapets, which is wider than any river bridge in the kingdom. Dr James Cleland, umpire between the trustees and the contractors, laid the first stone of the bridge in the south abutment, eighteen feet below high-water mark, on the 8th of July 1833.

Banks.—The Bank of Scotland was established by charter in Edinburgh in 1695, and the following year in Glasgow, but was recalled for want of business in 1697. In 1731 it was again established in Glasgow, and recalled in 1733 from a similar cause. In 1749, the Ship Bank commenced business. This was the first bank belonging to the city; and till lately it was called the Old Bank. Since 1749, a number of banks have been established in Glasgow. The Glasgow Arms Bank commenced business about the year 1753, the Thistle Bank in 1761, and the Glasgow Merchants' Bank and Messrs Watsons' and Thomson's banking houses were formed shortly afterwards. The Royal Bank of Scotland, which was established by charter in Edinburgh in 1727, sent a branch to Glasgow in 1783. The Glasgow Banking Company commenced operations in 1809, the Glasgow Union Banking Company in 1830, and the Western Bank in 1832. These banks, with the exception of the Arms, Merchants', Thomson's, and Watsons', still continue to do business in Glasgow. There are also in Glasgow a branch of the British Linen chartered bank, and fourteen branches from provincial banks.

Provident Bank.—A provident or savings bank was opened in Glasgow on the 3d of July 1815, wherein deposits of one shilling and upwards are received, bearing interest at the rate of two and a half per cent. when the sum amounts to 12s. 8d. and has lain one month in the bank. The following is a statement of the concerns of the bank for 1833. It is open every day for deposits, and twice a week for payments.

Amount of open accounts at the end of the year	L.39,861	4	0
Received from depositors, exclusive of interest allowed during the year	30,767	3	0
Repaid to depositors, including interest during dotto	30,462	11	7
Interest allowed to depositors during ditto.	964	11	10
From the opening of the bank on 3d July 1815, to the end of the year 1833, number of accounts opened 24,039.			
Amount of interest paid to depositors from opening of the bank to the end of year 1833	10,662	18	0
At the end of the year 1833 open accounts under L.5	1,380	0	0

It is very gratifying to know, that during eighteen years the working classes in Glasgow have so managed their savings as to entitle them to L.10,662. 18s. interest, which, but for this institution, might have been laid out for purposes quite unavailing in the hour of need.

Post-Office.—The arrangements of this office are not surpassed, if indeed equalled, by any out of London. In 1806, when Mr Bannatyne was appointed post-master, the establishment consisted of a post-master, three clerks, a stamper, and six letter-carriers; and there were four penny-post-offices attached to it for the delivery and receipt of letters in the neighbouring district. Receiving-houses in the town for letters to be taken to the post-office had been tried, and had been given up on finding that they were not used. There were two deliveries of letters made daily to every part of the town and suburbs. The Glasgow establishment now (December 1834) consists of a post-master, ten clerks, two stampers, a superintendent of letter-carriers, and nineteen letter-carriers; and there are twenty-six penny-post-offices and nine sub-offices attached to it for the correspondence of the surrounding district. It has twelve receiving-houses distributed in the different parts of the town, the letters put into which are carried to the post-office, to be made up in the separate lines of mails as they are successively dispatched. There are four complete deliveries of letters now made daily to every part of the town and suburbs; and an answer may be received the same day to a penny-post letter put into the office, or a receiving-house, in time to be sent out with either of the two first deliveries.

Post-Office Revenue of Glasgow at the following dates.[1]

In 1781...	L.4,341	4	9	In 1830...	L34,978	9	0½
1810...	27,598	6	0	1831......	35,642	19	5
1815...	34,784	16	0	1832......	36,053	0	0
1820...	31,533	2	3	1833......	36,481	0	0
1825...	34,190	1	7				

The number of penny-post letters for Glasgow delivery, exclusively of those delivered through the twenty-six out penny offices, was, from October 1833 to October 1834, 12,491, and the amount of the revenue derived from them L.102. 0s. 11d. When it is considered that in 1833 the revenue was only L.1700 more than in 1815, whilst the population had increased in the same period upwards of 72,000, and the increase of correspondence in a still greater ratio, we are led to believe that the revenue is greatly defrauded by private carrying.

Rental and Stamps.—The rental of the city and suburbs in 1833 was L.539,466. Amount of stamps sold in 1828, L.91,213; in 1830, L.103,802; in 1834, L.110,930.

Education.—The attention which has been paid to education in Scotland for centuries past has been acknowledged all over Europe. Amidst all the tumult and violence of civil contention, and at a time when the very existence of the Presbyterian church was at stake, the subject of education and of schools was never overlooked.

By act 43 Geo. III. cap. 54, the salaries of parochial schoolmasters, whose schools are not entirely confined in royal burghs, are to be fixed, from and after the 11th September 1803, at a sum of from 300 to 400 merks Scots, by the minister, and the heritors whose lands in the parish amount to L.100 Scots. In twenty-five years after the above period, or such after period as the salary shall be fixed, these heritors and minister are to modify a new salary, according to the average price of oatmeal, to be ascertained by the exchequer, of the value of from one and a half to two chalders, and so on from twenty-five years to twenty-five years; and when there is not a proper school-house, a house for the schoolmaster, and a garden for him containing at least one fourth of a Scotch acre, the heritors of the parish must provide these.

Schools.—In a large community like that of Glasgow, where schools are ever shifting, it is difficult to ascertain the exact number; but the following abstract from Dr Cleland's Annals of Glasgow will give the reader an idea of the extent of education in this city. That indefatigable author published the names of 144 teachers; and from his statement it appeared that, exclusively of the university and thirteen institutions where youth were educated, there were 144 schools; that, including the public institutions, there were 16,799 scholars, of whom 6516 were taught gratis in charity or free schools. These schools were all in a district containing about 75,000 souls; it appeared from the same statement that Sunday schools were established in 1786, that there were 106 schools, 158 teachers, and 4668 scholars, viz. 2235 boys, and 2433 girls, besides three adult schools. An infant school society was instituted in 1827. In 1834 there were six infant schools, viz. the model school in Saltmarket, a school in Drygate, Chalmers Street, Marlborough Street, John Street, and Cowcaddens; and two school-houses are about to be built in Gorbals, and one in Anderston.

Literature.—From the commercial enterprise which engages the time and attention of its inhabitants, this city cannot boast of a literary character. There are many individuals however of cultivated minds and extensive attainments, some of whom have formed themselves into societies for the promotion of literature and science. About the middle of the last century a literary society was established, consisting chiefly of the professors and clergymen of the city and neighbourhood, and reckoned amongst its distinguished members Doctors Adam Smith, Trail, and Reid, and Mr John Millar, the celebrated professor of law. A literary and commercial society was formed about the beginning of the present century, and is composed of a number of gentlemen, who meet for the discussion of literary and commercial topics. During the twenty-seven years in which records have been kept, upwards of two hundred essays have been read by the society.

The first newspaper published in the west of Scotland was the Glasgow Courant, which appeared in the year 1715. It was published three times a week, consisted of twelve pages in small quarto, and was sold for three half-pence or "one penny to regular customers." The second number contained a letter from Provost Aird, colonel of the regiment of Glasgow volunteers, detailing his views in regard to the Duke of Argyll's ultimate success at Sheriffmuir. The name of the paper was soon changed to that of the West-Country Intelligencer, which only survived a few years. From 1715 till the present time there have been twenty-one attempts to establish newspapers in this city, and out of that number eleven still survive. The names of the papers, the dates of their commencement, and the periods of publication, are as follows:—The Glasgow Courant in 1715; the Journal in 1729; the Chronicle in 1775; the Mercury in 1779; the Advertiser in 1783, but in 1804 its name was changed to that of the Herald; the Courier in 1791; the Clyde Commercial Advertiser in 1805; the Caledonia in 1807, but in the same year it merged in the Western Star; the Sentinel in 1809; a second Chronicle in 1811; the Scotsman in 1812; the Packet in 1813; a second Sentinel in 1821; the Free Press in 1823; the Scots Times in 1825; the Evening Post in 1827; the Trades' Advocate in 1829; the Liberator in 1831; the Scottish Guardian and the Argus in 1832; and the Weekly Reporter in 1834. The eleven surviving papers are, the Journal, published once a week; the Herald, twice; the Courier, three times; the Chronicle, three times; the Free Press, twice; the Scots Times, twice; the Evening Post, once; the Liberator, once; the Scottish Guardian, twice; the Argus, twice; and the Weekly Reporter, once: so that in Glasgow there are twenty newspapers published weekly. It would be invidious to state the circulation of each paper, even if it could be accurately obtained; it is, however, known that the circulation of the Herald on each publishing day for some years past has rather exceeded eighteen hundred, and that during the quarter from the 1st of March to the 1st of June 1834 its advertisements amounted to 3291.

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[1] In 1698, Sir Robert Sinclair of Stevenson had a grant from King William, of the whole revenue of the post-office of Scotland, with a pension of L.300 per annum to keep up the post.

The first circulating library in the west of Scotland was established in Glasgow in 1753, by Mr John Smith senior, who lent out books at the rate of one half-penny per volume. There are now many circulating as well as public and private libraries in Glasgow. Of the public libraries, exclusively of those belonging to the university, to Anderson's university, and to other literary bodies, the more valuable are, Stirling's, which was instituted in 1791; the Glasgow, in 1804; and the Robertsonian, in 1814.

Of late years a number of book societies have been established in Glasgow. They are conducted on a plan similar to that of circulating libraries, with this difference, that the books belong to the readers themselves, who are chiefly of the working classes. The periodical book-publishing trade, which, till about the year 1796, was scarcely known in Scotland, is carried on in Glasgow to an extent surpassing that of any other town in this part of the kingdom. By a late parliamentary report, it appeared that in Scotland there were 414 book hawkers, technically termed "canvassers" and "deliverers," who, on an average of seven years, collected L.44,160 per annum in sixpences and shillings, and five sixteenths of the whole belonged to Glasgow.

The Maitland Club, which was established in this city a few years ago, is similar to the Bannatyne Club of Edinburgh, or the Roxburghe Club of London, by the reprinting, for *private use*, of valuable and scarce old books, or the printing for the first time, in the same manner, of curious and rare manuscripts illustrative of the history, literature, or antiquities of Scotland. The club takes its name from Sir Richard Maitland of Lethington, an officer of state during the minority of James the Sixth, and who, like Bannatyne, did much service to Scottish literature, by compiling nearly all the poetry of the nation then in existence.

During the last thirty years several magazines and other periodical works have been published here, but none of them have succeeded.

Poor.—The proper management of the poor is everywhere important, but in a great manufacturing community, subject to numerous vicissitudes unknown to small towns and rural districts, it is peculiarly so. The poor in nine of the ten parishes of the city are maintained by an assessment on the inhabitants, aided by certain donations, and the collections or offerings at the church doors; whilst the poor of the tenth parish are maintained on a separate plan, to be afterwards mentioned, and the poor of the two suburban parishes of Barony and Gorbals by a tax on rental, aided by donations and offerings. Soon after Dr Chalmers' admission to the Tron Church, on the 21st of July 1815, he discovered that a great improvement might be made in the mode of maintaining the poor, and particularly that assessment might be dispensed with. Having explained his views to the magistrates, he was translated to St John's Church and parish, where he might be the better able to develope his plan. Accordingly, on the 18th of August 1819, the town council unanimously resolved that Dr Chalmers should have a "separate, independent, and exclusive management and distribution of the funds which may be raised by voluntary or charitable collections at the doors of St John's Church, for the relief of the poor resident in said parish." The scheme has been continued by the two clergymen who succeeded Dr Chalmers as pastors in the church; and after a trial of fifteen years, the energies of what is emphatically called the agency have not decreased. There is no intricacy in the scheme. The members of the congregation are liberal in their voluntary offerings at the church doors. The parish is divided into small districts; numerous elders and deacons, to whom districts are assigned, visit their respective poor, by which means imposition is easily detected, and the distribution of the fund to the legitimate poor is more surely and easily accomplished.

We have preferred taking the following abstract from Dr Cleland's statistical work, to any statement which could be made for 1834, as we have the advantage of the government enumeration for the former year, to enable our readers to draw results. It shows the number of paupers in the city and suburbs on the 31st of December 1830, with the expense of maintaining them during that year.

	Number of Paupers.	Expense of Maintenance.		
		£	s.	d.
St Mungo's……………	179	396	12	9
St Mary's………………	149	348	7	7
Blackfriars……………	176	362	11	0
Outer High……………	148	336	5	$1\frac{1}{2}$
St George's……………	126	354	0	2
St Andrew's…………	88	205	17	4
St Enoch's……………	137	254	5	2
St James'……………	108	228	19	$2\frac{1}{2}$
St David's……………	71	161	16	8
St John's………………	70	241	19	1
In-door and out-door paupers in hospital	1057	5773	1	7
Total in city…………	2309	7485	4	4
In Barony parish……	2237			
Gorbals………………	460	1132	18	$0\frac{1}{2}$
Total in city and suburbs………………	5006	17,281	18	$0\frac{1}{2}$

The population in the city and suburbs being 202,426, and the number of paupers 5006, there is one pauper for every $40\frac{43}{100}$ persons. The population of the ten parishes in the city being 89,847, and the number of paupers 2309, there is one pauper for every $38\frac{91}{100}$ persons. The number of paupers in the city and suburbs being 5006, and the amount of their maintenance L.17,281. 18s. $0\frac{1}{2}$d., this gives to each pauper L.3. 9s. $0\frac{6}{12}$d. The number of paupers in St John's parish being 70, and the amount of their maintenance L.241. 19s. 1d., this gives to each pauper L.3. 8s. $10\frac{1}{12}$d.

Abstract of the Expenditure of the Benevolent and Charitable Institutions of Glasgow, exclusive of Widows' Funds, Benefit Societies, Charity Schools, and Maintenance of Paupers.

The affairs of the following societies are conducted at the Religious and Charitable Institution Rooms.

Date of Formation.		Subscriptions for 1834.		
1796.	Glasgow Missionary Society………	L.735	0	0
1804.	Glasgow Bible Society………………	576	0	0
1809.	Nile and George Street Chapels' Sabbath School Society…………………	57	0	0
1811.	Aged Women's Society………………	110	0	0
1811.	Glasgow Auxiliary Gælic School Society………………………………	456	0	0
1812.	Glasgow Old Men's Friend Society,	323	0	0
1813.	Glasgow Auxiliary Hibernian Society	200	0	0
1815.	Glasgow Auxiliary Bible Society……	165	0	0
1815.	Glasgow Society in aid of the Serampore Missions…………………	693	0	0
	Carry over………	L.3315	0	0

	Brought over	L.3315	0	0
1817.	Glasgow Young Men's Society for the Support of Gaelic Schools	118	0	0
1818.	Glasgow Auxiliary Moravian Society	622	0	0
1819.	Glasgow Society for Promoting Christianity among the Jews (auxiliary to the London Society, formed in 1810)	166	0	0
1820.	Glasgow Auxiliary Scottish Missionary Society	265	0	0
1820.	Glasgow Deaf and Dumb Institution	215	11	10
1821.	Glasgow Religious and Church Institution House Reading-Room	35	0	0
1821.	Glasgow Auxiliary Religious Tract and Book Society for Ireland	56	0	0
1822.	Glasgow Seaman's Friend Society	87	0	0
1823.	Glasgow Auxiliary London Missionary Society (originated in 1815, re-organized in 1823)	187	0	0
1823.	Glasgow Auxiliary Irish Evangelical Society	74	0	0
1823.	Glasgow Religious Tract Society	270	0	0
1825.	Glasgow North American Colonial Society	316	0	0
1825.	Orphan's Institution	500	0	0
1826.	Glasgow Continental Society	45	0	0
1826.	Glasgow City Mission	800	0	0
1827.	Glasgow Auxiliary to the Irish Society for Native Schools	367	0	0
1829.	Glasgow Naval and Military Bible Society	130	0	0
1829.	Scottish Temperance Society	175	0	0
1830.	Glasgow Temperance Society	485	15	10
1830.	Glasgow Auxiliary to the British Society for Promoting the Religious Principles of the Reformation	85	0	0
1831.	Glasgow Society for Benevolent Visitation of the Destitute Sick, and others in extreme Poverty	50	0	0
1832.	Glasgow Christian Instruction Society	15	0	0
1833.	Glasgow Association for Promoting the Interests of the Church of Scotland	260	0	0
1834.	Glasgow Society for Church Accommodation (subscribed in nine months, viz. two at L.500, one at L.300, seventy at L.200 each, fifty-five at L.100, and twelve at L.50)	21,400	0	0
		L.30,039	7	8

The following list was prepared a few years ago for a ublic purpose. Although the expenditure of some of the nstitutions may now vary a little, the aggregate amount nay be taken as pretty near the truth:

1460.	St Nicholas Hospital	L.30	0	0
About 1500.	Fourteen Incorporations	2777	3	1
1599.	Faculty of Physicians and Surgeons	35	0	0
1605.	Merchants' House	920	12	2
1605.	Trades' House	782	11	8
1639.	Hutchison's Hospital	2580	2	11
1725.	Buchanan's Society	418	15	2
1727.	Highland Society	775	0	7
1729.	Mitchell's Mortification	100	0	0
1741.	Tennant's Mortification	46	2	8
	Carry over	L.8465	8	3
	Brought over	L.8465	8	3
1778.	Wilson's Charity	214	1	7
1778.	Coulter's Mortification	60	0	0
1789.	Grocers' Society	95	8	4
1790.	Miller's Charity	264	4	2
1790.	Humane Society	49	19	0
1790.	Society of the Sons of the Clergy	228	0	0
1790.	Brown's Society	12	0	0
1790.	Watson's Society	24	7	0
1791.	Glasgow Galloway Brotherly Society	49	10	0
1794.	Royal Infirmary	3593	4	7
1794.	Teachers' Society	21	0	0
1794.	Dumfriesshire Society	10	0	0
1796.	Faculty of Procurators	74	0	0
1797.	Badge of Merit Highland Society	12	0	0
1805.	Lock Hospital	451	0	1
1809.	Stirlingshire Society	20	0	2
1810.	Lunatic Asylum	443	5	0
1811.	M'Alpine's Mortification	70	0	0
1812.	Benevolent Society for Clothing the Poor	340	13	10
1815.	Magdalene Asylum	485	7	9
Not ascertained.	Graham's Society	164	6	1
Ditto.	Ayrshire Society	41	8	0
		L.15,191	3	8

Abstract amount of charities partaking of a religious character	L.30,039	7	8
Amount of charities partaking of a benevolent character	15,191	3	8
Amount of religious and charitable funds	L.45,230	11	4

Donations for charitable education under the patronage of the magistrates and ministers of Glasgow. (M'Lauchlan's includes the Elders.)

1825.	Mr M'Lauchlan, Calcutta	L.8,281	18	0
1831.	Mr James Murdoch, Glasgow	4,417	18	6
1833.	Dr Bell, London	9,791	13	4
Contingent.	Mrs Maxwell, late of Lisbon	2,000	0	0
		L.24,491	9	10

The number of patients in the hospitals and asylums on the 25th of March 1831 was 709, viz. in the Royal Infirmary 304, of whom males 143, females 161, under thirty years of age 148. In the Lunatic Asylum there were 264, viz. insane 212, of whom males ninety-nine, females 113, under thirty years forty-six; idiots eleven, of whom males eight, females three, under thirty years five; silly in mind forty-one, of whom males nine, females thirty-two, under thirty years six. In the Lock Hospital there were, females twenty-seven, under thirty years twenty-three. In the Magdalene Asylum there were thirty-three, all under thirty years. In the Deaf and Dumb Institution there were thirty-seven, males twenty-two, females fifteen, under twenty years thirty-six. The blind persons in the Asylum and Town Hospital were forty, viz. males twenty-six, females fourteen, under thirty years twenty-seven. Eye Infirmary four, males two, females two, under thirty, two.

Presbytery of Glasgow and Synod of Glasgow and Ayr.—The presbytery consists of the ten ministers of the city and the twelve surrounding parishes, viz. Barony of Glasgow, Gorbals, Rutherglen, Cumbernauld, Carmunnock, Cadder, Campsie, Govan, Kirkintulloch, Kilsyth, Cathcart, and Eaglesham; but as the ministers of the chapels of ease are about to become parish ministers, the members of presbytery will be increased. The synod consists of eight presbyteries, viz. Glasgow, Ayr, Irvine, Paisley, Hamilton, Lanark, Dumbarton, and the new presbytery of Greenock. The following is a view of the progressive stipends of nine of the ministers of Glasgow. Till 1788 the stipends were paid in Scots money, viz. in merks or pounds.

In 1638.......	L.58	16	$11\frac{1}{3}$	In 1788..........	L.165	0	0
In 1642.......	66	13	4	In 1796..........	200	0	0
In 1643.......	78	16	8	In 1801..........	250	0	0
In 1674.......	90	0	0	In 1808..........	300	0	0
In 1723.......	111	2	$2\frac{2}{3}$	In 1814..........	400	0	0
In 1762.......	138	17	$9\frac{1}{3}$	In 1830..........	425	0	0

The stipend of the minister of St Mungo is paid in grain from the teinds, viz. twelve and a half chalders of meal, twelve and a half chalders of barley, L.30 in money, and a glebe. This stipend, when the grain is at a moderate price, amounts to about L.500.

Church Accommodation.—In 1831 the population of the city and suburbs was 202,426, and the total sittings in the various places of worship in the city and suburbs 73,425, viz. in the established church 30,928, dissenters, Episcopalians, and Roman Catholics, 42,497. This is in the proportion of one sitting to $2\frac{75}{100}$ persons, or 20,291 sittings less than the amount required by law.

City Mission.—The want of church accommodation, and the total inability of the clergymen of the city to attend to the religious wants of a numerous class of the community, many of whom have no desire for religious instruction, led to the formation of the city mission. The society was instituted upon the 1st of January 1826, for the purpose of promoting the spiritual welfare of the poor of Glasgow and its neighbourhood, by employing persons of approved piety, and otherwise properly qualified, to visit the poor in their own houses, for the purpose of religious discourse, and to use other means of diffusing and increasing amongst them a knowledge of evangelical truth. In December 1831 there were twenty-two licentiates or students of divinity employed, at salaries of L.40 each; twenty of these were on full time, viz. four hours per day, and the other two on two-thirds time. In addition to the city mission, a parochial mission was instituted in 1832, and there are now one missionary in every parish, and two or three in the large ones.

Licenses to Sell Spirits.—The number of persons licensed to retail spirituous liquors in the ten parishes of the city being 1393, and the number of families 19,467, this gives one licensed person, or public house, to $13\frac{97}{100}$ families. If the number of persons who retail spirituous liquors without being able to obtain a license were taken into account on the one hand, and the number of temperate families who never use a public house on the other, it may be said that in Glasgow there is at least one place where spirits are retailed for every twelve families.

Pawnbrokers.—The business of a pawnbroker was not known in Glasgow till August 1805. At that period an itinerant English pawnbroker commenced business in a room in the High Street, but was obliged to give up at the end of six months, for want of business; and it was not until the 8th of June 1813 that John Graham, a disbanded town-officer, set up a regular pawnbroking office. There are now twenty-two licensed pawnbrokers in the city.

River Clyde.—As the river Clyde, in a commercial point of view, is of the utmost importance, not only to Glasgow, but to the western district of Scotland, a brief account of its improvements must therefore be interesting. In the beginning of the sixteenth century the channel of the river for about thirteen miles below Glasgow was so incommoded by fords and shoals as to be scarcely navigable for even small craft. But in 1556 the inhabitants of the burghs of Glasgow, Renfrew, and Dumbarton, entered into an agreement to excavate the river for six weeks alternately, with the view of removing the ford at Dumbuck, and some lesser fords. By the exertions of these parties small flat-bottomed craft were brought up to the Broomielaw at Glasgow, which was then only a landing shore, there being no regular harbour for more than a hundred years after that period. In 1653 the citizens of Glasgow had their shipping harbour at the bailiery of Cunningham, in Ayrshire; but this port being distant, and the land-carriage expensive, the magistrates of Glasgow treated with the magistrates of Dumbarton for ground on which to build a harbour and docks at Dumbarton. After much discussion the negotiation broke up, the magistrates of Dumbarton considering that the great influx of mariners would "raise the price of provision to the inhabitants." The magistrates of Glasgow then turned their attention to the Troon; and here they were again repulsed for a similar reason. In 1662, however, they succeeded in purchasing thirteen acres of ground from Sir Robert Maxwell of Newark, on which they laid out the town of Port-Glasgow, built harbours, and made the first dry or graving dock in Scotland. Soon after the Revolution in 1688 a quay was formed at the Broomielaw, at the expense of 30,000 merks Scots, or L.1666. 13s. 4d. sterling. The east end was at the mouth of St Enoch's Burn, and the west at Robertson Street.

At length, when the magistrates had got a shipping port and a quay, they directed Mr Smeaton, the celebrated engineer, to inspect the river; and on the 13th of September 1755 he reported, *inter alia*, that the river at the ford at the Point House, about two miles below Glasgow, was only one foot three inches deep at low water, and three feet eight inches at high water. He proposed that a lock and dam should be made at the Marlin ford, in order to secure four and a half feet water up to the quay at Glasgow. The lock was to be seventy feet long and eighteen feet wide, and so deep as to take in a flat-bottomed lighter at four and a half feet draught of water. An act of parliament was procured for the above purpose, but nothing further was done in it.

The magistrates then required the assistance of Mr John Golborne of Chester, and he reported, on the 30th of November 1768, that the river was in a state of nature; and that at the shoal at Kilpatrick Sands, and at each end of the Nushet Island, there was no more than two feet of water. He then proposed to contract the river by jetties for eight miles below Glasgow, and to dredge and deepen it, at an expense of L.8640. Mr Golborne having suggested that a survey of the river should be taken, the magistrates employed Mr James Watt, afterwards the celebrated improver of the steam-engine, who, along with Dr Wilson and Mr James Barrie, reported that several parts of the river from the Broomielaw to the Point House had less than two feet water. In 1770 an act of parliament was procured, by which the members of the city corporation were appointed trustees, with power to levy dues. The trustees then contracted with Mr Golborne for deepening the river, and in January 1775 he had erected 117 jetties on both sides, which confined it within narrow bounds, so that vessels drawing more than six feet water came up to the Broomielaw at the height of the tide. On the 7th of September 1781 Mr Golborne made an estimate for bringing vessels drawing seven feet water to the Broomielaw; and on the 22d of August 1799 Mr John Rennie, civil engineer, London, reported his opinion respecting the deepening of the river; as did Mr Thomas Telford, civil engineer, London, on 24th of May 1806; Mr John Rennie again, on the 24th of December 1807; Mr Whidbey of Plymouth on the 22d of September 1824; Mr John Clark, superintendent of the river, on the 11th of November 1824; and Mr Atherton, civil engineer, Glasgow, in 1833. In 1825 the trustees obtained another act of parliament, appointing five merchants not connected with the corporat n, additional trustees on the river; and increasing the ces on all goods passing on the river from 1s. to 1s. 4d. pr ton, and on the admeasurement of all vessels coming t the harbour, in name of harbour dues, from 1d. to 2d. pr ton. The same act authorized dues to be levied for the u of the sheds, according to a regulated schedule; the f mer dues of 1s. per ton on coals having been taken off.

Mr James Spreull was appointed superintendent of the rer in 1798; and, until his death in 1824, he was enthusstic in every thing that related to its improvement. Te increase of trade at the Broomielaw, in consequence o these improvements, almost exceeds belief. Less than fily years ago a few gabbards, and these only about trty or forty tons, could come up to Glasgow; now large vsels, many of them upwards of 300 tons burden, from Aerica, the East and West Indies, and the Continent, a often to be found three deep along nearly the whole lgth of the harbour. A few years ago the harbour was oy 730 feet long; it is now 3340 feet long on the north se of the river, and 1260 on the south. Till of late yrs there were only a few punts and ploughs for the prpose of dredging the river; now there are four dredgi machines with powerful steam apparatus, and two divi bells. Till lately there were no covering for goods at t harbour, and but one small crane for loading and discirging; now the shed accommodation on both sides of t river is most ample, and one of the cranes for shippg steam-boat boilers, and other articles of thirty tons, nde by Messrs Claud Girdwood and Co., may, for the uon of power with elegance of construction, challenge a the ports in the kingdom.

The river for seven miles below the city is confined whin narrow bounds; and the sloping banks, formed of winstone, in imitation of ashlar, are unequalled in the kgdom, whether their utility or their beauty be taken into aount. By the year 1831, vessels drawing thirteen feet s inches of water were enabled to come up to the harbur of the Broomielaw. The increase of trade on the Cde having far exceeded what even the most sanguine cld have contemplated, we think that some parts of the rer may be widened with advantage. In 1834 the trusts appointed Mr Logan, civil engineer, a gentleman of gat talent and experience, to direct the improvements o he river.

Till 1834 the river and harbour dues were annually disped of by public sale, but they are henceforth to be collcted by the trustees. The following is a statement of the aunt of dues in the years specified. In 1771 the first yr's dues were L.1021; in 1810, L.4959; in 1812, L525; in 1814, L.6128; in 1833, L.20,260; and in 14, L.21,260, exclusive of shed dues, which in 1833 aunted to L.1283, and in 1834 to L.1564.

The burgesses of Dumbarton are exempt from river dues, i irtue of an old charter. From the time the exemption w first claimed, on 9th July 1825 to 8th July 1834, they aunted to L.4722. 13s. viz. sailing vessels L.803. 13s. 4 steam ditto L.3918. 19s. 8d., less L.170. 3s. 1d. paid b shareholders in steam-boats who were not burgesses of L mbarton.

The river dues have been greatly increased by steam nigation, as appears from the following statement. From 8 July 1833 to 9th July 1834, the river dues collected sod to the gross revenue as follows: Total tonnage on mchandize, $70\frac{1}{4}$ per cent.; ditto by sailing vessels, includir ferries, $38\frac{5}{6}$ per cent.; ditto by steam ditto, $31\frac{3}{8}$ per ct.; quay dues by ditto $15\frac{1}{6}$ per cent.; ditto by sailing do $5\frac{1}{3}$ per cent.; shed dues $5\frac{7}{12}$ per cent.; ferries $3\frac{5}{8}$ p cent. Total steam to total sailing vessels as $87\frac{7}{60}$ to 1.

pplication of the Steam-Engine in propelling Vessels.—T application of steam in propelling vessels long engaged the attention of men of mechanical genius. In 1736, Mr Jonathan Hulls obtained a patent for "a new invented machine for carrying vessels or ships out of or into any harbour, port, or river, against wind and tide, or in a calm;" but this scheme did not succeed. In 1781, the Marquis de Fouffroy made some unsuccessful experiments in propelling vessels by steam on the Saone at Lyons. In 1785, Mr James Rumsey of Virginia, and Mr John Fitch of Philadelphia, made several experiments, which were also unsuccessful. In the same year, Mr Patrick Miller of Dalswinton, Dumfriesshire, made several experiments with paddles on twin and triple vessels worked by men and horses, an account of which he published in July 1787. Soon after this, Mr Miller built a boat with two keels, between which he introduced a propelling paddle; and Mr William Symington of Falkirk applied the steam-engine to it; and in 1788 Mr Miller and Mr Symington made an experiment with it on Dalswinton pond. But after several attempts, it was found that the engine and wheel were so inefficient as occasionally to require the assistance of manual labour at a windlass. Some time after this, Mr Miller caused a larger engine to be made at Carron Works, and an experiment was made with it on the Forth and Clyde Canal, which, though answering better than the former, did not succeed. In 1794, the Earl of Stanhope constructed a steam-vessel with paddles under her quarters, but with no better success. In 1801 and 1802, Lord Dundas, then governor of the Forth and Clyde navigation, employed Mr Symington to construct a steam-boat for that canal; but this boat, from what Mr Symington called the "opposition of narrow minds," was laid up in a creek near Bainsford Bridge, where it remained as a wreck for many years.

The whole race of steam propellers having thus left the field one by one, without being able to effect their object, the ground was occupied by Mr Henry Bell, who having a turn for mechanics, made a steam-engine of three horse power, and employed Messrs John Wood and Company, shipbuilders in Port-Glasgow, to build a boat for him, which he called the Comet. In January 1812, every thing being in readiness, the Comet began to ply between Glasgow and Greenock, and made five miles an hour against a head wind, whilst by simply increasing her power she went at the rate of seven miles an hour. This was the first vessel that was successfully propelled on a navigable river in Europe; and it is very remarkable, that notwithstanding the great progress in mechanical science, no improvement has yet been made on Mr Bell's mode, although numerous efforts have been made here and elsewhere for that purpose. It is true that boats go swifter now than formerly, but the propelling system remains the same. To this brief account of the origin of the steam propelling system in this country, it must be added that the Americans preceded us fully four years. In October 1807, Mr Robert Fulton, an American engineer, launched a steam-boat at New York, which plied with great effect between that city and Albany, a distance of 160 miles.

Clyde Steam Vessels in 1831 and 1834.

Outsea Boats.

	1831.		1834.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
Liverpool........	5	910	5	1022
Belfast..........	3	429	4	485
Dublin..........	2	370	2	274
Londonderry....	2	238	2	289
Total.....	12	1947	13	2070

	1831.		1834.	
	Vess.	Tonn.	Vess.	Tonn.
Boats for goods and passengers plying as far as Stranraer on the one side of the Clyde, and to the Western Highlands on the other	8	600	10	761
Boats for passengers only, and plying on the river and Frith of Clyde	25	1728	21	1525
Luggage boats	7	431	7	412
Towing boats	3	199	3	199

Abstract.

	1831.		1834.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
Outsea boats	12	1947	13	2070
Goods and passengers	8	600	10	761
Passengers	25	1728	21	1525
Luggage	7	431	7	412
Towing	3	199	3	199
Total	55	4905	54	4967

The above tonnage is register measure; carpenters' measure in steam-vessels is about *one third* more.

The number of river boats for 1831 included all those which had plied during any part of that year. Many, however, were sold, some were broken up, and others were withdrawn in the course of the year, and there were not so many as twenty-five running at any *one time.* This accounts for the apparent falling off in 1834, as the twenty-one given for that year were actually plying in December. There is therefore an increase of boats plying on the river, and preparations are making to establish several others. All the new boats, either for the outsea or river trade, are of larger dimensions, greater engine power, and are much more splendidly fitted up for the accommodation of passengers than heretofore. The speed is also greatly improved. The Liverpool boats in 1831 were thought to have made good passages when they performed the run from Liverpool to Greenock, a distance of 220 miles, in twenty-four to twenty-six hours. It is now done much sooner. The steam packet Manchester, of 387 tons carpenters' measurement, belonging to Messrs James Martin and James and George Burns and Co. of this city, left the Clarence dock, Liverpool, on Monday evening the 15th December 1834, and arrived in Glasgow, a distance of 240 miles, discharged and loaded her cargoes, and was back again in the same dock, within the short period of sixty hours. This being done in the dead of winter, studying the tides in the Mersey and Clyde shows what can be done by steam navigation. The cabin fares for the river boats are rather less than one penny per mile, and outsea boats rather more. To Liverpool the fare is L.1. 5s.

Stage-Coaches.—Stage-coaches were first used in Scotland in 1678. The first mail-coach from London to Glasgow arrived at the Saracen's Head on Monday the 7th of July 1788; at that period the mail went by Leeds, a distance of 405 miles, and arrived in sixty-five hours, being nearly six and a half miles in the hour; in 1834, the mail goes by Wetherby, a distance of 395 miles, and arrives in forty-one hours and three fourths. The speed from Carlisle to Glasgow is at the rate of eleven miles an hour. On the 10th of January 1799, Mr John Gardner of the Buck's Head, Glasgow, started a coach to Edinburgh with four horses, which performed the journey of forty-two miles in six hours. The time now occupied on the road by stage-coaches is about four hours and a half.

In 1833 there were on an average sixty-one stage-coaches which departed from and returned to Glasgow every lawful day. The mails every day, viz. to London two, Edinburgh twelve, Paisley thirteen, Hamilton five, Lanark three, Perth two, Stirling two, and to other towns twenty-two. These coaches were drawn by 183 horses, and 671 horses were kept for them. They accommodated 832 passengers, viz. inside 284, outside 548.

Private Carriages.—Mr Allan Dreghorn, timber merchant and builder, was the first person who started a private carriage in this city; it was made by his own workmen in 1752. The number of carriages in the city and suburbs charged with duty in 1832 was 402, viz. stage-coaches sixty-one, hackney carriages 140, private carriages 201, viz. with four wheels 112, two wheels 89.

Relays of post-chaises did not exist in Scotland, except on the road from Edinburgh to London, till the year 1776, and even in England relays are of comparatively recent date. Mr John Glasford, and Mr Andrew Thomson senior, Glasgow merchants, went to London on horseback in the year 1739. At that period there was no turnpike road till they came to Grantham, within 110 miles of London. Up to that point they travelled upon a narrow causeway, with an unmade soft road upon each side of it; and they met from time to time strings of pack-horses, from thirty to forty in a gang, the mode by which goods were transported from one part of the country to another.

The Forth and Clyde Navigation.—In 1768, an act of parliament was obtained for making a canal from the river Forth at or near the mouth of the river Carron in the county of Stirling, to the river Clyde at or near Dalmuir Burnfoot in the county of Dumbarton, with a collateral cut to the city of Glasgow. On the 10th of June in that year, Sir Lawrence Dundas dug out the first spadeful of earth for the formation of the canal, and it was opened from the eastern to the western sea on the 28th of July 1790. On the 11th of November in the same year, the basin at Port Dundas was finished. The length of the navigation from the Forth to the Clyde is thirty-five miles, and the cut to Glasgow two and a half miles. There are thirty-nine locks on the canal, namely, twenty from the Forth to Glasgow, and nineteen between the great aqueduct and the Clyde. The length of the locks between the gates is seventy-four feet, the width twenty feet, and the fall ten feet. The medium width of the surface of the canal is fifty-six feet, at bottom twenty-seven feet, and the depth upwards of ten feet. The rise from the east sea to the summit-level of the Canal at Wineford Lock is 156 feet, and the descent to the Clyde 150 feet, so that the Forth at the east end of the canal is six feet lower than the Clyde at Bowling. This great canal, which required twenty-two years to complete, was one of the most arduous to execute in the kingdom, having to encounter rocks, precipices, and quicksands; in some places it runs through a deep moss, and in others it is banked twenty feet high. It crosses many rivulets and roads, as well as two considerable rivers, the Luggie and the Kelvin. The bridge over the latter, which consists of four arches, and carries the canal across a deep valley, cost L.8509. The canal is supplied with water by eight reservoirs, covering 721 acres, and containing 24,902 lockfulls of water.

Mr Kirkman Finlay of Castle Toward, the present governor, was elected to that important office on 20th March 1816. At the following balance the rate per cent. on each original share of L.100 was L.25; in the preceding ar L.17. 10s. The annual average revenue during sixen years previous to Mr Finlay being appointed goverr was L.30,323. 7s. 6d. and the annual average revenue ring sixteen years after it was L.46,680. 11s. 4d.

In 1832 there were two steam passage boats on the nal, each of twenty-four horse power. These boats nt at the rate of six miles an hour. In 1833 the steamats gave place to swift iron boats, which travel at the e of ten miles an hour. Four of these boats leave Port ndas for Stirling and Edinburgh, and return every law day, and four additional ones are in a state of preparan. In 1832 the revenue from steam and heavy drag ats was L.1213. 19s. 5d. In 1833 from the swift boats 3007. 19s. 1d.; and in 1834 upwards of L.5000.

Monkland Canal.—This canal affords a cheap commuation between the city of Glasgow and the collieries the parishes of Old and New Monkland, distant about elve miles. The canal was originally thirty-five feet ad at the top, and twenty-four at the bottom; depth of ter upon the locksills five feet, and the smallest depth oughout any part of the canal four feet six inches. e banks have been recently raised, by which a greater pth of water is procured. At Blackhill there are four ks of two chambers, each chamber seventy-one feet g, fourteen feet broad, and twelve feet deep. The head el, at the top of Blackhill, is continued to Sheepford, a tance of eight miles, where there are two single locks of ven feet six inches each, which carries the canal to the er Calder. In the spring of 1813 three passage-boats gan to ply to Sheepford, about a mile from Airdrie. is canal has been productive to the stockholders for a nber of years past.

lasgow, Paisley, and Ardrossan Canal.—The expense and carriage from Glasgow to the west coast, through fertile counties of Lanark, Renfrew, and Ayr, aboundwith coal and limestone, was long a desideratum. The rations on the canal commenced in May 1807, and the igation opened between Glasgow and Johnston on the of October 1811. Although the canal was opened at t period, the trade did not commence till April 1812. e length of the canal from Port Eglintoun to Ardrossan is rty-two miles and three quarters; from Port Eglintoun Johnston eleven miles; breadth at top thirty feet, bottom eighteen feet, and depth four feet six inches. ere are no locks on that part of the canal yet executed, . between Port Eglintoun and Johnston; but when the al is carried forward, there will be eight near Johnston raise the canal to the summit-level, and thirteen to fall wn to the harbour of Ardrossan. On the 6th of Novem 1810, boats were put on this canal, but Mr Houston of nston Castle has the merit of introducing swift iron ats. During 1830 these boats made four trips daily, raging twenty-five passengers each trip; in 1831 eight ps, averaging thirty-two passengers; in 1832 fourteen ps, averaging thirty-four passengers; and during the t six months of 1833 they made eighteen trips, averag forty-five passengers. During the months of July and gust 1834, 50,000 passengers went along the canal; number in one day was 2500. The proportions of the t cabin and second cabin passengers are, one fifth of the t cabin passengers at one penny per mile, and four hs of second cabin passengers at three farthings per mile. e average total fare on the canal is therefore sixteen entieths of a penny per mile. The swift boats on the rth and Clyde and Union Canals ply at similar rates.

Union Canal.—The Union Canal was begun on the 3d of rch 1818. It is thirty-one miles and a half in length m Port Hopetoun, near Edinburgh, to Port Downie, near kirk. The navigation for ten miles west from Port petoun was opened on the 22d of March 1822, and to rt Downie early in May thereafter. The canal is on a level line for thirty miles from Port Hopetoun; the remaining distance is occupied by eleven locks, each ten feet deep, so that the Union Canal, at the head of the locks, is 110 feet above the Forth and Clyde Navigation. The Union Canal is forty feet broad at the top, twenty feet at the bottom, and five feet deep. This canal has not yet been productive to such stockholders as have not an interest in the Forth and Clyde Navigation.

The intercourse with Glasgow by coaches, steam-boats, track-boats, and rail-roads, is so great that it almost exceeds belief. As some of the coaches and steam-boats depart and arrive more than once a day, and the mail-coaches every day, the following may be taken as a low average of passengers by stage-coaches and steam-boats, while the others are from the books of the respective companies. During 1834, sixty-one stage-coaches, each averaging twelve passengers, arrived and departed during 313 lawful days. This amounted to 458,232 persons in the year. By thirty-seven steam-boats, twenty-five passengers each, 579,050; by the swift boats on the Forth and Clyde Navigation and Union Canal, 91,975; by the light iron boats on the Paisley Canal, 250,000; by the boats on the Monkland Canal, 31,784; and by the Glasgow and Garnkirk Rail-road, 118,882; making the gross number of passengers amount to 1,529,923.

Trade, Arts, and Manufactures.—Glasgow is advantageously situated for commercial pursuits. Placed on the borders of one of the richest coal and mineral fields in the island, with which it communicates by the Monkland Canal, and by various rail-roads, and connected on the one hand with the Atlantic by the Clyde, and on the other with the North Sea and the German Ocean by the Forth and Clyde Navigation and the river Forth, it possesses facilities peculiarly favourable for trade. Notwithstanding these local advantages, Glasgow was not remarkable for trade until a considerable time after the union with England. Its importance, in a commercial point of view, may be greatly attributed to the improvements on the Clyde, and to the enterprising spirit of its merchants and manufacturers during the last seventy years. In 1420, a Mr Elphinstone is mentioned as a curer of salmon and herrings for the French market; and Principal Baillie mentions that this trade had greatly increased between the years 1630 and 1664. As an encouragement to trade, then in its infancy, an act was passed, in which it was stipulated that the whole materials used in particular manufactures should be exempt from duty; and in the same parliament it was enacted, for the better encouragement of soap manufacturers, that oil, potashes, and other materials for making soap, should be exempt from duty. On 31st of January 1638, "Robert Fleyming and his partners made offer to the town council to set up a manufactory in the city, wherein a number of the poorer sort of people may be employed, provided they met with sufficient countenance. On considering which offer, the council resolved, in consideration of the great good, utility, and profit, which will redound to the city, to give the said company a lease of their great lodging and backyard in the Drygate, excepting the two front vaults, *free of rent* for the space of seventeen years. On 8th May thereafter, the deacon convener reported that the freemen weavers were afraid that the erecting of the manufactory would prove hurtful to them. On which Patrick Bell, one of the partners, agreed that the company should not employ any unfree weavers of the town."

Letter-press printing was introduced into Glasgow by George Anderson in the year 1638; and one of the first works printed by him was an account of the general assembly, which met there the same year. Anderson came to Glasgow in consequence of an invitation from the magistrates. It appears, from the records of the town council, 4th January 1640, that the treasurer was directed to pay him L.100 in satisfaction of his expenses, "in transporting of his gear to this burghe," and in full of his bygone salaries from Whitsunday 1638 till Martinmas 1639. It also appears, from the records of the council, 10th June 1663, that Anderson was succeeded by his son Andrew as ordinary printer to the town and college, on condition of his "services as well and his prices being as easy as others." Andrew, who had been a printer in Edinburgh, not finding matters to his mind here, returned to Edinburgh, and in 1671 he was made king's printer for Scotland. Anderson was succeeded in Glasgow by Robert Saunders, who styled himself printer to the city, and who was for many years the only printer in the west of Scotland. But his predecessor, now the royal typographer, came to Glasgow, and by threats and promises prevailed on Saunders' workmen to desert him in the midst of an impression of the New Testament. This oppressive conduct brought the matter before the privy council, which decided, in December 1671, that Saunders should be allowed to finish his book, and that any printer in Scotland had an equal right with his majesty's to print the New Testament and Psalm Book in the letter commonly called English Roman. Saunders died about 1696, leaving his printing establishment to his son Robert, better known by the designation "of Auldhouse," a property purchased from a younger branch of the family of Maxwell of Pollock. A few of the works first printed by him were tolerably executed; but his latter productions are extremely paltry and inaccurate. Printing was now, and for some years afterwards, in the lowest state in Scotland. The exorbitancy of the royal grant to Anderson had produced the worst effects. No person appears to have been employed for the sole purpose of correcting the press; and the low wages given to pressmen, with the badness of the machines themselves, also tended to retard the improvement.

The university, in the mean time, was not wanting in efforts to improve the printing in Glasgow. A paper, entitled "proposals for erecting a bookseller's shop and a printing-press in the university of Glasgow," appears to have been presented to the faculty in 1713, in which it is mentioned that they were "obliged to go to Edinburgh in order to get one sheet right printed." During the same year, Thomas Harvie, a student of divinity, engaged to furnish one or more printing presses, and in the course of four years to furnish founts and other materials for printing Greek, Latin, and Hebrew, on condition that he should be declared university printer and bookseller for forty years, "with all the privileges and immunities which the university hath or shall have hereafter to bestow on their printer and bookseller." Although these terms were probably not ultimately accepted, they seem at least to have been under frequent consideration; and the sketch of a contract with Harvie is preserved among the university papers. Two years afterwards, "Donald Govane, younger, merchant in Glasgow, and printer," was appointed to the same office for seven years; but his name appears at very few books.

James Duncan, who printed M'Ure's History of Glasgow, continued to print here till about the year 1750. Robert Urie and Company were printers in the Gallowgate in 1740, and during the following year executed several works for Robert Faulls (improperly termed Fowlis). Urie is entitled to the credit of adding to the respectability of the Glasgow press. Amongst the finest specimens of his work are his editions of the Greek New Testament and of the Spectator. But the art of printing was carried to great perfection by the Messrs Faulls, who introduced into Glasgow a style of printing which, for beauty and correctness, has never been surpassed in any country. A brief account of these distinguished persons cannot fail to be interesting.

Robert Faulls, the eldest son of Andrew Faulls, was born in or near Glasgow, on the 20th of April 1707, and his brother Andrew on the 22d of November 1712. Robert was sent, at an early period, as an apprentice to a barber, and seems to have practised the art of shaving for some time on his own account. While in this situation Dr Francis Hutchison, then professor of moral philosophy in the university, discovered in him the talent which was afterwards cultivated with so much success, encouraged his desire of knowledge, and suggested to him the idea of becoming a bookseller and printer. Although Robert Faulls did not receive a complete university education, he continued to attend for several years the lectures of his patron; but Andrew received a more regular education, and for some years taught the Greek, Latin, and French languages. Having thus acquired a pretty accurate knowledge of books, Robert began business in Glasgow as a bookseller in 1741, and in the following year the first production of his press appeared. He was assisted in the correction of his press by George Rosse, then professor of humanity in the university, and by James Moor, at that time a tutor about the college, and afterwards professor of Greek. To these advantages must be added the appointment, on 31st March 1743, of the elder brother as printer to the university. In the same year he produced Demetrius Phalerius *de Elocutione*, apparently the first Greek book printed in Glasgow, though George Anderson's printing-house had been nearly a century before supplied with Greek and Hebrew types. In 1744 appeared the celebrated edition of Horace, the proof sheets of which, it is well known, were hung up in the college, and a reward offered to any one who should discover an inaccuracy. By the year 1746, Faulls had printed eighteen different classics, besides Dr Hutchison's class-book in English and Latin; and Homer, with the Philippics of Demosthenes, were advertised as in the press. The Homer appeared in the following year, both in a quarto and in an octavo form. The first of these is a very beautiful book, and more correct than the other, which was printed after Dr Clarke's edition. The success which had attended the efforts of the Faullses as printers induced the elder brother to extend the sphere of his usefulness. After being four times abroad, he sent home to his brother a painter, an engraver, and a copperplate printer, whom he had engaged in his service, returned to Scotland in 1753, and soon afterwards instituted an academy for painting, engraving, moulding, modelling, and drawing. The university allowed him the use of what is now the Faculty Hall as an exhibition room for his pictures, and of several other rooms for his students; and three Glasgow merchants afterwards became partners in the undertaking. The students, according to the proposed plan, after having given proofs of genius at home, were to be sent abroad at the expense of the academy. But the scheme, which was somewhat romantic, did not succeed, and was attended with considerable loss to all concerned. In Faulls' own words, "there seemed to be a pretty general emulation who should run it most down."

Letter-press printing has been carried on of late years to such an extent that it could not be accomplished without the aid of steam. Messrs Ballantyne and Company of Edinburgh were the first in Scotland who printed by steam. In 1829 or 1830, they fitted up a steam-press for printing Blackwood's Magazine and the Waverley novels. Soon after this the Edinburgh, Leith, and Glasgow Advertiser was printed by steam, then the Edinburgh Weekly Chronicle, Chambers' Journal, and the Farmers' Magazine. In 1831 the Aberdeen Journal was printed in this way; and in 1834 Mr Edward Khull fitted up a steam-press for printing the Church of Scotland Magazine in this city.

A copartnery for carrying on the whale-fishery, and making soap, was entered into in this city on the 15th of September 1674. Mr George Maxwell of Pollock, who was created a baronet in 1682, Provost William Anderson, and James Colquhoun, late one of the bailies of the city, were among the original partners. The company employed five ships; and the Providence, built at Belfast, was sailed by John Anderson, one of the partners. The company had extensive premises at Greenock for boiling blubber and curing fish. An advertisement from the company appeared in the Glasgow Courant on the 11th of November 1715, being the first advertisement in the first newspaper in the west of Scotland. It was in the following words:—“Any one who wants good black or speckled soap, may be served by Robert Luke, manager of the soaparie of Glasgow, at reasonable rates.” The soaparie was at the head of Candleriggs Street, now the Commercial Buildings.

A copartnery for the manufacture of ropes was entered into on the 17th of March 1696. Mr William Crawford of Jordanhill, and Mr James Corbet of Kenmure, were among the first partners. In 1698 an act of parliament was passed for the further encouragement of the manufacture of ropes and cordage in Glasgow, laying a duty on all ropes imported from the Sound or east seas; and, in return, the company were to advance a capital of L.40,000 Scots, and to bring in foreigners to the work. It is probable that the company's first premises had gone into decay, as the buildings of what was afterwards known by the name of the Glasgow Ropework Company, reaching between Stockwell Street and Jamaica Street, were not erected till the autumn of 1766.

With regard to sugar-houses, although the colonies were not laid open to the Scotch until the union, it appears that there were sugar-houses in Glasgow long before that period; for in an action which the crown brought against the sugar bakers in Glasgow and Leith, it was urged that they had not only enjoyed the exemption from the duties and customs on the import of materials for a great number of years, but also the duties of excise upon the spirits and other commodities manufactured by them. At length, in 1715, a process was raised against them for the bygone excise duties; and in 1719 the Court of Exchequer found them liable in the sum of L.40,000 sterling. As the trade could not pay any such sum, a compromise was suggested, and a clause added to an act of parliament authorizing the treasury to treat with them; and by another act the sugar manufacturers were acquitted of the L.40,000 on relinquishing their right of exemption from duties and customs. The statute is general, and seems to subject all other privileged parties to the general custom and excise of the nation. The only parties in Scotland at that time exempt from the importation duties were the Glasgow and Leith sugar companies, the Glasgow soap work, the rope-work companies, and a pin manufactory; the three last made a claim as a compensation for the surrender of their private rights, which does not seem to have been attended to. The buildings of Stockwell Place are now erected on the site of the sugar-house.

The tanning of leather seems to have been carried on in Glasgow from an early period. The Glasgow Tan-work Company, whose extensive premises were at the head of the Gallowgate, commenced soon after the union. There seem to have been three sets of partners in this great undertaking. In 1780 the names of Provost John Bowman, Mr Alexander Speirs of Elderslie, Mr John Campbell of Clathic, Mr Robert Bogle of Daldowie, Mr Robert Marshall, and others, appear among its partners.

The brewing business, like the tanning, seems to have been carried on with great spirit. Soon after the union, Mr Crawford of Milton erected an extensive brewery at Grahamston, afterwards the property of Mr Robert Cowan. The brewing trade was carried on extensively here at an early period by the Anderston Brewery Company, and by Messrs Blackstock, Baird, Struthers, Buchanan, &c.

Previously to the union, the foreign trade of Glasgow was chiefly confined to Holland and France. The union of the kingdoms, which took place in 1707, having opened the colonies to the Scotch, the merchants of Glasgow immediately availed themselves of the circumstance, and having engaged extensively in a trade with Virginia and Maryland, soon made their city a mart for tobacco, and the chief medium through which the farmers-general of France received their supplies of that article. In 1721 a remonstrance was preferred to the lords of the treasury charging the Glasgow merchants with fraud. After having heard parties, and considered the representation, their lordships dismissed the complaint as groundless, and proceeding from a spirit of envy, not from a regard to the interest of trade or the king's revenue. To such an extent was this branch of commerce carried on in Glasgow, that for several years previously to 1770 the annual import of tobacco into the Clyde was from 35,000 to 45,000 hogsheads. In 1771, 49,016 hogsheads were imported. As the Glasgow merchants were enabled to undersell, and did undersell, those of London, Bristol, Liverpool, and Whitehaven, jealousies arose which ended in litigation. As the tobacco trade was suspended in 1783, at the breaking out of the war with America, the merchants of Glasgow engaged their capital in other pursuits.

Some attempts having been made to open a connection with the West Indies, the imports from that quarter into the Clyde in 1775 were as follow: Sugar 4621 hogsheads and 691 tierces, rum 1154 puncheons and 193 hogsheads, cotton 503 bags. The following excerpt of imports into the Clyde from the custom-house books shows the great increase of this trade. In the year ending the 5th of January 1815, immediately preceding the battle of Waterloo, there were imported; sugar, 540,198 hundredweights, two quarters, twenty-five pounds; rum, 1,251,092 gallons; cotton wool, 6,530,177 pounds. The import duties of these and other articles amounted to L.563,058. 2s. 6d.; and the produce was imported in 448 ships, carrying 79,219 tons, and employing 4868 men in navigating them. These imports are, exclusive of grain, hemp, tallow, &c. from the Baltic through the Great Canal. The exports during the same period to America, the West Indies, and Europe, amounted to L.4,016,181. 12s. 2½d.; and 592 ships, 94,350 tonnage, and 6476 men were employed in this traffic.

In 1718 the art of type-making was introduced by James Duncan. The types used by him are evidently of his own making, being rudely cut and badly proportioned. He deserves credit however for the attempt; and his letters are little inferior to those used by the other Scottish printers of that period. He continued to print for many years, and is well known as the typographer of M‘Ure's History. In this book, which is not a creditable specimen of his work, he is styled “printer to the city.”

In 1740 the art was brought to great perfection by Mr Alexander Wilson, afterwards professor of astronomy in this university, and by his friend Mr John Baine. They first settled at St Andrews, the place of their nativity; but soon after removed to Camlachie, a suburb of this city, where they carried on business till the partnership was dissolved on Mr Baine's going to Dublin, where he remained but a short time. The professor removed to Glasgow, and lived to see his foundery become the most extensive and the most celebrated of any in Europe. At his death the business was carried on by his son, and continued by the family on a very extensive scale for a number of years. As a considerable part of their types went to London and Edinburgh, and as other type-makers had commenced business here, the Messrs Wilsons removed in 1834 their business from this city, one part of it to London, and the other to Edinburgh, Alexander conducting the London department, and Patrick the Edinburgh.

Although the origin of stereotyping is uncertain, it is evident that it was not invented by the French. If it be a modern invention, or there be any question as to the country in which it was first used, the Scots are entitled to the preference; for there certainly was an instance of the art having been used in Edinburgh many years before the earliest date at which it is said, or is even supposed to have been used in France. And in evidence of this, reference is made to the original stereotyped page of Sallust, with the plate and matrix, as well as a copy of the book, in the Hunterian Museum at Glasgow. Mr Andrew Duncan introduced stereotyping into this city in 1818; and since that period Messrs Hutchison and Brookman, Edward Khull, university printer, Blackie and Son, and Fullerton and Co. carry on the business of stereotyping to a very great extent.

Steam-Engines, as applicable to Manufactures.—As the great improvement on the steam-engine was made in Glasgow, a brief account of that mighty engine may not be improper here. The steam-engine was invented in the reign of Charles II. by the Marquis of Worcester, who, in the year 1663, published a book entitled *A Century of Inventions.* But as the marquis, though notable as a theoretical projector, knew little of practical detail, Captain Savary took up the subject, and published a book in 1696, entitled *The Miner's Friend,* where he described the principles of his improvement, for which he obtained a patent. About this time, Papin, a Frenchman, came to England, and becoming familiar with the elastic power of steam, he was, on his return home, employed by Charles, landgrave of Hesse, to raise water by a machine which he constructed; and from this his countrymen affected to consider him as the inventor of the steam-engine. In 1707, the doctor published an account of his inventions. Not long after this, Mr Amonton contrived a machine which he called a fire-wheel. It consisted of a number of buckets placed in the circumference of the wheel, and communicating with each other by very circuitous passages. One part of the circumference was exposed to the heat of a furnace, and another to a stream or cistern of cold water. At the death of Amonton, M. Dessandes, a member of the Academy of Sciences at Paris, presented to the academy a project of a steam-wheel, where the impulsive force of the vapours was impelled; but it met with little encouragement. In the mean time, the English engineers had so much improved Savary's invention, that it supplanted all others. Mr Newcomen, a blacksmith at Dartmouth in Devonshire, observing that Savary's engine could not lift water from deep mines, set his genius to work, and made great improvements on it. Savary's engine raised water by the force of steam, but in Newcomen's contrivance by the pressure of the atmosphere, and steam was employed merely as the most expeditious method of producing a vacuum. This engine was first offered to the public in 1705, but its imperfections were not removed till 1717, when Mr Beighton brought the machine into the form in which it continues without any material change till the present day.

The greatest improvement on the steam-engine was, however, reserved for Mr James Watt, who was born at Greenock on the 19th of January 1736. When Mr Watt had completed his education in Glasgow, he went to London in 1754, and returned in 1757, and in a short time he was appointed philosophical instrument maker to the university. This circumstance laid the foundation of an intimacy with Drs Adam Smith, Black, and Dick, Mr Anderson, Mr Robison, and other distinguished persons connected with the university. In contemplating the principles of a small working model of Newcomen's steam-engine which Professor Anderson sent him to repair, Mr Watt thought it capable of improvement; and having procured an apartment in Delftfield, he shut himself up along with his apprentice, Mr John Gardner, philosophical-instrument maker, and it was in this place that the foundation of the great improvement on the steam-engine was laid. In 1769, Mr Watt, on the recommendation of Dr Black, formed a connection with Dr Roebuck of Carron Iron Works, when he left Glasgow for Kinneil House, near these works, where he constructed a small steam-engine. The cylinder was of block-tin, eighteen inches diameter. The first experiment, which was made at a coal mine, succeeded to admiration; indeed his success was so great, that he procured a patent "for saving steam and fuel in fire-engines." Dr Roebuck's affairs becoming embarrassed in 1775, Mr Watt formed a connection with Mr Boulton of Soho, Birmingham, where they had the exclusive privilege of making steam-engines for a period of twenty-five years.

On the expiration of the exclusive privilege, the engineers of this city commenced making steam-engines; and to such an extent is this business carried on here, that there are now thirteen firms who make steam-engines or mill machinery. Some of the works are more like national than private undertakings. Three houses alone employ upwards of a thousand persons in this important branch of trade.

Dr Cleland has ascertained that in Glasgow and its suburbs there are thirty-one different kinds of manufactures where steam-engines are used, and that in these and in collieries, quarries, and steam-boats, there are 355 steam-engines = 7366 horse power; average power of engines rather more than 20 horses each.

The Cotton Trade.—The manufacture of linens, lawns, cambrics, and other articles of similar fabric, was introduced into Glasgow about the year 1725, and continued to be the staple manufacture till they were succeeded by muslins. The following is a brief account of that important event.

About the year 1730 the late Mr J. Wyatt of Birmingham first conceived the project of spinning cotton yarn by machinery. The wool had to be carded in the common way, and was pressed between two cylinders, whence the bobbin drew it by means of the twist. In 1741 or 1742 the first mill for spinning cotton was erected in Birmingham; it was turned by two asses walking round an axis, and ten girls were employed in attending the work. A work upon a larger scale on a stream of water was soon after this established at Northampton, under the direction of Mr Yeoman; but nothing new had occurred in weaving till 1750, when Mr John Kay, a weaver in Bury, invented the fly shuttle. In 1760 Mr James Hargreave, a weaver at Stanhill near Church, in Lancashire, adapted the stock cards used in the woollen manufacture to the carding of cotton, and greatly improved them. By their means a person was able to double the work, and by more ease than by hand-carding. This contrivance was soon succeeded by the cylinder carding machine. It has not been ascertained who was the inventor of this valuable machine, but it is known that the grandfather of the present Sir Robert Peel was among the first who used it. In 1767 Mr Hargreave invented the spinning jenny. This machine, although of limited powers when compared with the beautiful inventions which succeeded it, must be considered as the first and leading step in that progress of discovery which carried improvement into every branch of the manufacture, changing, as it proceeds, the nature and character of the means of production, by substituting mechanical operation for human labour. The progress of invention after this was rapid. Hargreave in the mean time had removed to Nottingham, where he erected a small spinning work, and soon afterwards died in great poverty. The jenny having in a short time put an end to the spinning of cotton by the common wheel, the whole wefts used in the manufacture continued to be spun upon that machine, until the invention of the mule jenny, by which, in its turn, it was superseded. It would appear, that whilst Hargreave was producing the common jenny, Mr (afterwards Sir Richard) Arkwright, was employed in contriving that wonderful piece of mechanism the spinning frame, which, when put in motion, performs of itself the whole process of spinning, leaving to him only the office of supplying the material, and of joining or piecing the thread.

In 1769 Mr Arkwright obtained his patent for spinning with rollers, and he erected his first mill at Nottingham, which he worked by horse power. But this mode of giving motion to the machinery being expensive, he built another mill at Cromford in Derbyshire, in 1771, to which motion was given by water. Water twist received its name from the circumstance of the machinery from which it is obtained having for a long time after its invention been generally put in motion by water. The only improvement, or even alteration, yet made on Sir Richard's contrivance, the spinning frame, is the machine invented several years ago, called the throstle. Instead of four or six spindles being coupled together, forming what is called a head, with a separate movement by a pulley and drum, as is the case in the frame, the whole rollers and spindles on both sides of the throstle are connected together, and turned by bands from a tin cylinder lying horizontally under the machine; but its chief merit consists in the simplification of the apparatus, which renders the movement lighter. Besides this, the throstle can with more ease and at less expense than the frame, be altered to spin the different grists of yarn.

In the year 1775 Mr Samuel Crompton of Bolton completed his invention of the mule jenny, so called from its being in its structure and operation a compound of the spinning frame, and of Hargreave's jenny. The mule was originally worked by the spinner's hand; but in the year 92, Mr William Kelly of Glasgow, at that time manager of the Lanark Mills, obtained a patent for moving it by machinery; and, although the undisputed inventor of the process, he allowed every one freely to avail himself of its advantages. A great object expected to be obtained by this improvement was, that instead of employing men as spinners, which was indispensable when the machine was to be worked by the hand, children would be able to perform every office required. To give the means of accomplishing this, Mr Kelly's machinery was contrived so as to move every part of the mule, even to the returning of the carriage into its place after the draught was finished. But after a short trial of this mode of spinning, it was discovered that a greater amount of produce might be obtained, and at a cheaper rate, by taking back the men as spinners, and employing them to return the carriage as formerly, whilst the machine performed the other operations. In this way one man might spin two mules, the carriage of the one moving out during the time the spinner was engaged in returning the other. The process of mule-spinning continued to be conducted upon this plan until lately, when several proprietors of large cotton works restored that part of Mr Kelly's machinery which returns the carriage into its place after the draught is completed.

During the time that the machines for the different processes of cotton spinning were advancing towards perfection, Mr James Watt had applied his admirable improvements on the steam-engine to give motion to mill-work in general. His inventions for this end, besides the ingenuity and beauty of contrivance which they possess, have had an influence upon the circumstances of this country, and of mankind, far more important than that produced by any other mechanical discovery.

The foregoing application merely assisted the spinner in pushing in the carriage; to meet the more nice and difficult operations of winding the thread upon the spindle, and forming it into the proper shape of a cope, still devolved upon the spinner, and required persons of superior skill and dexterity. The wages of that class of workmen have been maintained at a higher range than in the generality of manufacturing employments. This high rate of wages has led to the contrivance of many expedients to lessen the cost of production in this process of the manufacture. About the year 1795 Mr Archibald Buchanan of Catrine, now one of the oldest practical spinners in Britain, and one of the earliest pupils of Arkwright, became connected with Messrs James Finlay and Company of Glasgow, and engaged in refitting their works at Ballindalloch in Stirlingshire. Having constructed very light mule jennies, he dispensed altogether with the employment of men as spinners, and trained young women to the work. These he found more easily directed than the men, more steady in attendance to their work, and more cleanly and tidy in the keeping of their machines, and contented with much smaller wages. That work has ever since been wrought by women, and they have always been remarkable for their stout, healthy appearance, as well as for good looks and extreme neatness of dress. Mr Buchanan having, in 1802, removed to the Catrine Works, in the parish of Lorn, Ayrshire, then purchased by James Finlay and Company, carried some female spinners with him, and there introduced most successfully the same system as at Ballindalloch. This system has from time to time been partially adopted at other works in Scotland and England, but men are still most generally employed.

The men having formed a union for the protection of their trade, as they supposed, have from time to time annoyed their employers with vexatious interferences and restrictions, which have induced a great desire on the part of the masters to be able to dispense with their employment; and this has led to several attempts to invent a set of mechanism to perform all the operations hitherto performed by men or women, thereby forming a self-acting mule. Mr William Kelly was the first to patent a machine of this description in the year 1792, as has already been stated. About the same time Mr Archibald Buchanan, of Catrine Works, then at Deanston Works in Perthshire, made an attempt to perfect a self-acting mule, but was not at that time successful. The next attempt was by Mr Eaton of Derby, who took out a patent in 1815, and fitted up a flat of his mills in Manchester soon after. The mechanism being complicated, no practical spinners ventured to give the machine a trial.

In 1825, M. de Jouge, an ingenious French gentleman, who has been long resident in this country, contrived a machine of more simple construction, for which he obtained a patent. These he had in operation at Warrington in Lancashire, and in Yorkshire; but they have never made farther progress. The spinners of Manchester and neighbourhood having been much annoyed by the union of their spinners, applied to Messrs Sharp, Roberts, and Company, celebrated machine makers, to allow their Mr Roberts, a man of great ingenuity, and of much skill and taste in mechanism, to endeavour to perfect a self-acting mule. This Mr Roberts undertook, and having devoted himself to the pursuit, succeeded, after several years of experiment, and at the expense of a large sum of money (upwards, it is said, of L.10,000), in producing a machine, which has been found to work well in the spinning of yarn not exceeding forty hanks in the pound. In the construction of this machine there is a display of great ingenuity, skill, and taste, and it has been adopted to some extent by several extensive spinners. Still, however, there are objections to these machines, on account of the complexity and expense of the mechanism; and from the peculiar style of the movements, the machine is still liable to breakage and to considerable tear and wear. About eight years ago Mr Buchanan having to renew the mules at Catrine Works, resolved to attempt again a self-actor; and, with some suggestions from his nephew Mr James Smith of Deanston Works, and with much ingenuity and perseverance on his own part, he succeeded in contriving an effective machine. He has had his whole work in operation on this plan for six years past, and, under his peculiarly good management, the machines perform very well in low numbers. In 1820 Mr James Smith of Deanston Works had contrived and constructed the mechanism of a self-acting mule; but his attention having been required to other more extensive and important operations, he laid it aside, it is believed, without trial. In 1833, Mr Smith, seeing the desire that existed for a simple and efficient self-acting mule, and more especially such as could be applied to the mules of various constructions at present in general use in the trade, set about contriving one; and having made some progress, he came to hear of a very simple contrivance for facilitating the process of backing off (one of the most difficult to accomplish in a self-actor), by John Robertson, an operative spinner, and foreman to Mr James Orr of Crofthead Mill, in Renfrewshire. Robertson, through Mr Orr, obtained a patent for his invention, which consisted of other movements, rendering the mule completely self-acting. Mr Smith, struck with the simplicity and efficacy of his backing-off movement, which consists in stripping the coils from the spindles, entered into an arrangement with Mr Orr and Robertson, and having united the mechanism of his own patent with that of Robertson and Mr Orr, they have now wrought out a machine, which is considered to be more simple and effective, and more generally applicable to all mules, than any other yet brought before the trade, and it is believed it will soon be generally adopted.

The adoption of the self-acting mules will bring the business of spinning much more under the control of the master, and will aid much in enabling the spinners of Britain to maintain a successful competition against the cheap labour of other countries, who have less capital and less facilities for obtaining these improved machines, and less skill for their management if obtained.

About six years ago Mr Smith of Deanston Works invented a very simple throstle for spinning water-twist yarn in the form of a cop, intended to facilitate the manufacture of water-twist shirting. This machine works well, and the tension of the thread in spinning is maintained by the action of two fanner's slades or wings attached to the stem of the spindle, similar to a mule spindle, and on which the cop is built, and which, from the uniform and soft resistance of the air, gives a never-varying tension. But the most wonderful improvement in water-spinning was brought to this country from the United States in 1831, by Mr Alexander Carrick, a native of Glasgow, who then obtained a patent for the invention. The inventor, a mechanic of the name of Danforth, came with the machine to this country, and it has now obtained his name, being denominated the *Danforth Throstle*. This throstle has no flies. The twisting part consists of a dead or fast spindle, on which a socket of about five inches long is fitted to revolve, and on this the bobbin for receiving the thread being spun is placed. On the top of the spindle is placed a hollow cap of one and a half to two inches diameter, which covers the bobbin; and the thread passing from the roller to the bobbin, is revolved by the motion of the socket and bobbin round the outer surface of this cap; but the centrifugal force of the thread causes it to fly out from the cap, and the only point of contact is round the edge of the mouth of the cap, when the thread passes to the bobbin. From this, and the resistance of the air to the movement of the thread, the tension is derived, and is light and uniform. The spindle of the common throstle cannot be driven to advantage above 4000 or 5000 revolutions in a minute, whilst the Danforth socket may be run with advantage at 8000 or 9000. This machine has been slowly getting into use, and suits to spin twist from tens to forties. The yarn has a medium character, betwixt water-twist and mule-twist. The power required to time this machine is great, and the tear and wear of the machine considerable. Another American throstle (which, however, was invented in Scotland thirty years ago), was introduced about four years ago by Mr Montgomerie of Johnston. It consists of a long central spindle embraced by a double-necked flur, and is said to work well, building the yarn in the form of a cop, or on a bobbin, as may be required. Several are at work about Glasgow. By these and other improvements in the various processes of cotton spinning, as much yarn can now be spun for 5s. of wages, as cost 20s. twenty-five years ago.

In the year 1797 a new machine for cleaning cotton was invented by Mr Neil Snodgrass, now (1835) of Glasgow, and first used at Johnston, near Paisley, by Messrs Houston and Company. It is called a skutching or blowing machine. Its merits were not sufficiently known till 1808 or 1809, when it was introduced into Manchester. About that period it received some improvements from Mr Arkwright and Mr Strutt, who applied a fanner to create a strong draft of air passing through a revolving wire sieve, whereby the dust and small flur separated from the cotton by the blows of the skutcher is carried off, and thrown into a chamber, where it is deposited, or into the open air out of doors, whilst the opened cotton is stopped by the sieve, and, arranging into a fleecy form of uniform thickness, passes by the revolution of the sieve to a roller, when it is wound up, to be carried to the carding engine.

The most complete arrangement of this machine was made by Mr Buchanan, of Catrine Works, in 1817, whereby the whole processes of opening, cleaning, and lapping the cotton are performed at once by a series of four skutchers, each with a sieve. The rooms in which these machines work are as free of dust as a drawing-room; and this process, at one time the most disagreeable and unwholesome, is now quite the reverse; besides, the cotton being completely freed of the dust and flur, is more cleanly in all succeeding processes, much to the comfort of the workers, and the benefit of the work.

Little improvement was made in the carding engine for many years. About 1812, however, a system of completing the carding process in one machine was introduced, and is now pretty generally adopted for numbers under fifties, and in some cases as high as eighties. In 1815, Mr Smith of Deanston Works constructed a carding engine, having the flats or tops moveable on hinges, and applied an apparatus for turning and cleaning the tops, which was the first self-topping engine, and with him the idea had originated. Two years after, Mr Buchanan arranged a more perfect machine, and had it adopted in all his water-twist mills. Some years after he farther improved this apparatus, and obtained a patent. In 1829 Mr Smith again improved the topping apparatus, by substituting a chain of successive tops, and had them made of tin plate, to avoid warping. This improvement, together with a neat and effective arrangement of cylinders forming a compact single engine, he completed in 1833, and obtained a patent.

These engines occupy about half the space of the Oldham engine much used in England, make more perfect work, and will turn off nearly two lbs. per inch of wire per day for numbers from thirties to forties. Some of the movements are extremely striking and beautiful. This machine gives promise of many advantages to the trade.

In the roving process some recent improvements have been introduced. About ten years ago Mr Henry Houldsworth junior, of Glasgow, now of Manchester, contrived a beautiful differential motion for the winding in of the rovings on the spindle and fly machine, and obtained a patent. This improvement has got much into use. About the same time a very peculiar mode of roving was introduced from America by the late Mr James Dunlop, and which was afterwards improved and patented by Mr Dyer of Manchester. This machine is called the tube machine, and has got much into use for the lower numbers of yarns. The rove coming from the drawing rollers, passes through a tube revolving at the rate of five thousand turns per minute, whereby a hard twist is thrown up to the rollers, and the roving being wound on a spool or bobbin at the opposite end of the tube, gives off all the twist, but, from the compression and rubbing it has undergone, retains a round and compact form, and has sufficient tenacity to pull round the spool or bobbin, in being drawn into the spinning machine. This machine is simple, going at a great speed, and turns off a deal of work; but it has not yet been successfully applied to any numbers above forties.

There are now many splendid spinning establishments in and around Glasgow. Those of the Lanark Company, on the Clyde, about twenty miles from Glasgow, are the most extensive in one establishment; but the three establishments of Messrs James Finlay and Company of Glasgow (of which Mr Kirkman Finlay is the head), at Catrine, Deanston, and Ballindalloch, are the most extensive ones in the whole kingdom, and employ about two thousand four hundred hands in spinning, weaving, bleaching, &c.

In reviewing the various machines which have been invented for the cotton manufacture, the result terminates in this, that one man can now spin as much cotton yarn in a given time, as two hundred could have done sixty years ago.

On the 21st of July 1834, Mr Leonard Horner, one of the parliamentary factory commissioners, reported, "That in Scotland there are 134 cotton-mills; that, with the exception of some large establishments at Aberdeen, and one at Stanley, near Perth, the cotton manufacture is almost entirely confined to Glasgow, and the country immediately adjoining to a distance of about twenty-five miles radius; and all these country mills, even including the great work at Stanley, are connected with Glasgow houses, or in the Glasgow trade. In Lanarkshire (in which Glasgow is situated) there are seventy-four cotton factories; in Renfrewshire, forty-one; Dumbartonshire, four; Buteshire, two; Ayrshire, one; Perthshire, one. In these six counties there are 123 cotton-mills," nearly 100 of which belong to Glasgow. The following statement, also from the Factory Commission Report, will give a pretty good idea of the amount of cotton trade in Glasgow: "In Lanarkshire there are seventy-four cotton, two wool, and two silk factories; seventy-eight steam-engines, namely, seventeen each of fifty horse power and upwards; eleven from forty forty-nine horse power; nine from thirty to thirty-nine rse power; nineteen from twenty to twenty-nine horse wer; twenty from ten to nineteen horse power; two der ten horse power. Water-wheels, three each of fifty rse power and upwards; two under ten horse power. Total horse power, 2914, of which steam, 2394, water, 520. Total persons employed in factories, 17,949. Of this numr, thirteen years and under eighteen years, 5047, viz. ales 1345, females 3702; under thirteen years 1651, viz. ales 756, females 895."

The increase of the cotton trade may be seen by the llowing official statement of cotton wool taken for the nsumption of Scotland from 1818 till 1834.

Years.	Bales.	Years.	Bales.
1818	46,565	1827	72,655
1819	50,123	1828	74,037
1820	51,994	1829	79,742
1821	53,002	1830	79,801
1822	55,447	1831	85,929
1823	54,891	1832	88,162
1824	54,708	1833	86,964
1825	56,995	1834	95,603
1826	56,117		

Cashmere Yarn.—In 1830 the weaving of Cashmere shawls in this country had become so important a branch of trade as to induce the Board of Trustees for the Encouragement of Arts and Manufactures in Scotland, to offer a premium of L.300 sterling to the first person who should establish the spinning of Cashmere wool upon the French principle in this country. Up to that time the French had exclusively enjoyed the advantages of that trade; and all Cashmere yarns, used in this country in the manufacture of shawls and other fabrics, had to be imported from France. The offer of this handsome premium, together with the other advantages which the carrying on of the trade held out, induced Captain Charles Stuart Cochrane, of the royal navy, to attempt, whilst in Paris, to find out the secret of this manufacture, which, after many difficulties and much delay, he at last accomplished, and in 1831 took out patents for the three kingdoms for the introduction of this peculiar kind of spinning. In the autumn of that year he prevailed on Messrs Henry Houldsworth and Sons of Glasgow to purchase his patents, and they accordingly commenced the spinning of Cashmere yarn. After many difficulties, they succeeded, in 1832, in making better yarn than the French; and in the following year received from the Board of Trustees the L.300 sterling as the premium due for the establishing of the spinning of Cashmere yarn in this country. Since then the manufacture has gone on but slowly, though gradually increasing in extent; and the day is not far distant when it may be hoped that the beauty of the goods made from Cashmere yarn will be duly appreciated by our ladies. One thing is gratifying, that notwithstanding the cheapness of labour in France, and the long experience the French have had in this manufacture, we are quite capable, at this moment, of successfully competing with them in the market, although the French yarns can be admitted free of duty.

Establishment of Merino Yarn Spinning in Scotland.—At the same time that the late Captain C. S. Cochrane was engaged in Paris in finding out the manufacture of Cashmere yarn, his attention was attracted by the superiority of French merino dresses over those made in this country, and on inquiry found that the peculiar manner in which the French spun the merino yarn was the principal cause of this difference. Captain Cochrane accordingly got all the information he could possibly obtain respecting this manufacture, and in 1833 established in Glasgow this peculiar mode of spinning merino yarn on the French principle. The Board of Trustees offered a premium of L.300 sterling to the introducer and establisher of this manufacture, which premium Captain Cochrane accordingly received this year, his merino yarn being pronounced equal, if not superior, to the best French yarns. After this satisfactory result the business was extended to meet the demand of the trade; but, unfortunately for the spirited introducer, death cut him short before his plans were fully brought to a profitable result. The business is in the mean time being carried on by Messrs Henry Houldsworth and Sons for the benefit of Captain Cochrane's partner; and, from the soft and beautiful goods which can be made from this yarn, almost rivalling the Cashmere itself, there seems little doubt but that in a short time, when it becomes well known, the merinos of this country will successfully compete with those of the French.

Progress of Machinery, Manufactures, and Trade.—The power-loom was introduced into Glasgow in the year 1793, by Mr James Lewis Robertson of Dumblane. It was invented by the Rev. Dr Cartwright of Doncaster, and was patented by him in 1774. About 1789 or 1790, a number of these looms were fitted up in the hulks to employ the convicts. They were driven in a manner similar to the inkle-loom, of which indeed the whole machine was a modification. Mr Robertson having been in London in 1792 or 1793, bought a couple of the looms from the hulks, and brought them to Glasgow, when they were fitted up and wrought in a cellar in Argyle Street. He removed the driving-bar, and employed a large Newfoundland dog, walking in a drum or cylinder, to drive the looms. He had an ingenious old man, William Whyte, from Denny, to manage the looms; and by a son-in-law of this man's the design of the looms was communicated to a bleaching and calico-printing establishment at Milton, near Dumbarton, in 1794, where about forty looms were fitted up there for weaving calicoes for printing. In 1801, Mr John Monteith of Glasgow got a pair of looms from Milton, and in the course of two years afterwards had 200 looms at work in a portion of his spinning establishment at Pollockshaws, near Glasgow. In 1803, Mr Thomas Johnston of Bradbury, Cheshire, invented a very beautiful and useful machine for warping and dressing warps; and some time after, Messrs Radcliff and Ross of Stockport improved the dressing machine, and obtained a patent for these improvements. This machine they also employed in dressing webs to be woven on hand-looms by boys and girls. In 1804, Mr Monteith prevailed upon Mr Archibald Buchanan of Catrine to take a pair of looms from him, urging him to improve the machine. Mr Buchanan worked these looms for a year, with a view to obtain experience on the subject; and finding the annoyance of dressing the web in the loom great, he set about contriving a dressing machine. In this machine he used cylindrical brushes, and succeeded at that time pretty well; but, from the obstinacy of the person engaged to work the machine, and his own want of knowledge in the art of dressing, he was led to abandon it. He then invented a remarkably neat and effective loom, and in 1806 proceeded to fill a large room with them, and again applied himself to contrive a dressing machine; he abandoned the cylindrical brushes, and adopted parallel moving ones, similar to those of Radcliff and Ross, and after much experiment with various success, and by the exercise of much ingenuity and perseverance, he succeeded in effecting a complete machine, and rapidly extended his looms, with the necessary dressing machines. In the year 1807 he had the first complete work in Britain, in which warping, dressing, and weaving by power, were uniformly carried on; and it may be said that from this establishment emanated the power-loom weaving of Britain.

When Mr Buchanan first began the power-loom, from seventy to eighty shots or picks per minute were considered as great speed; but, from improvements since introduced by Mr Buchanan and others, a speed of a hundred and forty shots per minute is now obtained. About this time, Messrs Foster and Corbet of Glasgow, and the Messrs Crums at Thornlie Bank, began to use power-looms. About the same time Mr Peter Manland of Stockport was the first to introduce the power-loom into England on a practical scale. In 1808 power-looms were begun at Deanston, and there in 1809 tweels, and in 1810 checks, were first woven on power-looms. In 1818 or 1819, Mr William Perry of Glasgow began the weaving of figured goods, and some time since lappets were woven by the Messrs Reids of Anderston, Glasgow. The Messrs King were the first persons celebrated for weaving strong shirting and domestics; and the Messrs Sommerville and Sons have recently introduced extensively a very superior manufacture of furniture stripes and checks, and an infinite variety of similar goods for women's dresses, shirting, &c., at their new and splendid works in Hutchesontown. Mr William Dunn of Duntocher, the most extensive and successful spinner in Scotland as an individual, has upwards of six hundred looms, upon which he executes various very beautiful plain fabrics. The power-loom is daily extending into new fields of manufacture, and it is evident that it will ultimately be the only means of weaving excepting for fabrics of very complex patterns.

Steam-looms have increased greatly of late years. In August 1831, the Lancefield Spinning Company employed 635 looms; and Messrs Johnston and Galbraith, James Finlay and Company, and William Dunn, 2405. These looms, on an average, weave fourteen yards each per day. Allowing each loom to work 300 days in a year, these four companies would throw off 10,101,000 yards of cloth, which, at the average price of 4½d. per yard, is L.189,393. 15s. per annum. The power and hand looms belonging to Glasgow amount to 47,127, viz. steam-looms, 15,127; hand-looms in the city and suburbs, 18,537; in other towns for Glasgow manufacturers, 13,463.

The extension of the use of the power-loom has for the last twenty years borne hard upon the poor hand-loom weavers, who have long suffered from low wages with exemplary patience. The evil was at first aggravated by a natural cause. When the weaver found difficulty in making wages to support his family, the only apparent remedy was to get looms for his children, girls as well as boys, and to set them to work also. This, when work was to be had, helped the individual's family, but it brought so much more weaving labour into operation in the trade, previously overstocked, that the evil was increased, and every succeeding year the prices of weaving became lower. Many attempts have been made by the hand-loom weavers to have their prices regulated by act of parliament, or boards of trade; and in this they have occasionally been aided by some well-meaning men of rank and influence, but, as might have been expected, without the least success. For why fix the wages or prices of the hand-loom weavers, whilst those of the mason, joiner, farm-servant, &c. are left to be adjusted by the constantly operating natural causes springing from demand and supply? If the prices of weaving were fixed, whenever a period of stagnation arrived, the manufacturers would either get weavers to do their work at lower prices clandestinely, or they would cease to manufacture at all, thereby throwing a great proportion of the weavers completely idle. Besides, the hand weavers had a long period of high wages, averaging far above the rates paid for labour in other more laborious and skilful professions. This arose from the rapid extension of their trade, and now, in its decline, they must be contented with the lower rate of wages, until their superabundant labour is absorbed by other trades in a state of advancement.

Glasgow was the first place in Britain where inkle-wares were manufactured. In 1732, Mr Alexander Harvey of of that city, at the risk of his life, brought away from Haerlem two inkle-looms and a workman, and was thereby enabled to introduce the manufacture of the article into this city. Soon after this, the Dutchman, considering himself as ill used by his employer, left Glasgow in disgust, and communicated his art to Manchester.

The manufacture of green bottles in Glasgow was introduced, and the first bottle-house erected on the site of the present Jamaica Street bottle-house, in 1730.

It does not appear that the art of turret-bell making was known in Glasgow till 1735. It was not however till 1813, when Messrs Stephen, Miller, and Company made the bell fo he steeple of the Gorbals Church, that large turret-bells w e made in Glasgow. Since that period they have made a eat number, which are equal in quality and tone to any th ever came from Holland. In the steeple at the Cross th e are twenty-eight bells, denominated chimes, diminishin from five feet three inches to one foot six inches in cir cu ference. The greater part of them have this inscripti : "Tuned by Arniston and Cummin, 28 Bells, for G sgow, 1735."

n 1742, Messrs Ingram and Company fitted up a printfi l at Pollockshaws. The first delft manufaetory in Scotla l was begun in Delftfield, near the Broomielaw, in 1748. M Laurence Dinwiddie, then late provost, and his brother G ernor Dinwiddie, were two of the first partners.

he first shoe-shop in Glasgow was opened in 1749, by M William Colquhoun; and in 1773 Mr George Mackinto , employing at that time upwards of 300 shoemakers fo the home and export trade, had his shoe-shop in King S ect. Mr Mackintosh had also an agent in Edinburgh, w re he employed a number of workmen. At the same pe od, the Glasgow Tan-work Company employed nearly 3 shoemakers; and to these two houses the whole expo of shoes was confined.

he haberdashery business was first introduced into G sgow about 1750, by Mr Andrew Lockhart. But alth gh Mr Lockhart was the first person who commenced th haberdashery business in this city, it was not till the au mn of 1787 that it was carried on to any considerable ex nt. At that period, Mr J. Ross of Carlisle opened a sh in Spreull's new "land," and gave the haberdashery bu ness a tone which it had never reached before in this ci . Soon afterwards, two of his shopmen, under the firm of ray and Laurie, commenced business with an extensive st k of goods; and the haberdashery business has rapidly in eased in this city since that time.

r John Blair and Mr James Inglis are supposed to have be n the first persons who had front shops for the sale of ha in this city. The shops were both opened in 1756, th former in the Saltmarket, and the latter in the Bridgeg .

he business of silversmith is of considerable standing in lasgow. Mr James Glen, who was a magistrate in 1 4, succeeded Mr Robert Luke. When the latter first o ned a shop, the trade was but little known in the west of S tland. In 1775, when Mr Robert Gray commenced bu ness, the following persons had silversmiths' shops he : Messrs Milne and Campbell, William Napier, Davi Warnock, Napier and Bain, James M'Ewen, and Adam G ham. In 1775, the assortment of plate was inconside ble; but in 1834 there are shops in Glasgow which w ld be considered as valuable in Fleet Street, and elegant in ond Street. It is not easy to ascertain when the first w llen-draper's shop was opened in Glasgow. In 1761, w n Mr Patrick Ewing entered into the trade, it was very li ted.

he Iron Trade.—Although the cotton manufacture has be the staple trade of Glasgow and neighbourhood for a lo period, the iron manufacture in its various branches w ld appear to be the one which nature points out as li y to furnish the most advantageous employment of the la ur and capital of the district, from the inexhaustible st es of the materials for the making of iron with which it al nds. The local situation of Glasgow, too, is peculiarly favourable for the cheap conveyance of the bulky and heavy articles of this manufacture to every quarter of the world. The city is about equidistant from the Atlantic and German Seas, and not more than twenty-six miles from either, communicating with the one by the river Clyde, navigable by vessels drawing thirteen feet water, and with the other by the Forth and Clyde Canal, navigable by vessels also drawing thirteen feet water. It stands at the western extremity of the district known by the designation of the Basin of the Clyde, and which, stretching eastward for about twenty-six miles, and of considerable breadth, is one uninterrupted field of coal, interspersed with bands of rich black ironstone. Into this mineral field the Monkland Canal penetrates twelve miles, having its western extremity at Glasgow communicating there with the Forth and Clyde Canal, into which it is introduced. On a parallel line with this water conveyance there is the Garnkirk and Airdrie Railway, on a part of which locomotive engines were introduced on the 2d of July 1831. The Garion-Gill Railway, which is to be connected with the Garnkirk and Airdrie Railway, and with the Monkland Canal, will carry the communication with the mineral field eight miles farther, and it is expected that the great coal field at Coltness will soon be opened up. With these advantages for obtaining the materials, and sending the manufactured article to market, Glasgow must become the seat of a great iron manufacture. She has already large establishments for the manufacture of steam-engines and machinery, and for making the machines employed in the processes of cotton-spinning, flax-spinning, and wool-spinning. In these works every thing belonging to or connected with the millwright or engineer departments of the manufacture is also fabricated. Having these important and valuable portions of the manufacture already established, and with the advantages which the district possesses for carrying on the trade, there is every reason to expect its rapid growth, and its extension to every article of iron manufacture.

Neilson's Patent Hot Blast.—An improvement of national importance has lately taken place in the making of iron, of which the following is a description. Mr James B. Neilson, engineer in this city, obtained patents in this country and France[1] for an improvement in the manufacture of iron, which he designated a Hot Blast. The patentee drew up a description of this improvement, of which the following is an abridgment.

In 1824 an iron maker asked Mr Neilson if he thought it possible to purify the air blown into blast-furnaces, in a manner similar to that in which carburetted hydrogen gas is purified; and from this conversation Mr Neilson perceived that he imagined the presence of sulphur in the air to be the cause of blast-furnaces working irregularly, and making bad iron in the summer months. Subsequently to this conversation, which had in some measure directed his thoughts to the subject of blast-furnaces, he received information that one of the Muirkirk iron-furnaces, situated at a considerable distance from the engine, did not work so well as the others; which led him to conjecture that the friction of the air, in passing along the pipe, prevented an equal volume of the air getting to the distant furnace with that which reached to the one situated close by the engine; and he at once came to the conclusion, that by heating the air at the distant furnace, he should increase its volume in the ratio of the known law according to which air and gases expand. Thus, if 1000 cubic feet, say at 50° of Fahrenheit, were pressed by the engine in a given time, and heated to 600° of Fahrenheit, it would then be increased in volume to 21,044, and so on for every thousand feet that would be blown into the furnace. In prosecuting the experiments which this idea suggested, circumstances, however, convinced him, that heating the air introduced for supporting combustion into air-furnaces would materially increase its efficacy in this respect; and, with the view of putting his suspicions on this point to the test, he instituted the following experiments: To the nozle of a pair of common smith's bellows he attached a cast-iron vessel, heated from beneath in the manner of a retort for generating gas, and to this vessel the blowpipe by which the forge or furnace was blown was also attached. The air from the bellows having thus to pass through the heated vessel above mentioned, was consequently heated to a high temperature before it entered the forge fire, and the result produced in increasing the intensity of the heat in the furnace was far beyond his expectation, whilst it made apparent the fallacy of the generally received theory, that the coldness of the air of the atmosphere in the winter months was the cause of the best iron being then produced. But in overthrowing the old theory, he had also established new principles and facts in the process of iron making; and, by the advice and assistance of Mr Charles Mackintosh of Crossbasket, he applied for and obtained a patent, as the reward of his discovery and improvement.

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[1] In France the use of the hot blast has been adopted to an extent which contrasts singularly with the tardiness displayed by so e of the English and Welsh iron masters in regard to it, and which would seem to encourage the idea of the probability of the F ch soon outrivalling us in this important staple. In 1834, the well known engineer Monsieur Dufresnoy published an elaborate re rt in recommendation of the use of the "hot blast," by order of the minister director-general of the mines of France. From this re rt it appears that in France advantages analogous to those obtained in Scotland have resulted from the use of the "hot blast" in on making; in the kingdom of Wurtemberg this has also been the case; and its adoption in Sweden, Saxony, and the states of e king of Sardinia, bears testimony to the merits of this Scottish invention.

Experiments on the large scale to reduce iron ore in a founder's cupola were forthwith commenced at the Clyde Iron Works, belonging to Mr Colin Dunlop, and were completely successful; in consequence of which the invention of Mr Neilson was immediately adopted at the Calder Iron Works, the property of Mr William Dixon, where the blast, by being made to pass through two retorts, placed on each side of one of the large furnaces, before entering the furnace, effected an instantaneous change both in the quantity and quality of iron produced, and a considerable saving of fuel. The whole of the furnaces at Calder and Clyde Iron Works were in consequence immediately fitted up on the principle of the hot blast, and its use at these works continues to be attended with the utmost success. It has also been adopted at Wilsontown and Gartsherrie works in Scotland, and at several works in England and France. The air, at first raised to 250° of Fahrenheit, produced a saving of three sevenths in every ton of pig-iron made; and the heating apparatus having since been enlarged, so as to increase the temperature of the blast to 600° of Fahrenheit and upwards, a proportionate saving of fuel is effected; and an immense additional saving is also acquired by the use of raw coal instead of coke, which may now be adopted by thus increasing the heat of the blast, the whole waste incurred in burning the coal into coke being thus also avoided in the process of iron making. By the use of this invention, with three sevenths of the fuel which he formerly employed in the cold air process, the iron maker is now enabled to make one third more iron of a superior quality. Were the hot blast generally adopted, the saving to the country in the article of coal would be immense. In Britain about 700,000 tons of iron is made annually, of which 55,500 tons only are produced in Scotland. On these 55,500 tons his invention would save, in the process of manufacture, 222,000 tons of coal annually. In England the saving would be in proportion to the strength and quality of the coal, and cannot be computed at less than 1,320,000 tons annually; and taking the price of coals at the low rate of 4s. per ton, a yearly saving of L.308,400 sterling would be effected. Nor are the advantages of this invention solely confined to iron making. By its use the founder can cast into goods an equal quantity of iron in greatly less time, and with a saving of nearly half the fuel employed in the cold air process; and the blacksmith can produce in the same time one third more work with much less fuel than he formerly required. In all the processes of metallurgical science, it will be found of the utmost importance in reducing the ores to a metallic state.

Iron Works in Scotland in December 1834.

Erected in or about		Furnaces.	Tons.
1767	Carron Company	5	8,000
1786	Clyde	4	12,500
1786	Wilsontown	1	3,000
1790	Muirkirk	2	4,000
1790	Devon	3	7,000
1805	Calder	4	12,000
1805	Shotts	1	3,000
1825	Monkland	3	8,000
1828	Gartsherrie	3	9,000
1834	Dundyvan	2	6,000
		28	72,500
1790	Cleland	1	Out of blast.
		29	

These works are all in the neighbourhood of Glasgow excepting five, and none of them are thirty miles distant from that city. Previously to the use of Neilson's hot blast, 6000 tons of iron were made at Clyde Iron-Works in a year. In the formation of each ton of iron, eight tons of coal and fifteen tons of limestone were required. In 1833, when the hot blast was applied, the same steam-engine made 12,500 tons of iron, each ton requiring only three tons of coal and eight tons of limestone. The whole of the above iron works are using the hot blast in all their furnaces, excepting the Carron Company, who have only yet taken out a license for one of their furnaces. The best coal for making iron at the above works does not average above 4s. per ton.

Supply of Coals in Glasgow.—In 1831 it was ascertained from authentic documents, that the supply of coals came from thirty-seven coal-pits; that the quantity brought to Glasgow was 561,049 tons, and of that quantity 124,000 were exported, thereby leaving 437,049 tons for the use of families and public works in the city and suburbs. The additional consumption since the above statement was made may be fairly estimated at ten per cent. on the home consumption, and five per cent. on the export, which makes the quantity brought to Glasgow in 1834 amount to 610,953 tons. The following is the average prices of coals delivered in quantities in Glasgow during a period of eight years.

	Per Ton.
In 1821	8s. 4d. to 9s. 4d.
1822	7s. 11d. to 8s. 11d.
1823	7s. 6d. to 8s. 6d.
1824	7s. 11d. to 8s. 11d.
1825	11s. 1d. to 12s. 1d.
1826	9s. 7d. to 10s. 7d.
1827	6s. 3d. to 7s. 3d.
1828	5s. 10d. to 6s. 10d.

There has been no variation in the price of coals from 1828 to 1834. The best hard splint is laid down on the steam-boat quay at 6s. 3d. per ton.

The manufacture of flint-glass or crystal was introduced here by Messrs Cookson and Company of Newcastle in 1777, and is now carried on to a very considerable extent. In the same year, Messrs George Mackintosh and Company established the manufacture of cudbear, an article of great value in the process of dyeing; and soon after that period a number of chemical works were erected in the neighbourhood of this city. The Chamber of Commerce and Manufactures was instituted here in 1783, under the auspices of Mr Patrick Colquhoun, at that time an emigrant merchant in Glasgow. The dyeing of cottons in Turkey red having been introduced by Monsieur Papillon, Messrs George Mackintosh and David Dale entered spiritedly into the trade in 1785, and in the same year pullicate handkerchiefs were begun to be made.

The business of regular distiller is but of recent date in Scotland. Mr William Menzies of Gorbals was the first person in the west of Scotland who had a licensed still. He opened his distillery in Kirk Street in 1786; and his license was the fourth in Scotland, the houses of Messrs Stein, Haig, and another, having alone preceded him. At that period the duties amounted to about one penny per gallon, and the best malt spirit was sold at 3s. per gallon.

In 1800, Messrs Tennent, Knox, and Company, established a chemical work at St Rollox, now carried on under the firm of Charles Tennent and Company, for the manufacture of sulphuric acid, chloride of lime, soda, and soap. This manufactory, the most extensive of any of the kind in Europe, covers ten acres of ground, and within its walls there are buildings which cover 27,340 square yards of ground. In the premises there are upwards of 100 furnaces, retorts, or fire-places. In one apartment there are platina vessels to the value of L.7000. In this great concern upwards of 600 tons of coal are consumed weekly.

Messrs Henry Monteith, Bogle, and Company, established a manufactory for bandana handkerchiefs in 1802, now carried on under the firm of Henry Monteith and Company. This respectable firm also carry on the business of cotton spinning and calico printing. Their establishment at Blantyre is most extensive, while their splendid works at Barrowfield are probably unequalled in the kingdom. With the exception of an attempt on the Continent, which proved unsuccessful, the manufacture of bandanas has been chiefly confined to this city. The manufacture of silk is but in its infancy here; but the throwing and other departments of the trade bid fair for prosperity.

Gas-Light Company.—A company for lighting Glasgow with gas was incorporated by act of parliament in 1817, with a capital of L.40,000, which has been increased to L.150,000. The first street lamp was lighted with gas on the 5th September 1818; there are now upwards of 110 miles of pipes in the streets.

The works are on a large scale, and, including subsidiary establishments in different parts of the town, occupy an area of 14,831 square yards. The principal establishment now forms a square, of which one side is occupied by retorts, condensers, and other apparatus; and round the other three are ranged sheds, under which cannel coals are stored, to preserve them from moisture. These sheds are calculated to contain 6000 tons, and, to show at any time how much coal is on hand, they are divided into compartments, each containing a certain known quantity. The company have at present 152 retorts, each capable of making 5000 cubic feet of gas in twenty-four hours. Of these, a hundred and five are required in winter, and thirty in summer. The gas holders are of a very large size, and are eight in number, viz. four at the works, and four in different parts of the town. By this arrangement the pressure of gas is equalized in all portions of the city and suburbs. Cast-iron pipes to convey the gas are laid on both sides of the streets, under the foot pavements, so as not to interfere with the water-pipes, and extend to more than 100 miles in length. In generating gas for the supply of Glasgow, upwards of 9000 tons of coals are annually consumed. The coke which remains after extracting gas from cannel coal, and the tar deposited on the cooling of the gas, are used for heating the retorts, and are found to be very economical fuel. Nor is the tar the only one of the liquid products that is turned to profitable account. The ammoniacal water is sold to be used in making cudbear dye, and the naphtha in dissolving caoutchouc for manufacturing water-proof cloth. The solution of lime, after having been employed for purifying the gas, is allowed to stand until the heavier part is precipitated; this is then collected and sold for manure, and the liquor which remains (none of the gas-work refuse is allowed to run into the common sewers of the city) is evaporated under the grate bars of the retort furnace, thereby increasing the draft, and consequently the intensity of the fire.

As at other establishments, the gas is purified with lime; but in addition to this process it is made to pass through a solution of sulphate of iron, by which it is very much improved in purity. After being purified it passes through a metre of a very large size, made by Mr Crosley of London, the patentee. Here the gas manufactured is measured, and by a beautiful contrivance, called a tell-tale, which acts by the combined motions of the metre on a common clock, the quantity passing through each hour of the day or night is registered, and the extent of any irregularity in the workmen, as well as the time at which it happened, is at once detected. The company have been peculiarly fortunate in procuring the services of Mr James B. Neilson, engineer, patentee of the iron hot blast. To the scientific attainments of this distinguished manager the company are chiefly indebted for their uncommon success, and for the most perfect and beautiful establishment of the kind in the kingdom.

Messrs James and William Campbell and Company were the first who retailed soft goods in a warehouse in this city. In 1817 they commenced business in Saltmarket Street, whence they removed in 1823 to premises which they built in Candleriggs Street. The warehouses of this establishment, the largest of the kind in the king's dominions out of London, contain thirty-one thousand and three square feet of floor. In these premises the public are supplied with every kind of soft goods, and purchasers of a halfpenny lace, or a penny worth of thread, are equally attended to with those who make larger purchases. Sixty-one persons are employed in the warehouses; four of them moving about to see that the others do their duty. The following are the amount of sales during nine years: In 1818, L.41,122. 6s. 4d.; in 1824, L.156,284. 2s. 1d.; in 1827, L.183,385. 6s. 10d.; in 1829, L.227,881. 16s. 7d.; in 1830, L.250,899. 9s. 0d.; in 1831, L.275,597. 12s. 0d.; in 1832, L.312,207. 5s. 8d.; in 1833, L.367,655. 4s. 9d.; and in 1834, L.423,021. 4s. 7d. Besides these sales, the company manufacture to the value of from L.70,000 to L.80,000 of the goods they sell. Although Messrs James Morrison and Company, White and Greenwell, and Sewall and Cross of London, and Harvies and Company of Dublin, turn a much larger sum annually, Messrs Campbells serve more customers than any of these highly respectable houses.

The Tea Trade.—The Camden was the first vessel unconnected with the East India Company which brought a cargo of tea direct from Canton to Britain. She was chartered by Mr Mathieson, a Glasgow merchant, and her full cargo of Bohea, Congou, Cape Congou, Campio, and Souchong, was sold in the Royal Exchange Sale Room of this city on the 14th of November 1834. A number of London and Edinburgh merchants attended the sale.

(x. x. x.)

GLASS.

History.

The general term *glass* is employed by chemists to denote all mineral substances which, on the application of heat, pass through a state of fusion into hard and brittle masses, and which, though not always transparent, exhibit a lustrous fracture when broken. The glass of commerce, however, to which our remarks are restricted, or the transparent and artificial substance which is usually distinguished by the generic name, is produced by the igneous fusion of siliceous earth with certain alkaline earths or salts, or with metallic oxides.

The etymology of the word has been much disputed. It is derived by some from the Latin *glacies*, ice, its resemblance to which is thought to have suggested the title. Others have remarked, that the common Latin designation of this substance is *vitrum;* and as the Romans applied this term, in common with the word *glastum*, to the plant which we call woad, they have deduced it from the latter of these, either because the ashes of this plant were used in the manufacture of glass, or because it exhibited something of the bluish colour which is procured from woad. *Glassum*, the name given to amber by the ancient Gauls and Britons, has also been assigned as the origin of the word. But none of these etymons appears very satisfactory. The most plausible theory is that which derives the term from the Saxon verbs *glis-nian*, or the German *gleissen*, *splendere*, which are probably contractions of the Anglo-Saxon *ge-lixan*, to shine, to be bright. This view is in a great degree confirmed by the sense in which the term glass and its derivatives are employed by our older writers, who frequently apply it to shining or glittering substances, without reference to colour or transparency. The discussion of this point, however, as will be easily seen, is of very little importance.

The origin of the manufacture of glass is involved in the most impenetrable obscurity, and has occasioned much learned, but, at best, doubtful speculation. The art is undoubtedly of the highest antiquity. Some even assert that it was coeval with the art of pottery or brickmaking. But this is only a conjectural supposition, founded chiefly on the fact, that it is impossible to excite a strong fire, such as is necessary in metallurgic operations, without vitrifying part of the bricks or stones of which the furnace is built. But it is more than likely, that such imperfect vitrifications might have been observed long before the idea occurred of taking advantage of the effects which they displayed, in manufacturing the useful article of which we are now about to treat. There can be no doubt that the art of making glass was well known to the Egyptians. Glass beads and other ornaments made of that substance, skilfully manufactured and beautifully coloured, have been found adorning many of their mummies which are known to be upwards of three thousand years old. Neri adduces a passage from the book of Job (chap. xxviii. verse 17), to prove that glass was known to the Jews at the time when that book was written. But, unfortunately for his theory, the word which, following the Vulgate and the Septuagint, he translates *glass*, and which in our version is rendered *crystal*, means simply, in the Hebrew root, any diaphanous or shining substance, and is often used, according to the fancy of translators, to denote any body which is beautiful or transparent. The two problems of Aristotle, "Why do we see through glass?" and "Why is glass malleable?" if genuine, which is very doubtful, comprise the earliest mention of the substance on record. The ὕελος of Herodotus, which he describes as used by the Ethiopians in their cemeteries, has been variously interpreted amber or rock crystal. Both meanings are, however, questionable; and it is plain he refers to a natural, not an artificial production; for he speaks of it as being dug up in large quantities. The same word is used by Aristophanes, a writer of the same century (the fifth before Christ), in his *Nubes;* but, in the passage referred to, it may mean any stone which will permit the transit of the sun's rays to form a burning medium; and though it is by some thought improbable that glass would have been called a stone, it is yet worthy of remark that Shakspeare applies the same epithet to it in his King Lear, act v. sc. iii. Theophrastus, who flourished not above a century after Aristotle (303 A. C.), speaks of the sand of the river Belus as used in the manufacture of glass, which he certainly distinguishes by the name ὕελος; and from that date the knowledge of the substance seems to have been pretty generally diffused. A century afterwards we hear of Archimedes having employed burning glasses, amongst other instruments, for the defence of Syracuse against the assaults of the Romans under Marcellus, by means of which he set the enemy's ships on fire. The silence of Polybius, Plutarch, and Livy, as to this circumstance, may be held to argue against its accuracy; but modern experiments have shown, that it may not be wholly a fabrication, worthy only to be classed in that ample category of marvels, which

> ——— Græcia mendax
> Audet in historia.

Buffon constructed a burning glass composed of about four hundred glass planes, each six inches square, so as to form a concave mirror capable of melting silver at the distance of fifty feet, and lead and tin at the distance of one hundred and twenty feet, and of igniting wood at the distance of two hundred feet. This has rendered the feat of the "Isthmiacis decus immortale colonis," as he is styled by Silius Italicus, less incredible than it appeared before; but yet it is not impossible that his burning mirror was composed of polished steel. If the statement as to the celebrated sphere of the same philosopher having been constructed of glass can be relied on, the art of manufacturing glass must have been carried to a high degree of excellence upwards of two centuries before the Christian era.

A passage in Pliny, which attributes the discovery of glass to accident, has often been quoted. A merchant vessel, laden with nitre or fossil alkali, was driven ashore on the coast of Palestine, near the mouth of the river Belus, a small stream running from the foot of Mount Carmel in Galilee, into the Mediterranean. The mariners, unable to procure stones to rest their cooking vessels upon, used pieces of their cargo instead. The fire reduced the alkali to a soft state, and incorporating with the river sand, it melted down into a vitreous stream. The circumstance was communicated to the inhabitants of the district, who availed themselves of the hint, and engaged in the manufacture of glass. The story is plausible, and it is no extravagant credulity to believe, that the world has been indebted for this, as well as for many other of its most valuable discoveries, to what, in common language, is called accident. It is certain, however, from passages in the works of Strabo and Josephus, that the sand for about half a mile round the mouth of the river Belus was peculiarly adapted to the manufacture of glass. In fact, it was much used in the glass-houses of Tyre and Sidon. Some antiquaries maintain that the first glass-house was erected at Diospolis, the ancient capital of the Thebaid; but that distinction is generally considered as belonging to the above-mentioned towns. Alexandria, another city of the Phœnicians, was long and highly celebrated for its glass, and at one time nished great part of the glass ware which was used at ome. To these places the art was exclusively confined some centuries. The expense of the manufacture obably prevented an extensive use of the substance, and application to the ordinary domestic purposes which it w serves. It was considered as an article of luxury, and peared chiefly in the form of urns or drinking cups. hese latter were often of the most elaborate workmanip, and exquisitely embellished with raised, chased, or namented figures. The cups and cinerary urns which ve survived the shock of time and accident, prove that e ancients possessed great skill in glass-blowing, and e marked by a delicacy of workmanship which modern has not excelled. The Barberini or Portland vase, mposed of deep-blue glass, with figures of a delicate ite opaque substance raised on it in relief, is a splendid ecimen of ancient skill in this department. It was und in the tomb of Alexander Severus, who died A. D. 5. Several other ancient glass vessels of great beauty e preserved in the British Museum.

Though extensively used by the Romans, we do not d any mention of glass in any of their writers before cretius. From the allusions to its lustre and transpancy which occur in the writers of the Augustan age, ass would seem to have been then manufactured in conlerable purity. But, perhaps, the word usually transed glass may rather refer to some natural production. r, though we know that an excellence in colouring glass s attained at an early period, which has never been rpassed, yet the art of producing it devoid of colour, e most difficult process in glass-making, since it is easi- affected by extraneous substances, was then scarcely own. Many years afterwards, the Emperor Nero paid 00 sestertia, or about L.50,000 of our money, for two all drinking cups with handles, the chief excellence of ich consisted in their being colourless. The glass in mmon use was of very inferior quality, and composed r the most part of coarse thick metal, sometimes white, t generally of a bluish colour.

From the circumstance of coloured glass beads and ulets having been found in druidical remains in this untry, it has been argued by Pennant and others, that e art of making glass was known in Britain before its vasion by the Romans. It can hardly, however, as we ink, be believed, that a people, who had made very trifl- g advances in civilization, and who, it is known, were tirely unacquainted with any other art, should be found t only conversant with the manufacture of glass, a comicated and highly ingenious process, but should excel in ; for the beads and amulets spoken of are of exquisite rkmanship, and beautifully coloured in imitation of the rest and most precious stones. There seems little ubt, therefore, that the ancient Britons procured these the course of traffic with the Syrians, who visited the and, as we do those in the South Seas, to drive a trade th their savage inhabitants in toys and trinkets, giving em these in exchange for skins or other natural producns. By whatever means, however, these ornaments came to Britain, it is certain that they were in extensive use, ough principally for religious purposes, long prior to e Roman invasion, as they are found in barrows or tuuli of a much older date. One at Stonehenge, in parcular, on being opened, was found to be filled with them. Glain Neidyr, or druidical glass rings, generally about lf as wide as our finger rings, but much thicker, have equently been found. The vulgar superstition regarding ese was, that they were produced by snakes joining their ads together and hissing, when a kind of bubble like a g was formed round the head of them, which the others, ntinuing to hiss, blew on till it came off at the tail, when immediately hardened into a glass ring. Success was thought to attend any one who was fortunate enough to find one of those snake stones. They were evidently beads of glass employed by the Druids, under the name of charms, to deceive the vulgar. They are usually of a green colour, but some of them are blue, and others variegated with wavy streaks of blue, red, and white.

Glass utensils have been found in Herculaneum, which city was destroyed by an eruption of Mount Vesuvius in the reign of Titus (A. D. 79). A plate of glass also found there has occasioned much speculation as to its uses. Similar plates, to which Pliny gives the name of *vitreæ cameræ*, seem to have been employed in a manner not very well understood by us, as wainscotting for their rooms. It is disputed whether or not glass was used in Herculaneum for windows.

In the reign of Tiberius, a company of glass manufacturers established themselves in Rome, and had a street assigned them near the Porta Capena. The articles of their manufacture were few in number and of inferior quality, neither did they make rapid improvements in their art, notwithstanding the large prices which were then given for glass of foreign manufacture in the imperial city. In the year 220, they had increased so much in importance, and the produce of their manufacture was so considerable, that an impost was laid on it by Alexander Severus. Dion Cassius and Petronius Arbiter concur in their account of the discovery of malleable or ductile glass by a celebrated Roman architect, whose success in the restoration to its position of a portico which leaned to one side, had roused the envy and jealousy of Tiberius, and occasioned his banishment from Rome. Thinking that his discovery would disarm the emperor's wrath, the artist appeared before him bearing a glass vessel, which he dashed upon the ground. Notwithstanding the violence of the blow, it was merely dimpled, as if it had been brass. Taking a hammer from his breast, he then beat it out into its original shape; but instead of giving him the reward which he had expected, the emperor ordered the unfortunate artisan to be beheaded, remarking, that if his discovery were known, gold would soon be held of as little value as common clay. This is probably another version of the story told by Pliny, of an artificer who made the same discovery, and whose workshop was demolished by those who had an interest in preventing the introduction of an article which would lower the value of gold, silver, and brass. Although it might not be justifiable to give unqualified disbelief to these stories, yet the knowledge we at present possess would restrict the possibility of such a discovery within the narrowest limits. The union of the properties of malleability and vitrification seems to be incompatible. Some metallic substances, by the application of intense heat, are reduced to the state of glass, but at the same time lose their malleability; which fact would seem to imply that it is impossible to communicate the latter property to glass. The extraordinary stories above mentioned have, however, been rationally enough explained by modern chemists. It has been observed by Kunckel, that a composition having a glossy appearance, and sufficiently pliant to be wrought by the hammer, may be formed; and by Neumann, that, in the fusion of muriate of silver, a kind of glass is formed, which may be shaped or beaten into different figures, and may be pronounced in some degree ductile. Blancourt, in his *L'Art de la Verrerie*, mentions an artist who presented a bust of ductile glass to the Cardinal Richelieu, minister of Louis XIII. But he does not seem to have been more fortunate than his predecessors; for he was doomed to imprisonment for life, for "the politic reasons," as Blancourt with much simplicity observes (we quote from the translation published in 1699), "which, it is believed, the cardinal entertained from the consideration of the consequences of that secret," which no doubt led him to fear lest the established interests of French glass manufacturers might be injured by the discovery. From expressions used by Blancourt in other parts of his work, we think, that by malleable glass, such as was produced by this artist, he understood some composition similar to those which Kunckel and Neumann discovered, and was not very exact in limiting the term to that vitreous substance which we now generally understand when we speak of glass.

The precise period at which the making of window-glass came into practice is not now certainly known. The Roman windows were filled with a semitransparent substance, called *lapis specularis*, a fossil of the class of talcs, which readily splits into thin smooth laminæ or plates. This substance is found in masses of ten or twelve inches in breadth, and three in thickness; and, when sliced, very much resembles horn, instead of which it is to this day often employed by lantern makers. The Romans were chiefly supplied with this article from the island of Cyprus, where it abounds. So good a substitute for glass is it said to have been, that, besides being employed for the admission of light into the Roman houses, it was also used in the construction of hot-houses, for raising and protecting delicate plants; so that, by using it, the Emperor Tiberius had cucumbers at his table throughout the whole year.

There is no positive mention of the use of glass for windows before the time of Lactantius, at the close of the third century. But the passage in that writer which records the fact (*De Opif. Dei*, cap. 8), also shows that the *lapis specularis* still retained its place. Glass windows are distinctly mentioned by St Jerome, as being in use in his time (A. D. 422). A century later, the windows of the church of St Sophia at Constantinople are represented by Paulus Silentiarius as being filled with glass. After this period we meet with frequent mention of them. Joannes Philippinus (A. D. 630) states that glass was fastened into the windows with plaster.

The Venerable Bede asserts that glass windows were first introduced into England in the year 674, by the Abbot Benedict, who brought over artificers skilled in the art of making window-glass, to glaze the church and monastery of Wearmouth. Other authorities attribute the introduction of this luxury to Bishop Wilfred junior, who died in 711. It would thus appear, that glass windows were first introduced into England either about the end of the seventh or the beginning of the eighth century. The use of window-glass, however, was then, and for many centuries afterwards, confined entirely to buildings appropriated to religious purposes; but in the fourteenth century it was so much in demand, though still confined to sacred edifices and ornamental purposes, that glazing had become a regular trade. This appears from a contract entered into by the church authorities of York Cathedral in 1338, with a glazier to glaze the west windows of that structure; a piece of work which he undertook to perform at the rate of sixpence per foot for white glass, and one shilling per foot for coloured. Glass windows, however, did not become common in England till the close of the twelfth century. Until this period they were rarely to be found in private houses, and were deemed a great luxury, and a token of great magnificence. The windows of the houses were till then filled with oiled paper, or wooden lattices. In cathedrals, these and sheets of linen supplied the place of glass till the eighth century; in meaner edifices lattices continued in use till the eighteenth.

The glass of the Venetians was superior to any made elsewhere, and for many years commanded the market of nearly all Europe. Their most extensive glass-works were established at Murano, a small village in the neighbourhood of Venice; but the produce was always recognised by the name of Venetian glass. Baron von Lowhen, in his *Analysis of Nobility in its Origin*, states that, "so useful were the glass-makers at one period in Venice, and so great the revenue accruing to the republic from their manufacture, that, to encourage the men engaged in it to remain in Murano, the senate made them all burgesses of Venice, and allowed nobles to marry their daughters; whereas, if a nobleman marries the daughter of any other tradesman, the issue were not reputed noble."

The skill of the Venetians in glass-making was especially remarkable in the excellence of their mirrors. Beckmann, who has minutely investigated the subject, is of opinion that the manufacture of glass mirrors certainly was attempted, but not with complete success, in Sidon, at a very early period; but that they fell into disuse, and were almost forgotten until the thirteenth century. Previously to this period, plates of polished metal were used at the toilette; and in the rudeness of the first ideas which suggested the substitution of glass, the plates were made of a deep black colour to imitate them. Black foil even was laid behind them, to increase their opacity. The metal mirrors, however, remained in use long after the introduction of their fragile rivals, but at length they wholly disappeared; a result effected chiefly by the skill of the Venetians, who improved their manufacture to such a degree that they speedily acquired a celebrity which secured an immense sale for them throughout all Europe.

From Italy the art of glass-making found its way into France, where an attempt was made, in the year 1634, to rival the Venetians in the manufacture of mirrors. The first essay was unsuccessful, but another, made in 1665, under the patronage of the celebrated Colbert, in which French workmen, who had acquired a knowledge of the art at Murano, were employed, had better fortune. But a few years afterwards, this establishment, which was situated in the village of Tourlaville, near Cherbourg, in Lower Normandy, was also threatened with ruin by a discovery, or rather improvement, in the art of glass-making, effected by one Abraham Thevart. This improvement consisted in casting plates of much larger dimensions than it had hitherto been deemed possible to do. Thevart's first plates were cast at Paris, and astonished every artist by their magnitude. They were eighty-four inches long and fifty inches wide, whereas none previously made exceeded forty-five or fifty inches in length. Thevart was bound by his patent to make all his plates at least sixty inches in length and forty in breadth. In 1695 the two companies, Thevart's and that at Tourlaville, united their interest, but were so unsuccessful, that, in 1701, they were unable to pay their debts, and were, in consequence, compelled to discharge most of the workmen, and abandon several of their furnaces. Next year, however, a company was formed, under the management of Antoine d'Agincourt, who re-engaged the discharged workmen; and the works realised considerable profits to the proprietors, a circumstance which is attributed wholly to the prudent management of D'Agincourt.

Early in the fourteenth century the French government made a concession in favour of glass-making, by decreeing, that not only should no derogation from nobility follow the practice of the art, but that none, save gentlemen, or the sons of noblemen, should venture to engage in any of its branches, even as working artisans. This limitation was accompanied by a grant of a royal charter of incorporation, conveying important privileges, under which the occupation became eventually a source of great wealth to several families of distinction.

It has been said that the manufacturing of window-glass was first introduced into England in the year 1557. But a contract, quoted by Horace Walpole, in his *Anecdotes of Painting*, proves that this article was made in England upwards of a century before that period. This curious document is dated in 1439, and bears to be a contract between the Countess of Warwick and John Prudde of Westminster, glazier, whom she employed, with other tradesmen, to erect and embellish a magnificent tomb for the earl, her husband. John Prudde is thereby bound to use "no glass of England, but glass from beyond seas;" a stipulation which, besides showing that the art of making window-glass was known and practised in England in the fifteenth century, seems also to indicate that it was inferior to what could be obtained from abroad. The finer sort of window-glass was made at Crutched Friars, London, in 1557. The first flint-glass made in England was manufactured at the Savoy House, in the Strand; and the first plate-glass, for looking-glasses, coach windows, and similar purposes, was made at Lambeth, by Venetian workmen, brought over in 1670 by the Duke of Buckingham.

The art of glass-making was introduced into Scotland in the reign of James VI. An exclusive right to manufacture it within the kingdom, for the space of thirty-one years, was granted by that monarch, to Lord George Hay, in the year 1610. This right his lordship transferred in 1627, for a considerable sum, to Thomas Robinson, merchant-tailor in London, who again disposed of it for L.250, to Sir Robert Mansell, vice-admiral of England. The first manufactory of glass in Scotland, an extremely rude one, was established at Wemyss in Fife. Regular works were afterwards commenced at Prestonpans, Leith, and Dumbarton. Crown-glass is now manufactured at Warrington, St Helens, Eccleston, Old Swan, and Newton, Lancashire; at Birmingham, Hunslet near Leeds, and Bristol. It is also manufactured of excellent quality on the Tyne and Wear. Great improvements have recently been made in the manufacture of crown-glass; and we believe this article, as made in England, is superior in quality to that of any other nation.

There is good reason for supposing that the art of staining or painting glass is coeval with the art of making glass itself, since, as has been noticed above, it is difficult to make it without colour. The possibility of subjecting this propensity to the will of the manufacturer must have very obviously presented itself, although it certainly requires much art and chemical knowledge to produce perfect specimens of this description of manufacture. This perfection seems, however, to have been attained at a very early period. It is certain that the art was known in Egypt at least 3000 years ago. We have already mentioned the beautiful imitations of precious stones, found adorning mummies which are known to have existed for that time. We meet with frequent mention of specimens of Eastern workmanship of consummate beauty, upon which great value was placed. The Emperor Hadrian, whilst at Alexandria, was presented by an Egyptian priest, with two glass cups, which sparkled with colours of every kind, and which had been used in the service of the temple. These he prized so highly that he ordered that they should be produced only on festivals and great solemnities. The works of Caylus and Winkelmann furnish some striking instances of ancient skill in the formation of pictures by means of delicate glass fibres of various hues, which, after being fitted together with the utmost nicety, were conglutinated by fusion into a solid mass. The art of combining the various colours, so as to produce pictures, such as is now practised, is comparatively of recent date. The earliest specimens of this kind of work discover a factitious joining of different pieces of glass, differently tinged, and so arranged as, by a species of mosaic work, to produce the figure or figures wanted. The various pieces are held together generally by a vein of lead, run upon the back of the picture, precisely at their junction.

But modern ingenuity has superseded this clumsy expedient; and every colour used in painting can now be introduced into one entire sheet. For a long period the pictured glass used in cathedrals was merely painted on the surface, the art of incorporating the colours with the glass by fusion, the method now practised, being unknown till the beginning of the fifteenth century. This great improvement is ascribed to a painter of Marseilles, who went to Rome during the pontificate of Julius II.; but his discovery went no further than the producing of different colours on different pieces of glass, and having them afterwards united in the old fashion. This art was, at a later period, greatly improved by Albert Durer and Lucas of Leyden, the latter of whom brought it nearly to the state in which it is now practised.

The first painted glass executed in England was in the time of King John; previously to this, all stained or painted glass was imported from Italy. The next notice of it occurs in the reign of Henry III. The treasurer of that monarch orders that there be painted, on three glass windows in the chapel of St John, a little Virgin Mary holding the child, and the Trinity, and Saint John the Apostle. Some time after, he issues another mandate for two painted windows in the hall.

Even at this early period, however, England boasted of eminent native artists in glass painting, amongst the first of whom was John Thornton, glazier of Coventry. This person was employed, in the time of Henry IV., by the dean and chapter of York cathedral, to paint the eastern window of that splendid edifice; and for the beautiful and masterly workmanship which he exhibited in this specimen of his skill, he received four shillings per week of regular wages. He was bound to finish the work in less than three years, and to receive, over and above the weekly allowance, one hundred shillings for each year; and if the work was done to the satisfaction of his employers, he was to receive, on its completion, a further sum of L.10.

From this period downwards there have been many skilful native artists, although the Reformation greatly impeded the progress of the art, by banishing the ungodly ostentation of ornamented windows from churches; indeed, so serious was this interruption, that the art had nearly altogether disappeared in the time of Elizabeth. Amongst the most eminent glass painters who first appeared upon the revival of the art, were Isaac Oliver, born in 1616, and William Price, who lived about the close of the seventeenth century. This last person was for many years the only glass painter in England. He is said to have discovered, what is to this day a desideratum in the art of glass staining, the secret of producing a rich, clear, bright, and transparent red, the most difficult to strike, and the most expensive of all the colours employed in glass painting. But Price having died soon after making this discovery, his secret died with him. This artist was succeeded by a person at Birmingham, who, in 1757, fitted up a window for Lord Lyttleton, in the church of Hajely. To him succeeded one Peckit of York, who attained considerable eminence in the art.

During all this time, however, and indeed until a comparatively recent date, painted glass was regarded as too costly and too magnificent an article to be otherwise employed than in decorating religious edifices or the palaces of nobles; and even in the latter case it was but sparingly used. Modern improvement has now placed this beautiful ornament within the reach of very ordinary circumstances; and, when this is considered, it must excite a strong feeling of surprise to find how little so elegant a luxury is even yet in demand. The art of staining glass is now practised with very great success. The colours of modern artists, we venture to allege, notwithstanding what is often urged to the contrary, equal in variety and richness those of the ancients; and, with the superior knowledge which we now possess of the principles of drawing, and of bringing several colours together on a single sheet, encouragement alone is wanting to attract artists of talent and inventive genius to the pursuit of the art, and to carry it to a greater height of excellence than it has ever reached in the hands of their predecessors.

MANUFACTURE OF CROWN-GLASS.

In order to secure success to his operations, the glass manufacturer must bestow the utmost care upon the erection of his furnaces. They must be well and substantially built, of the best materials, of the most approved construction, and under the direction of a builder of tried skill and extensive experience. A false economy in these respects cannot fail of leading to the most ruinous results.

Crown-glass is the best kind of glass now employed in the glazing of windows, and is so called to distinguish it from the common, broad, or spread glass, which was in use before the introduction of crown-glass, but which, on account of its inferior quality, is now rarely used. In the manufacture of crown-glass the following furnaces and arches are required, viz. calcar arch, main furnace, bottoming hole, flashing furnace, nose hole, and annealing kiln.

A Calcar Arch for burning frit is a common reverberatory furnace, and is about ten feet long, seven feet wide, and two feet high. A building ground plan and elevation of one is shown in Plate CCLXVI. figs. 4 and 5. The crown and sides are built of fire-brick, and the other parts of common brick. The bottom should be carefully joined and cemented, as the salt is apt to ooze through it.

The Main or *Glass-making Furnace* is an oblong square, built in the centre of a brick cone, large enough to contain within it two or three pots at each side of the grate-room, which is either divided, as shown in the plan, or runs the whole length of the furnace, as the manufacturer likes. Plate CCLXVI. fig. 3 is a ground plan, fig. 2 is an end elevation, and fig. 1 a front elevation, of a six-pot furnace. 1, 2, 3, fig. 1, are the working holes for the purpose of ventilation, for putting in the materials, and for taking out the metal to be wrought. 4, 5, 6, 7 are pipe holes for warming the pipes before beginning to work with them. 8, 9, 10 are foot-holes for mending the pots and sieges. 11 is a bar of iron for binding the furnace, and keeping it from swelling.

The arch, as shown in fig. 2, is of an elliptic form. A barrel arch, that is, an arch shaped like the half of a barrel cut longwise through the centre, is sometimes used. But this soon gives way when used in the manufacture of crown-glass, although it does very well in the clay-furnace for bottle-houses.

The best stone for building furnaces is fire stone from Coxgreen, in the neighbourhood of Newcastle. Its quality is a close *grec*, and it contains a greater quantity of talc than the common fire stone, which seems to be the chief reason of its resisting the fire better. The great danger in building furnaces is, lest the cement at the top should give way with the excessive heat, and, by dropping into the pots, spoil the metal. The top should therefore be built with stones only, as loose as they can hold together after the centres are removed, and without any cement whatever. The stones expand and come quite close together when annealing; an operation which takes from eight to fourteen days at most. There is thus less risk of any thing dropping from the roof of the furnace.

The inside of the square of the furnace is built either of Stourbridge fire-clay annealed, or the Newcastle fire-stone, to the thickness of sixteen inches. The outside is built of common brick about nine inches in thickness.

The furnace is thrown over an ash-pit, or cave as it is called, which admits the atmospheric air, and promotes the combustion of the furnace. This cave is built of stone until it comes beneath the grate-room, when it is formed of fire brick. The abutments are useful for binding and keeping the furnace together, and are built of masonry. The furnaces are stoutly clasped with iron all round, to keep them tight. In four-pot furnaces this is unnecessary, provided there be four good abutments.

Bottoming Hole. Plate CCLXVII. figs. 3 and 4. Elevation and ground plan. The interior is of common fire-brick, the mouth either of common fire-brick or Stourbridge clay, and the outside entirely of common brick.

Flashing Furnace. Figs. 5 and 7. Elevation and ground plan. The outside is built of common brick, the inside of fire-brick, and the mouth or nose of Stourbridge fire-clay.

Nose Hole. Fig. 6. Elevation. This is a small aperture off the flashing furnace, and of the same materials. Fig. 7, ground plan.

Annealing Kiln. Figs. 8 and 9. It is built of common brick, except around the grate-room, where fire-brick is used.

The materials of which crown-glass is usually composed are kelp and fine white sand. Pearl ashes, or certain other alkalis, sometimes supply the place of the former of these substances. The quality of kelp is extremely various. That from Orkney is superior to what is made in Ireland, the Hebrides, or the lower parts of Scotland. It is found to contain less alkali, and to produce glass of a better colour.[1] For the glass-maker's purposes the kelp of the Orkneys is decidedly the best. It is freer from sulphur than the others, the presence of which makes the glass green, crude, and fretful. The following is the course pursued in the preparation of kelp. The fuci are cut from the rocks in the months of May, June, and July. They are then brought to the shore, and, after being spread out and dried, are thrown into a pit lined with stones, in which a large fire of peat has been previously kindled. On this fire the weed is heaped from time to time, until a large mass is accumulated, and the whole is reduced to a state of fusion. It is then well mixed and levelled, and allowed to cool. When sufficiently cold, it is taken from the pit, and broken into portable masses, for the convenience of transportation. To prevent the dissipation of the alkali, a thing very apt to occur, the greatest care is necessary in every part of this process; in the gathering and drying, as well as in the burning of the fuci; in the treatment of the mass whilst in a state of fusion; and in its exposure to the atmosphere during these operations. Kelp burners are but too frequently guilty of carelessness in this respect. In some places they burn the fuci in pits which are not lined with stones, and, of consequence, sand and earthy substances mingle with the fused mass.[2] It is no uncommon thing for the makers to increase the weight of kelp intentionally, foolishly thinking to procure a high-

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[1] Some eminent chemists assert that, although the usual quantity of kelp be added in the manufacture of glass, the weight of the glass produced is nothing more than the original weight of the sand. But this is not the case with the Orkney kelp, for though it has less alkali, it contains more insoluble matter than the West Highland kelp, and of course produces a larger quantity of glass. The West Highland yields glass of very inferior colour to that procured by the use of Orkney kelp.

[2] The best mode of preparing kelp, as invented by Colonel Fullarton, is by burning it in a reverberatory furnace, and throwing it down in the form of cakes, in the same manner as frit, which we shall afterwards have occasion to describe. When so prepared, it is more fit for the glass manufacturer, being free of extraneous matter. This method is now employed by extensive makers of kelp in Ireland.

Crown-Glass.

er price for it by so doing. Such adulteration is, however, at once detected by the kelp merchant, and the article, which might otherwise have brought a good price, is reduced to less than a third of its value. The inferiority of the Lowland kelp to that of Orkney and the Hebrides, may with safely be attributed as much to this practice as to the inferiority of the fuci. Some idea, but at best a very uncertain one, of the quality of kelp may be formed by the examination of its external appearance. A chemical analysis of its properties can alone give security to the manufacturer. In preparing it for the manufacture of glass, it is first broken into small pieces, either by the hand or by a machine called a stamper. It is then put into a mill and ground into a fine powder, stones and all other extraneous matter being picked out. The powder is afterwards passed through brass wire sieves.

With regard to the other component part of window-glass, namely, sand, that of the best description is procured from Lynn Regis, in Norfolk. That procured from Alum Bay, on the western coast of the Isle of Wight, is also of excellent quality. The superiority of this sand arises from the circumstance of its containing a greater quantity of minute transparent crystals than is found in the sand of any other place in the country. In preparing the sand, it is usually washed in a large vat with boiling or cold water, until the water runs off quite clear. The sand is then put into a calcining arch, where it is subjected to a strong heat for twenty-four hours. During this time it is kept red hot, and immediately on being taken out is plunged into pure cold water. This has the effect of dividing the particles of sand, and making it unite more readily with the alkali during the process of calcining. Some use nitre during this process, which consumes any sulphureous matter that may be present, or extraneous substances of an animal or vegetable nature, and reduces them to an earth not injurious to glass. When this operation is completed, it is removed into the mixing room, where the proportions of material are adjusted and mingled together, previously to their being *fritted* or calcined. Here the materials, the sand and the kelp powder, are carefully proportioned, generally in the degree of eleven of kelp to seven of sand, some manufacturers using eleven to eight, which are mixed up according to the judgment of the mixer. The majority of glass manufacturers are now giving up the use of kelp. Within the last few years the improvements in the manufacture of carbonate of soda have been very great, while it has also fallen considerably in price. Instead, therefore, of using such an impure alkali as kelp with sand, carbonate of soda with sand and lime is employed, which gives glass of as good a colour as plate, and is attended with many other advantages which the old materials do not possess. Manufacturers, instead of kelp, purchase sulphur, and with it make sulphuric acid. With sulphuric acid and muriate of soda they make sulphate of soda, to which lime, coal, &c. are added, and thus produce carbonate of soda, which, with sand and lime, is made into glass. The operations for preparing these materials are carried on within their own premises by several extensive glass manufacturers. The following mixture has been found to produce an excellent quality of glass:—3 cwts. Lynn sand; 2½ ditto carbonate of soda; 14 lbs. nitre; 14 ditto lime; 7 ditto charcoal; one fourth of the above weight of cullet.

This mixture will make a very excellent glass when the furnace is kept at a proper heat. The proportions must, of course, be regulated in some degree by the heat which the furnace attains. The addition of any other ingredient will injure the quality and colour of the glass. It may be either fritted or not before being put into the pots. The use of this mixture saves coals, time, and wages, as the founding occupies from sixteen to twenty hours only, whilst in other cases the time occupied by this process is from twenty to twenty-four hours. It can also be blown to a thinner and finer substance, and is thus liable to a less duty. When the sand and kelp are thoroughly mixed, the compost is put into a calcining arch or reverberatory furnace, where it is subjected to a heat so strong as to reduce it to a semifluid state. Whilst in this state, it is stirred without intermission, to prevent the formation of knots containing more sand than the rest of the batch, an effect resulting from the dissipation of the alkali by excess of heat. The process of calcining requires more or less time according to the varying properties of the ingredients composing the batch. From three to four hours is the time usually occupied by each batch. The frit, as the substance is now called, is taken from the furnace, spread upon a plate of iron whilst yet hot, and, before it becomes quite cold, divided into large cakes. In the opinion of many, it cannot be too old for use; as when new the glass made from it is full of what are called seeds. It is commonly kept about six months by opulent manufacturers. The last operation consists in throwing the frit into the melting pots, which are of the form represented in Plate CCLXVIII. fig. 2.

To prevent stones or clay from the furnace falling into the pot, those used in making flint-glass are always covered in on the top; and the same thing has been tried in crown pots, made with two openings, one in the front and one in the back, the back one to be plugged up when beginning to work from the front of the pot. This method succeeded very well, but was abandoned from the length of time it required; a circumstance which more than counterbalanced its advantages.

These pots or crucibles are made of the finest clay. That from Stourbridge in Worcestershire is considered the best. Great care is requisite in the selection, and in cleansing it from extraneous particles, the presence of which, even in the smallest degree, will injure the pot. A fine powder procured by grinding old crucibles is generally mixed, in a proportion seldom larger than a fourth, with what is termed the virgin clay. This mixture dries more rapidly, contracts less while drying, and presents a firmer resistance to the action of the fire and alkali used in the composition of glass than the mere unmixed clay. These ingredients having been mixed, they are wrought into a paste in a large trough, and carried to the pot loft, covered in such a way as to exclude dust and other minute particles. Here a workman kneads this paste by tramping it with his naked feet, turning it from time to time until it becomes as tough as putty. It is then made into rolls, and wrought, layer upon layer, into a solid and compact body, every care being taken to keep it free of vacuities, as latent air would, by its expansion in the furnace, cause an immediate rupture of the pots.

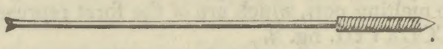
After pots are made, very great care is necessary to bring them to the proper state of dryness before taking them to the annealing or pot arch. In drying they commonly shrink about two inches in the circumference. When pots are made during summer, the natural temperature is sufficient. In winter they are kept in a temperature of from fifty to fifty-five degrees Fahrenheit. They remain in the room where they are made for a period varying from nine to twelve months. Being afterwards removed to another apartment, where the heat is from eighty to ninety degrees Fahrenheit, they are kept there for about four weeks. They are then removed for four or five days, more or less, according to their previous state of dryness, to the annealing arch (of which figs. 1 and 2, Plate CCLXVII. is an elevation and ground plan), which is gradually and cautiously heated up till it reaches the temperature of the working furnace, whither, after being sufficiently annealed, they are carried as quickly as possible. Pots last upon an average from eight to ten weeks. Their value is usually estimated

Crown-Glass.

at L.8 or L.10 each. A section of a crown-glass pot, showing their usual dimensions, is given at Plate CCLXVIII. fig. 2.

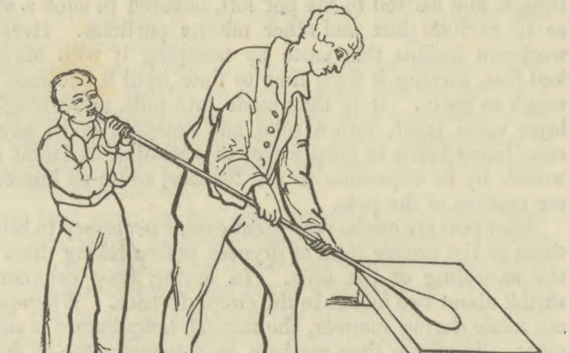
To the frit thrown into these pots there is added a proportion, about an eighth, of cullet or broken crown-glass. After this has been done, the furnace is raised to the highest possible degree of heat. The pots are filled every third hour or so, according as the frit melts, till they are completely full. The intensity of the heat is then increased, if possible, till the metal, as it is now called, is reduced to fine liquid glass, which is then ready for the operations of the workman.[1] From twenty-four to thirty hours in all are required for this process, which is called founding.[2]

The furnace is slackened for about two hours, and the metal being now in a workable state, the first operator who approaches the furnace in which the pot of liquid glass is placed is the *skimmer*, who skims off all crude or extraneous substances from the surface of the metal. Next follows the *gatherer*, who is provided with an iron pipe or tube, six or seven feet in length, and of this shape.

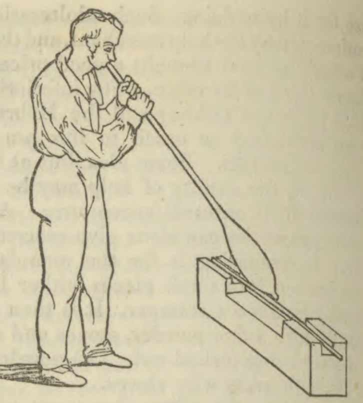


Having previously heated that end of the tube which takes up the glass, he dips it into the pot of metal; and by turning it gently round, gathers about one and a half pound of liquid glass on the end of it. Having allowed this to cool for a little, he again dips it into the pot, and gathers an additional quantity, of from two and a half to three pounds. This is also permitted to cool as before, when the operation of dipping is again repeated, and a sufficient quantity of metal, from nine to ten pounds weight, is gathered, to form what is technically called a table or sheet of glass. The rod, thus loaded, is held for a few seconds in a perpendicular position, that the metal may distribute itself equally on all sides, and that it may, by its own weight, be lengthened out beyond the rod. The operator then moulds the metal into a regular form, by rolling it on a smooth iron plate, called the "marver," a term corrupted from the French word *marbre*.

He then blows strongly through the tube, when his breath penetrating the red-hot mass of glass, causes it to swell out into a hollow pear-shaped vessel, thus:

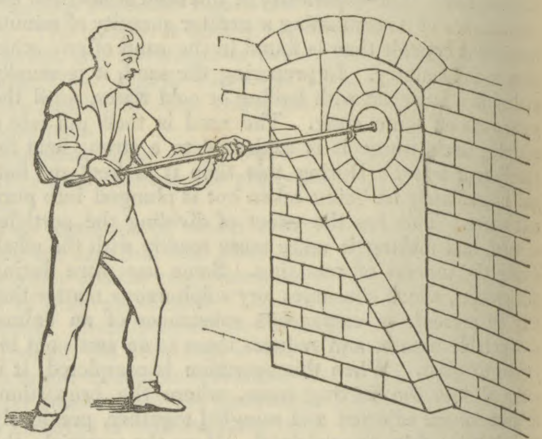


The tube with the elongated sphere of glass at the end of it is then handed to the *blower*, who heats it a second and third time at the furnace, pressing the end, between each blowing, against the bullion bar, so called from the part thus pressed forming the centre of the sheet or bull's eye, thus:

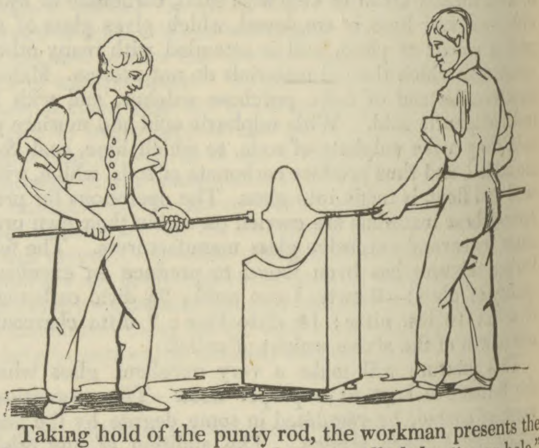


By the dexterous management of this operation, the glass is brought into a somewhat spherical form.

The blower heats a third time at the bottoming hole, and blows the metal into a full-sized globe thus:



When this part of the process has been completed, and the glass has been allowed to cool a little, it is rested on the casher box, and an iron rod, called a "*pontil*" or punty rod, on which a little hot metal has been previously gathered, is applied to the flattened side, exactly opposite the tube, which is detached by touching it with a piece of iron, dipped beforehand in cold water, leaving a circular hole in the glass of about two inches diameter. The operation of attaching the punty is shown by the following plate.



Taking hold of the punty rod, the workman presents the glass to another part of the furnace called the "nose hole," where the aperture made by its separation from the tube is now presented and kept until it has become sufficiently ductile to fit it for the operation of the flashing furnace. Whilst here, it is turned dexterously round, slowly at first, and afterwards with increasing rapidity; and the glass yielding to the centrifugal force, the aperture just mentioned becomes enlarged.

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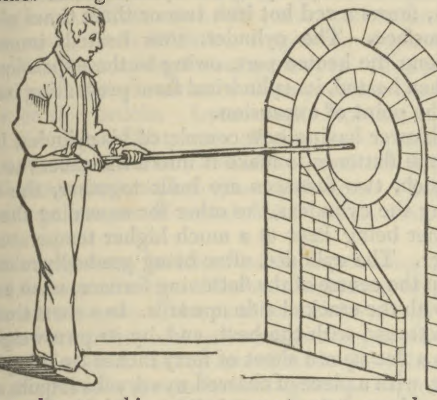
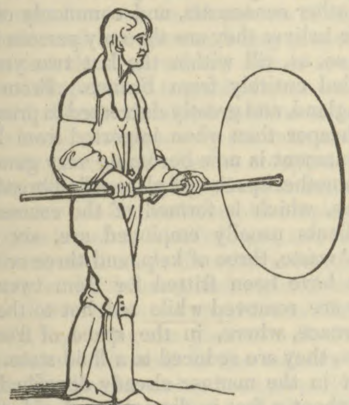
[1] The *sandiver* or glass gall is removed while the furnace is at its extreme degree of heat.

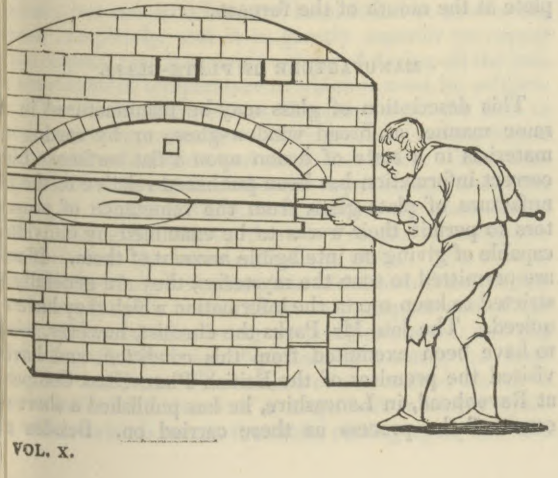
[2] A piece of wood about eleven inches long by seven broad, with a hole three inches by one inch, forms an excellent protection to the eyes from the heat to which they are exposed when examining the metal in the pots.



The workman, taking great care to preserve, by a regular motion, the circular figure of the glass, proceeds to whirl it round with increasing velocity, until the aperture suddenly flies open with a loud ruffling noise, which has been aptly compared to the unfurling of a flag in a strong breeze; and the glass becomes a circular plane or sheet, of from four to four and a half feet diameter, of equal thickness throughout, except at the point called the bullion or bull's eye, where it is attached to the iron rod. The following figure will give some idea of this very beautiful part of the process.



The sheet of glass, now fully expanded, is moved round with a moderate velocity until it is sufficiently cool to retain its form. It is carried to the mouth of the kiln or annealing arch, where it is rested on a bed of sand, and detached from the punty rod by a shears. The sheet or table is then lifted on a wide pronged fork, called a faucet, and put into the arch to be tempered, where it is ranged with many others set up edgewise, and supported by iron frames to prevent their bending. From four to six hundred tables are placed in one kiln.



A sketch of the interior of a crown-glass house, during the progress of these operations, has been given in Plate CCLXVIII. fig. 1.

The kiln having been clayed up, the fire is permitted to die out, and the heat diminished as gradually as possible. When the glass is properly annealed, and sufficiently cold to admit of its being handled, it is withdrawn from the oven, after the removal of the wall built into the front of the arch, and is then quite ready for the glazier's use. It is first, however, removed to the manufacturer's warehouse, where the circular sheets are cut into halves, and assorted into the different qualities, known to the tradesmen by the names of seconds, thirds, and fourths.

We conclude our remarks on the manufacture by observing, that the quality of glass does not depend upon the mixtures alone, but also upon the treatment it receives after it has been made, the quality of the coals, and management of the furnaces. Cleanliness in every department of the manufacture, a general knowledge of chemistry, and of the art in all its details, with the most unremitting industry, and skill in the direction and government of the operatives, are all essentially necessary for the production of good glass.

British Sheet.

MANUFACTURE OF BRITISH SHEET-GLASS.

This article is only manufactured by Messrs Chances and Hartleys, of West Bromwich, near Birmingham, who, after having visited the glass manufactories of France, Belgium, and Germany, commenced, in 1832, the making of British sheet. The principle upon which it is manufactured is the same as that acted upon in the making of common or green glass. The metal is formed into cylinders, and then flattened into sheets. The French, Belgians, and Germans, having pursued this system for the last fifty years in making their window-glass, have much improved the old mode of making it; and as the parties who are now manufacturing this article in England are crown-glass makers, and have imported all the improvements adopted in the making of sheet-glass in France, Belgium, and Germany, and combined with these the improvements which their experience as crown-glass makers had taught them during the same period, they have surpassed the French, Belgians, and Germans in sheet-glass, and can now compete with them in all parts of the world.

There is no crown-glass made in France; and their window-glass, though superior to our broad or common glass, is not equal to the British sheet. In Germany there is little crown-glass made, and that of a very inferior quality. The greater part of the glass made in that country is sheet, and it is of much better quality than the French or Belgian. In Germany a common sort of glass is made, in the following manner: Three or four workmen form a partnership, and, having fixed upon a place in the woods where clay and sand are easily met with, they proceed to build a glass-house with wood and clay. They then make the pots, and, from the ashes of the wood which they burn, obtain potash, which, after it has been mixed with sand, they melt into glass. They blow the metal into cylinders, flatten it into sheets, cut, pack, in short, perform the whole operations from first to last, themselves. A good deal of the best of the glass made in this manner is sent to Nuremburg, where it is polished and sent into Holland. Some of it is sometimes smuggled into this country, and is known by the designation of Dutch glass.

British Sheet.

The expense of making British sheet is about the same as making crown-glass, excepting in the case of large squares, when it is much less; in crown-glass it is very difficult to get a square 34 × 22, but in sheet-glass the common size is 40 × 30; nay, sheets are sometimes made as large as 50 × 36. Its other advantage over crown is, that it has none of that wavy or curved appearance, by which the vision is so much distorted in crown-glass; but, at the same time, sheet-glass has rather an unpleasant appearance when viewed from the outside of a building, in consequence of an unevenness of surface, technically termed *cockled;* when viewed, however, from the inside, it is difficult to distinguish it from plate-glass.

The materials employed in the making of sheet-glass are the same as those used in the making of crown-glass. The large melting furnace is also very similar; in France and Belgium they usually contain six or eight pots, but at the manufactory at West Bromwich the furnace contains ten pots, each containing seven cwts. of metal, which requires fourteen hours to melt.

In a line with each pot, and four feet from the ground, are erected ten stages, with an open space between each, of about two feet, through which the workman swings his glass when making cylinders. When the metal is ready for working, the ten workmen take their stations, each having his own pot and stage, and also an assistant, and commence making the cylinders, as follows: After gathering the quantity of metal required (which varies from three to twenty pounds), the workman places it in a horizontal position upon a wooden block, which has been hollowed, so that, when the workman turns the metal, it shall form it into a solid cylindrical mass. In the mean time, the assistant, with a sponge in his hand, and a bucket of water by his side, lets a fine stream of water run into the block, which keeps the wood from burning, and also gives a brilliancy to the surface of the glass. The water, the moment it comes in contact with the glass, is raised to the boiling point, and, in that state, does no injury to the metal; but it is only when the metal is at a high temperature that such is the case; for, whenever the glass is cooled to a certain degree, it immediately cracks upon coming in contact with water. When the workman perceives that the mass of metal is sufficiently formed and cooled, he raises the pipe to his mouth at an angle of about seventy-five degrees, and commences blowing it, at the same time continuing to turn it in the wood block, till he perceives the diameter to be of the requisite dimensions, which are usually about ten inches. He then reheats this cylindrical mass, and, when it is sufficiently softened, commences swinging it over his head, continuing to reheat and swing till he has made it the desired length, which is commonly about forty inches. It is now in a cylindrical form, forty inches long and ten inches in diameter, one end being closed, and the other having the pipe attached to it. The workman now begins to open the end which is closed, for which purpose he encloses the air in the cylinder, by stopping the aperture of the pipe with his finger; and then placing the closed end of the cylinder towards the fire, it becomes softened, while at the same time the air within is expanding, and, in about thirty seconds, the glass becomes too soft to retain it, and bursts, a small aperture being formed at the point of the cylinder. The workman then turns the cylinder round very quickly, and, by keeping it warm at the same time, flashes it out perfectly straight; the other end, which is attached to the pipe, has now to be cut off. This is done in the following manner: The workman having gathered a small quantity of metal on the pontil, draws it out into a thread of about one eighth of an inch in diameter, laps it round the pipe end of the cylinder, and, after letting it remain there for about five seconds, withdraws it suddenly, and immediately applies a cold iron to the heated part, which occasions such a sudden contraction, that it cracks off where the hot string of glass has been placed round it. The workman having now formed a perfect cylinder of forty inches in length and ten in diameter, has, before it can be flattened, to split it on one side, so that it can be opened out; but before doing this, he is obliged to let it cool, and then, laying the cylinder horizontally upon a bench, draws a red hot iron two or three times along the inner surface. The cylinder, thus heated, immediately splits along the heated part, owing to the expansion of the glass when heated, its cylindrical form preventing its breaking at the point of expansion.

The blower having now completed his cylinder, hands it over to the flattener to make it into a flat sheet; to accomplish which, two furnaces are built together, the one for flattening the cylinders, the other for annealing the sheets, the former being kept at a much higher temperature than the latter. The cylinder, after being gradually reheated, is placed in the centre of the flattening furnace, upon a smooth stone, with the cracked side upwards. In a short time it becomes softened with the heat, and by its own weight falls out into a flat square sheet of forty inches by thirty. The flattener, with a piece of charred wood, rubs it quite smooth, and then places it in the annealing arch, where it remains about three days to be annealed. A workman will make sixty cylinders 40 × 50 in one day; and a flattener can flatten the same number in the same time. This glass can be made of any thickness from one twentieth to half an inch; but, in consequence of the heavy duty in this country, it is seldom made more than one twelfth of an inch in thickness, crown-glass being about one sixteenth.

The same enterprising company also manufacture large oval and square British shades, used for covering French clocks and other ornaments, and commonly called French shades. We believe they are the only persons in this country who do so, as, till within the last two years, we have been supplied entirely from France. From their being made in England, and greatly decreased in price (being fifty per cent. cheaper than when imported from France), this beautiful ornament is now becoming very generally used.

There is another species of glass called broad or common window-glass, which is formed of the coarsest materials. The ingredients usually employed are, six measures of soap-boilers' waste, three of kelp, and three or four of sand. After these have been fritted for from twenty to thirty hours, they are removed while red hot to the pots in the working furnace, where, in the space of from twelve to fifteen hours, they are reduced to a fluid state. The metal is taken out in the manner already described, and blown into globes about a foot in diameter. A piece of iron dipped in cold water is run along them, and produces a crack nearly rectilinear; and, while yet warm and ductile, these spheres are opened out and flattened on a smooth iron plate at the mouth of the furnace.

MANUFACTURE OF PLATE-GLASS.

This description of glass may be manufactured in the same manner as broad window-glass, or by casting the materials in a state of fusion upon a flat surface. Little correct information has been published relative to the manufacture of plate-glass, from the reluctance of proprietors to permit their works to be examined by individuals capable of giving an intelligible account of them. If such are permitted to scan the mysteries, they are generally restricted to keep secret the information which they have acquired. The late Mr Parks the chemist, however, seems to have been exempted from this condition, and having visited the premises of the British Plate-Glass Company, at Ravenhead, in Lancashire, he has published a short account of the process as there carried on. Besides the

Plate-Glass.

above manufactory, there are other two in Great Britain; Messrs Cookson and Co.'s, South Shields, and W. A. A. West's, Eccleston, near St Helen's; and plate-glass is also made at the celebrated works at St Gobain in France, besides other places upon the Continent.

The following is Loysel's account of the relative proportions of the materials used at St Gobain, in the manufacture of plate-glass. White sand, 100 parts; carbonate of lime, 12 ditto; soda, 45 to 48 ditto; fragments of glass of like quality, 100 ditto; oxide of manganese, $\frac{1}{4}$. The following proportions of ingredients are said to produce the best description of this article. Lynn sand which has been well washed and dried, 720 parts; alkaline salt containing 40 per cent. of soda, 450 ditto; lime slaked and sifted, 80 ditto; nitre, 25 ditto; broken plate-glass, 425 ditto. These quantities produce one pot of metal which yields 1200 pounds of glass.

Great nicety must be observed in conducting the processes of this manufacture. The materials must be selected with the utmost care. The sand should be of the whitest and finest description, and well washed and passed through a sieve, previously to being mixed with the other ingredients. Soda is always preferred to potash, because it imparts a higher degree of fluidity to the glass, and also because the impurities which it contains are more easily dissipated by the heat. Lime acts as a flux, and manganese has the effect of giving a slightly reddish hue to the mixture by which the colours of the other materials are neutralized, so that scarcely any appreciable tint remains. Cobalt is likewise used in some manufactories, much for the same purpose as manganese. The broken glass, or *cullet* as it is technically called, is those fragmentary portions which are cut from the plates when they are squared, or that which may flow over in the process of casting. The sand, lime, soda, and manganese, being properly mingled in the proportions above given, are fritted in small furnaces, where the temperature is gradually raised to a red or white heat, and there maintained until no more vapour is evolved, nor change undergone by the mixture. This process occupies six hours, and after its completion the other ingredients are added, consisting of cullet and cobalt. At St Gobain there are two kinds of crucibles employed; the one in which the glass is melted is called a *pot*, and has the shape of an inverted truncated cone; the other is entitled a *cuvette*; it is kept empty in the furnace, and exposed to the full degree of heat. Forty hours are requisite to vitrify the materials properly, and bring the glass to a fit state for casting. The pots are skimmed in the manner already described. When the liquid mass has been properly refined, the cuvette is filled by a copper ladle, and after sufficient time is allowed for the bubbles created by this disturbance to escape, it is removed to the table where the plates are cast. Copper was the metal of which tables were formerly constructed; but cast iron has now been found to answer the purpose completely, and it is greatly superior to copper in this respect, that it remains uninjured during all the sudden transitions of temperature to which it must be subjected. The British Plate-Glass Company were the first to introduce this improvement. They procured a plate fifteen feet long, nine feet wide, and six inches thick. The sides are provided with metallic ribs, the depth being exactly the measure of thickness which it is desired the glass should be of. During the casting there is a similar rib temporarily attached to the lower end of the table. The cuvette being filled with melted glass, it is withdrawn from the furnace by means of a crane, taken to the upper end of the casting table, and after being properly scummed, and elevated to a sufficient height by means of a crane, it is emptied of its contents. The surface of the melted matter is then smoothed by means of a large hollow copper cylinder, which extends across the table, resting upon the side ribs. This is set in motion, and rolled over the glass, by which process it is spread out into a sheet of uniform breadth and thickness. When the plate has become completely hardened, it is carefully inspected, to see that no flaws or bubbles appear on the surface. Should any be found, the sheet is immediately divided by cutting through them. It is afterwards removed to the annealing oven, where it is placed in a horizontal position, and remains for about fifteen days. When glass is in a high state of fluidity it is liable to be injured even by a draught of air, so that the apartment must be kept as free as possible from disturbance. The opening or shutting of a door, by setting the air in motion, might impair the value of the plate. After having been withdrawn from the annealing oven, they have to undergo the operations of squaring, grinding, polishing, and silvering, before they are fit for the market. These processes have thus been described by a late writer upon the subject.

"The first process—that of squaring and smoothing the edges—is performed by passing a rough diamond along the surface of the glass, guided by a square rule; the diamond cuts to a certain depth into the substance, when, by gently striking the glass with a small hammer underneath the part which is cut, the piece comes away; and the roughnesses of the edge then left are removed by pincers. The plate is then taken to the grinding apartment.

"The next step is to imbed each of the plates upon a table or frame adjusted horizontally, and made of either freestone or wood, cementing the glass securely thereto by plaster of Paris. One plate being then reversed and suspended over another, the material employed in grinding their surfaces is introduced between the two, and they are made to rub steadily and evenly upon each other by means of machinery set in motion by a steam-engine." River sand and water were formerly used for the purpose of abrading the surface, but ground flint is now substituted, as answering the purpose better. When one side of each plate has been sufficiently ground, it is loosened from the frame, and turned over, so as to present the other surface to be ground in the same manner. Some degree of pressure is employed, by loading the upper plate with weights, as the grinding of each side approaches to completion. The process thus described used formerly to last during three entire days, but this time is now much abridged. The greatest attention is required in order to finish with the surfaces perfectly level and parallel, for which end a rule and plumb-line are employed.

By means of this grinding, the plates will have been made level; but they are too rough to receive a polish. To fit them for this, they must again be ground with emery powder of increasing degrees of fineness. The preparation and sorting of this powder are effected in the following simple and ingenious manner:—"A considerable quantity of emery is put into a vessel containing water, and is stirred about violently until the whole is mechanically mixed with the water. Emery is absolutely insoluble by such means; and if the mixture were left at rest during a sufficient time, the whole would subside in layers; the coarsest and heaviest particles sinking first, and so on successively, until the very finest particles would range themselves as the upper stratum. Previously to this, however, and while these finest grains are still suspended in the water, it is poured off into a separate vessel, and the emery is there allowed to settle. A fresh supply of water is poured into the first vessel, the contents of which are again violently agitated, and allowed partially to subside as before. A shorter interval is allowed for this than in the first case; and then the liquor is poured off into a third vessel, by which means emery of the second degree of fineness is separated. This operation is repeated in order to obtain powders having four different degrees of fineness. The deposits are then separately dried upon a stove to a consistence proper

Stained Glass.

for making them up into small balls, in which form they are delivered to the workmen.

"In this further rubbing together, or, as it is called, *smoothing* of the glass plates, it must be understood that the coarsest emery is first used, and so on, substituting powders having increasing degrees of fineness as the work proceeds."[1]

These processes finished, the glass, although perfectly even, appears opaque or deadened on the surface, and requires polishing. This is effected in the following manner. A piece of wood is covered with numerous folds of woollen cloth, the layers being divided by some carded wool interposed between each, the whole forming a tolerably hard but elastic cushion, which is furnished with a handle. The plate is laid upon a bed of plaster, as already described, and the cushion being wetted, is covered with the red oxide of iron (the *colcothar* of commerce), and moved backwards and forwards upon the surface of the plate. Lastly, if the glass be intended for mirrors, it is silvered, that is, covered on one side with a thin coating of mercury.

The process of *blowing* plate-glass differs so slightly from the methods used in producing broad glass that they need not be here repeated. Any difference that does exist, arises from the great bulk and weight of the mass of glass operated upon.

STAINED AND PAINTED GLASS.

The invention of the art of colouring glass, that is, imbuing it throughout with any particular tint, seems, as we have already had occasion to remark, to be nearly coeval with the discovery of the art of making the substance itself, Egyptian ornaments, and druidical beads, of the highest antiquity, as already mentioned in our historical notices, having been found of numerous and surprisingly beautiful colours. The art of staining and painting glass so as to form pictorial representations of objects, is, however, of comparatively recent date. The precise period of its introduction is unknown, but it is at least certain that it has existed for many centuries in different degrees of excellence, and that it has moreover been gradually advancing in improvement. The earliest record which we possess concerning the existence of this beautiful art is of the age of Pope Leo III., that is, about the year 800, a period which witnessed the erection of many of the most magnificent ecclesiastical edifices upon the Continent. Several centuries, however, elapsed before stained glass came into general use. The earliest specimens with which we are acquainted differ from those of more recent date, inasmuch as they are composed of small pieces of glass imbued throughout with colour during the process of manufacture, and to which artists give the name of pot metal.

These were united by joinings of lead after having been cut to the required shapes, and are thus made to form a species of Mosaic work; but, as might be expected, they do not possess that breadth of colour, or truth and delicacy of effect, which the improvements of more modern artists have enabled them to communicate to their works. The manufacture of stained glass was for many centuries confined to the Continent, and was nowhere prosecuted with so much success as at Venice. At the same period that the pointed style of architecture reached the meridian of its splendour in England, we find native artists who were fully qualified to do justice to the grandeur of the buildings they were called on to adorn, and not unworthy of being put in competition with their most successful foreign rivals. In proof of this we need only refer to the windows of York Minster, of the collegiate chapels and halls of Oxford, and those of the chapel of King's College, Cambridge. A pretty general, but very erroneous, idea exists with regard to the superiority of the colours employed in ancient glass painting over those in use at the present day. It is believed by many, and taken for granted by others, that not only is the same brilliancy unattainable by modern skill, but that the art of producing the colours themselves is itself entirely lost. This is a very mistaken notion; for not only are those now employed as brilliant and durable as the colours of the ancients, but others have been added, which they most probably did not know how to produce, or at least did not use. Amongst these are pink, straw colour, and other compound tints. That indiscriminating veneration for the antique, which has so often and so seriously interfered with the claims of modern art to the encouragement to which it is entitled, has operated against glass painting and staining with perhaps fully more force than against any other art. It has induced a belief that excellence in the art is confined to the ancients; and that all the productions of the modern glass stainer and painter are mere flimsy imitations of those of the artists of the fourteenth and fifteenth centuries. Nothing farther is necessary to convince any one of the injustice and absurdity of this notion, than a visit to the warehouse or workshop of any respectable glass painter and stainer of the present day.

The following observations are deserving of the attention both of artists and others less immediately interested in the subject. "Captivated with the vivid hues of the antique, persons have remarked, with more frequency than judgment, 'such colours certainly cannot be equalled in the present day.' With the exception, perhaps, of its reference to the ancient ruby, which appears to have been lost for the past two centuries, this assertion may be altogether denied; and more than this, besides commanding all the resources of the old artists, ours of the present day are in possession of many practical advantages which the former had not, among which is that of their being able to lay every variety of colour on one and the same piece of glass, and thus often to execute with nicety in ten pieces a subject on which a hundred formerly would not have been so well bestowed. With these opportunities, and with greatly improved ideas upon the science of painting in general, our artists should be qualified for productions of a higher order than those of their ancient predecessors; and it remains, then, to be asked, on what account they fail to imitate their works with success. The chief occasion of this may be found in the imperfect acquaintance which the modern artists have with the principles of old English design, both pictorial and architectural. They seem to forget that these principles are totally distinct from those observed in the paintings of the later Italian masters, whose figures and groups are not unfrequently copied for the embellishment of our windows in the pointed style, but always without success. Strict simplicity, solemn dignity, and appropriate costume, are primary points for consideration in imitating the figures of our old windows. In the imitation also of those architectural decorations with which such figures were anciently surrounded, it is worse than puerile to suppose that mouldings and foliage borrowed from the Greek and Italian systems can by any possibility be so arranged as to bear a resemblance to the characteristic features of the old English style, a style as isolated as it is magnificent. Errors such as these can only be avoided by means of patient and attentive study, both of actual remains and of the numerous explanatory works now rendered generally accessible by the invaluable labour of able antiquaries and

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[1] Glass Manufacture, Lardner's *Cabinet Cyclopædia*, No. 26.

Stained Glass.

d ughtsmen. But after an adequate acquaintance with th principles of design is attained, those of execution are n less to be observed; all the subjects of the painting, an especially those of an architectural character, being re eved more by strong black outline and variety of colo r than by the use of decided shadows. Modern imita ons are frequently injured by displaying too much of m dern art; the work, by being too highly finished, and th t in few pieces, often loses the glittering effect that atte ds its more simple prototype. An additional precauti n to be observed consists in the avoidance of excessive d pth of colour; a consideration, the neglect of which has g en to some modern imitations a vulgar, gaudy appeara e, totally dissimilar to the equalised and subdued, yet li ly colouring, observed in the best specimens of the m dle ages."

The want of harmony here complained of is too often a l offensively manifest in modern public buildings, w ich have been fitted up with stained-glass windows, and w ere the absurd incongruities of style have marred rath r than increased the elegance of the structure. Flor and meaningless mouldings, scrolls and foliage, are seen d turbing the simple beauty of Grecian architecture, or t austere and majestic grandeur of a Gothic pile; so that p ple seem to have been careless as to the character or p priety of the ornament, provided they did but procure s mething in the shape of stained glass. No doubt much o this evil is to be attributed to the unskilfulness of the a ists employed, few of whom are possessed of a suffic nt knowledge of design, or the more intricate principles o the pictorial art, to enable them to suit their embellishm nts to edifices of a noble or commanding character. sadvantages inherent in the art itself tend to debar f m engaging in it men whose talents as painters ensure t m patronage and success by adhering to the palette and t canvass. The expense of materials; the tedious and p carious nature of the process, where the artist cannot w tch with satisfaction the effect which each additional s oke of his brush gives to the work as it grows beneath h hand, but must await in suspense the result of its exp sure in the kiln; the difficulty of introducing such works o art to general notice; and the uncertainty of ultimate r muneration for his labours; prevent the man of genius f m prosecuting an art, which nevertheless presents the m st favourable opportunities for the expression of his i as. There are not wanting, however, specimens of tinguished excellence produced by modern skill in t higher branches of this art, especially in the historic department. They certainly do not possess that mell w richness of colour, that calm and imposing grandeur character, which distinguishes many of the older pro ctions, but they excel them in accuracy of drawing, d in details; and while we know that it is perfectly pos le to combine the various excellencies of former artists th those of a more recent date, we do not despair of eing greater triumphs achieved in the art of staining g ss than have yet been effected. Every variety of subj t may be executed in this style. To the landscape inter it offers peculiar advantages, from the power contrasts in light and shade which it enables him to oduce; while to the painter of flowers it affords a ans wholly unequalled for displaying the delicacy and the same time splendour of colour, which his proto pes in nature place before his eyes.

It is somewhat strange, that while almost every other t has been called on to contribute in some way or other our domestic comforts, or to the adornment of our ellings, that of glass painting and staining, though its oductions are not more expensive than many of these, d are certainly not inferior in elegance, should yet be t rarely applied to domestic purposes, where it could be employed with admirable effect. When stained glass has been used in the embellishment of the mansions of the middling, or even of the upper classes, it has been hitherto in a great measure confined to hall and staircase windows, and to windows placed in similar situations; but its use might be much extended, with great advantage in point of ornamental beauty.

If, for instance, the windows of a room were filled with stained glass, whose prevailing tints should harmonize with the predominating colour in the apartment, a striking and singularly pleasing effect would be produced. Where the expense, or any other objection, might be urged against figured glass, in which masses of brilliant colour are employed, that description which is plain and of one tint, such as brown, ruby, pale yellow, or similar hues, might be substituted; and if selected with reference to the prevailing colour of the interior with the view of either heightening or deepening its complexion, a warmth and richness of tint would be thrown around the apartment, such as no other contrivance of art can communicate. And where both of these descriptions of coloured glass might be found unsuitable, either from the expense or the too great exclusion of light, there is a third description of ornamental glass which might be employed, and which is not subject to these objections. This is a pale tracery, resembling lacework, which, when properly executed, is exceedingly beautiful, and is marked by an appearance of singular lightness and elegance. The introduction of such windows as might thus be produced would greatly enhance the beauty of our domestic architecture.

Except in the name, painting on glass has no resemblance to any other department of the pictorial art but that of porcelain. Both the colours, and the process of their application throughout, are entirely different. While animal and vegetable substances are freely used as colouring matter in every other department of the pictorial art, they are wholly excluded in that of glass painting, where all the pigments used are subjected, after being laid on, to the operation of fire, to make them penetrate the body of the glass, or become fused on its surface—a process which would wholly destroy the colouring properties of such substances. All the colours employed in glass painting and staining are oxides of metals or minerals, as gold, silver, cobalt, which not only stand the fire, but require the powerful interference of that agent to bring out their brilliancy and transparency. Some colours, on the application of heat, penetrate the body of the glass, and, from this circumstance, are called stains; while others, being mixed with a vitreous substance called flux, become fused or vitrified on the surface. The former produces a variety of colours, and all of them are perfectly transparent. The produce of the latter are only semitransparent, but they may be made to yield any colour or tint required.

In preparing these colours, the most important point to be attended to is, to have all those that are to be used at the same time of an equal degree of softness. To attain this, those that are hard, and require a great degree of heat to make them effective, must be fixed first; leaving the soft colours, for which a slight heat only is necessary, to the last. If used promiscuously, and without regard to this precaution, some of the colours would be rendered too fluid, while others would be insufficiently fused, and the work in consequence spoiled. It is likewise of great importance to make a proper selection of glass for the purposes of staining and painting, as one kind will assimilate more freely with one colour than with another. The description of glass generally chosen for painting or staining is the best crown-glass.

It does not seem necessary to enter at length here into the details of the process of glass painting and staining, as our account of the processes and mixtures must of ne-

Crown-Glass Cutting.

cessity be almost entirely a recapitulation of what has been more fully and satisfactorily stated in other works, than the space allotted to this part of the subject would permit us to do; while all such details would be nearly useless for any practical purpose, there being scarcely a possibility of either communicating or acquiring such a knowledge of the art of glass painting or staining as would enable any person to understand or practise it successfully, unaided by personal observation and extensive experience.

CROWN-GLASS CUTTING.

This is a subject of very great importance to the glazier. Since the sheets of glass are circular, and the panes of glass most commonly used of a square or oblong shape, it is evident that there must some waste result from cutting up a sheet. The grand object of the glass-cutter, therefore, in the first place, is not only to cut up the sheet into panes which shall produce the least waste, but also, since the sheets of glass vary in size, to know what panes can be obtained from a sheet of a given diameter. To the glass-cutter this is well known, and to the general reader it can scarcely be explained so as to be completely understood. The utensils necessary for this purpose are a cross cutting board and a breaking out board, both of which are graduated or indented with brass lines in such a manner as to show through the sheet of glass, when laid on the cutting table, how many panes of one size, and how many of another, may be obtained from a sheet of given dimensions: squares and laths, on which feet, inches, and fractional parts are marked, are also necessary.

Crown-glass always cuts best in a warm temperature. When it happens to be hard, which is seldom the case (a bad diamond, or not knowing how to use a good one, being the usual cause of breakage), it has been found to cut better after warming the glass before the fire, which has the effect of diminishing the tension of the ill-annealed glass.[1]

GLAZING OF WINDOWS.

Before proceeding to speak of glazing, the order in which its various processes present themselves naturally demands that we should say something of putty.

This important and indispensable article in the glazier's trade is composed of whiting and linseed oil. Chalk is sometimes used instead of the former, but the expense and labour incurred in preparing it is much greater, and besides it is generally mixed with sand, so that it is no object to the glazier to employ it. Whiting is in every way to be preferred; it must be thoroughly dried before the oil is added to it, otherwise the union will not be effected, or at least it will be very imperfect.

After the whiting has been thoroughly dried and prepared, it ought to be passed through a very fine sieve, and all the lumps and knots that remain pulverised, and then also passed through the sieve. Great care must be taken to keep the whiting free of sand and other extraneous substances.

When putty is to be made, put the proper quantity of oil into a tub or other open vessel, and gradually add the whiting whilst yet in a hot state, at the same time keeping the whole in motion with a stick, until it becomes of a sufficient consistency to admit of being wrought by the hand on a board or table. Having been removed thither from the tub, it must be wrought up with dry whiting, until it is converted into a solid compact mass. When brought to this state, it ought to be put into a hollowed stone or mortar, and beat with a wooden mallet till it becomes soft and tenacious, when more whiting must be added, until it has attained a proper consistency.

Glazing.

It is considered that the putty is improved if the whiting and oil, after being mixed, are allowed to remain for about twenty hours before being wrought up. After putty has been made, it should be firmly packed in a cask, from which it may be taken from time to time, as it is required. It ought not to be used for ten or twelve days after it is made, when its colour, from having at first been a dull yellow, will have changed to a whitish free-stone, which renders it more suitable for most purposes. After a lapse of six or eight weeks, the putty in the cask will become hard; but it is easily restored to its original softness, by being beat as before, and it is much improved by this second operation.

Putty is made in England in large quantities, and is ground in a mill in the same way as white lead; but this is no improvement, as it is generally overwrought in this method of preparation, and rendered so tough and tenacious that it does not work well, and is entirely without that degree of pliability which putty ought to possess.

When putty is required of a superior degree of fineness, and which will also dry quickly, add a little sugar of lead, or litharge; and if an increase of strength be wanted, a little white lead.

We now proceed to glazing.

To glaze well, neatly, and expeditiously, simple as the operation may appear, is an art for the thorough acquirement of which many years of practice are necessary.

When a glazier receives an order to glaze a house, he must first, of course, proceed to measure the work to be done. In doing this, he must take the *full* size of the panes, that enough may be left for stripping, so as to produce an accurate fit into the sashes. This fitting must be performed with great care and nicety, leaving about one thirty-second part of an inch of space on each side and end of the pane, between it and the check. In other words, the pane must fill the space appropriated for it, to within the thirty-second part of an inch, or thereabouts.

This space is left to provide for such occurrences as the wood swelling with moisture, or the building setting, in which cases the panes would be apt to crack.

When the panes have been fitted into the checks of the sashes in the manner spoken of, they must be removed, and the checks well bedded with beat putty. This done, the panes are again returned to their places, and gently pressed or lodged into the bedding, the workman, as it were, humouring the glass should it be bent or twisted, and taking care that there is no hard extraneous substance mingled with the putty, which might endanger, if not actually break, the glass. When a pane is perfectly bedded it lies quite firm, and does not spring from the putty; but when, either from a perverse bend or twist in the glass, or any other accidental cause, it happens that it cannot be made to go quite close to the check, the vacant space must be carefully and neatly filled upon the back puttying, otherwise the window will not be impervious to the weather, and will be very apt to fall into decay by the admission of moisture.

It may not be superfluous to observe here, that the convex or round side of the pane, where such a shape occurs, should be presented to the outside, and the concave or hollow to the inside. The reasons for recommending this disposition of such panes are so obvious that they need hardly be enumerated. It may, however, be stated generally, that when thus placed, they resist the weather better than if the hollow sides were exposed to it.

After the pane has been bedded, the next process is the outside puttying. This putty should be kept in the fore check, about the thirty-second part of an inch below the level of the inside check, so as to allow the thin layer of paint which binds these two substances together to join the putty and glass; and that it may not offend the eye by being seen from the inside; and that, when it is painted, the brush may not encroach on any visible part of the pane, leaving those ragged lines or marks which are so often seen from the inside on ill-finished windows, and which are so displeasing to the eye. This operation, and finishing the corners, are two nice points in the art, and therefore, when properly done, discover the neat-handed and skilful tradesman.

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[1] To glaziers and others who may wish to obtain a thorough acquaintance with the subject, we would recommend a small volume lately published, entitled *Crown-Glass Cutter and Glazier's Manual*, by William Cooper, Edinburgh, Glass-cutter and Stained-Glass Maker, &c. in Ordinary to the King for Scotland.

It is the opinion of some experienced glaziers, that the inside puttying, which is the next process, ought to be allowed to remain eight days before being finished off, while others, again, say that this should be immediately done. The experience of the writer inclines him to the former opinion. By standing over for some little time, the putty acquires a hardness which admits of a better and neater finish than when it is in the soft working state, and in this way also it is not liable to shrink. Of course this is only recommended in cases of extensive jobs. When only a few panes arc done, it is better to finish them off at once, than subject the employers to the inconvenience of a second visit from the glazier for so trifling a purpose.

When the finishing does take place, however, the putty must be cut clean off with the putty knife, and on a level with the style of the astragals. Complete the work by cleaning the glass and putty with a 000 duster brush, which rcmoves all dust and loose putty from the pane, *lightly* and effectually.[1]

Hot-House Glazing.—The frames or sashes of a hot-house ought, before being glazed, to receive two coats of white paint, to which a small portion of red lead has been added to facilitate its drying, and to give increased strength and durability to the paint.

The panes in the roofs of hot-houses are generally of either of three forms; the first is the square pattern; the second is the taperd, that is, terminating in an obtuse angle; and the third the semicircular. The first is most generally used; the second is considered an improvement on the first, in so far as the tapered point carries off the rain down the centre of the pane, and thereby preserves the astragals; but there is a loss in shaping the glass to the tapered point. The third or semicircular is decidedly the best pattern of the three; the water is not only drawn to the centre of the pane, and the astragals protected from the rain, but this pattern has a more elegant appearance, when uniformly glazed, than either of the two other shapes. There is no loss in cutting the glass to the curve, and it is therefore not more expensive.

The dimensions of hot-house panes are generally about six inches, and are made to overlay each other, to an extent regulated by the circumstance of their being puttied at the overlay or not.

If it is intended to fill in the overlays with putty, they need not be more than a quarter of an inch in depth; but if it is not intended to putty them, they must then be at least five eighths of an inch.

The overlays, however, ought always to be puttied, and that for two reasons. First, because it will more certainly secure their being water-tight; and because, in the next place, it will prevent the breakage to which the panes are liable from the freezing of the water, or moisture, which lodges in the overlay, and, expanding, shivers the glass in all directions; when they are filled with putty, such an accident cannot happen.

In glazing hot-house roofs, it must be observed, that the courses ought to run from end to end, and that the smaller panes, when such are used, should be reserved for the top.

When sashes are glazed, they ought to stand for eight or ten days before taking off the back putty, and they ought not to be painted for about three weeks afterwards, that the putty may consolidate. Great care, too, should be taken, when the sashes are newly glazed, that they be not in any way twisted or bent, as such an accident would almost inevitably start the panes from their beds, and thus render them pervious to water.

When sashes are of considerable dimensions, say about six feet by three, they should be strengthened by having two iron rods placed across them at equal distances, and screwed to the astragals. This will serve to prevent the accident of twisting, to which such frames are extremely liable, and which is very injurious to them after they have been filled with glass.

The putty used for glazing hot-houses ought to be of the very best description, as, from the circumstance of its position, it is necessarily more exposed to the action of the weather than in the perpendicular windows. The putty used for filling in the overlays ought to be of black or lead colour, which, as every glazier knows, is imparted to it by working it up with lamp-black; but as this substance has the effect of weakening the putty, the defect may be remedied by adding two pounds of white lead, ground in oil, to each stone of putty, and in a similar proportion to smaller or greater quantities. Indeed all putty used in glazing hot-houses ought to have a portion of white lead mixed with it, as it adds greatly to its strength.

Lattice or Lead Windows.—This antique and singularly beautiful style of glazing has unaccountably fallen much into disuse, although of late years it has certainly undergone something like a resuscitation, in consequence of a revival of the public taste for stained glass, and a growing predilection for Gothic architecture in churches, cottages, and the like. For these, and for staircase windows, and indeed all windows similarly situated, as in halls, lobbies, or the like, it is peculiarly adapted.

It may be proper to premise, that lead windows require stained or coloured glass for producing their fullest and best effects, and it was with stained glass only that they were originally constructed; but very neat and elegant windows are executed in this style with plain glass, where variety and beauty of figure are made to compensate for the absence of colour

Lead windows may be made to any pattern, and in this there is great scope for the display of a correct taste. In the time of Elizabeth, this branch of the glazier's art was carried to great excellence, especially by one Walter Geddes, who was employed in glazing most of the royal and public buildings of that period. This person executed in this style some windows of transcendent beauty, displaying an endless variety of the most elegant and elaborate figures. The most useful and most common description of plain glass lead windows, however, are those of the diamond or lozenge shape; but, as already said, they may be made to any pattern desired. The following are a few specimens of lattice windows. (See Plate

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[1] In taking out old glass from windows, the cold putty knife is used; but when the putty has been in the windows for ten or twelve years, it becomes nearly as hard as stone, and impenetrable to the knife. In this case there are various means used to extract the glass from the frames. The application of hot iron to the putty is sometimes adopted; but this cannot with safety be applied to the bedding, to which the glass obstinately adheres. Muriatic acid diluted with water is an excellent means of removing putty from glass, its action being assisted by rubbing the putty occasionally with a bit of stick. The most effectual way to remove the glass, when the frames are worthless and the glass valuable, is to put the frames into a horse dunghill, keeping the whole damp (if the weather is not so) for several weeks, which completely loosens the glass, and rots or destroys the frames.

CCLXIX.) Fig. 1 is the east window of St Giles' Church, Edinburgh. Fig. 2 is a less imposing, but still a very chaste and beautiful, specimen of a lattice window. This has a beautiful effect by introducing stained glass into the long skittle-shaped pieces, and in the rosette in the centre. Fig. 3 represents the architecture of a window in Oxford Cathedral, filled with stained glass in the Gothic style.

The lead work can be adapted with ease to any pattern that may be chosen for the glass; and it can likewise be made to any breadth, from one eighth to five eighths of an inch. The one eighth, however, is only used for fancy work, and is not as yet much in demand; that which is most generally used is three-eighth lead. This width makes neater and better work than that of any other dimensions.

The glazier may purchase prepared leading for windows in any quantity; but he will produce it himself at half the cost, and probably more to his own satisfaction. The apparatus and tools necessary for doing this are, a glazier's vice, or lead mill, moulds for casting the lead into slender bars or rods of about eighteen inches in length, which is the first process; a three-fourth inch chisel; a hard-wood fillet for forcing the glass into the grooves in the lead frame-work; and an opener or wedge tool, made also of hard wood, or ebony, for laying open the grooves for the reception of the glass; two copper bolts for soldering, the end formed like an egg. A correct delineation of the vice or mill alluded to is given in Plate CCLXX. in describing which, in its various connected parts, the same letters of reference are adapted to the different figures, so far as necessary, which, with the isometrical views, will facilitate the comprehension of their parts and properties.

Fig. 1, an end view, partly open, of a mould for casting three varieties of patterns, which are thus prepared for being forced through the machine. By an ingenious construction of the handle, it is made to lock and unlock by inclined planes, acting on studs, *aa*. Fig. 2, a side view, also partly open; and fig. 3, an isometrical view of the mould prepared for pouring in the metal.

The metal or cast being removed from the mould, a pair of the dies (one only of each pair is represented), according to the pattern required, figs. 4, 5, 6, 7, are placed in the machine, as seen at *cc*, fig. 8, isometrical view. After they are put in, a thin iron cover (*b*, fig. 10), with an oblong hole in the middle, is put on to guide the metal into the rollers. Figs. 9, 10, and 11, represent three views of the machine as prepared for operating. In figs. 9 and 11, the metal, *dd*, is represented passing through the machine, which is accomplished by turning the winch handle, *ee*, acting on two equal sized toothed wheels, *ff*. On the axles of these are two rollers, *gg*, slightly serrated (dotted through in figs. 8 and 10); these rollers draw the metal through, while the dies give the desired form. To allow the axles and rollers to be placed in the frame or body of the machine, A, the cover, *h*, is removed by unscrewing the bolt, *i*, figs. 8, 10, 11. The toothed wheels, *ff*, are also taken off, by unscrewing the nuts, *kk*. The tempering screw bolt, *l*, is for adjusting the dies after they are put in their place. The screw bolts, *mm*, are for fixing the machine to a table or bench.

Fig. 12 is an isometrical view of the cover, *h*, removed to show the ports, *nn*, through which the axles of the rollers pass.

Fig. 13 shows the shape of the bolt used for soldering the lead windows, and fig. 14 the opener already described.

The lead intended to be employed in window making must be soft, and of the very best quality; and great care must be taken to have the moulds properly tempered, otherwise the lead will not be equally diffused in them, and the castings consequently not perfectly solid throughout, as they ought to be.

If this is not attended to, that is, if the castings are not perfectly solid, they will come out of the mill, to which they are presented after being taken from the moulds, all fretted on the edges, and thus in a state totally unfit for the purpose for which they were intended.

The castings are, as already noticed, usually about eighteen inches in length, and are afterwards extended by the mill represented by the figure above, to the length of five or six feet.

It may not be unnecessary to add, that the mill not only extends the lead, and reduces it, at the pleasure of the operator, to the dimensions required, but at the same time forms the grooves into which the edge of the glass is afterwards introduced in forming the window.

When the lead has been prepared in the manner described, the glazier ought to proceed to cut out the panes wanted. For this operation he must prepare by first outlining the full dimensions of the window, and then lining it off to the pattern required, shaping the panes accordingly. If the window is of a large size, this may be done by compartments, to be afterwards united, and thus be more conveniently wrought. Great accuracy must be observed in cutting the panes, or a very irregular panel will be produced, as those lines that ought to be parallel or otherwise will not be correctly so, which will greatly injure the appearance of the work.

When all the glass has been cut for the window, the next thing to be done is to open the grooves in the lead with the opener or wedge tool. The panes are then, in order that they may be water-tight, fastened very firmly into the grooves with the wooden fillet already spoken of (which may be fixed on the handle of the chisel or cutting tool), the parallel lines of lead being secured in their proper places on the board, when the window is of the diamond shape, by a small nail at either end, until the course is finished, when the work is permanently fastened by running a small quantity of solder gently over the two connecting pieces of lead at each joint, or angular point. When the window has been completed, it should be removed from the working board to a flat table, and there covered with a thick layer of cement, composed of white lead, lamp black, red lead, litharge, and boiled linseed oil, with a half-worn paint brush, and the composition carefully rubbed into every joint. This will render the window completely impervious to the weather, as the cement, if properly laid on, will fill every chink, where it will soon become as hard and durable as any other of the materials of which the window is composed. When this operation has been completed, clean the window with a cloth and whiting. Should the outside be wanted black, omit the blacking in the first compost; and finish by laying on the lamp black with a polishing brush.

The window, on being fitted into the frame, that is, on being set in its place in the building for which it is intended, ought to be supported with three-eighth inch iron rods, extending three eighths of an inch beyond the breadth of the frame on each side, running across it at the distance of from twelve to fourteen inches from each other, and secured to the lead frame-work at intervals, either with copper wire, or lead bands manufactured by the mill. These rods, for obvious reasons, ought to be so arranged as to intersect the window exactly at the terminating point of a row of the diamonds. For instance, if the diamonds are each six inches in length or height, the first rod ought to intersect the window at the top of the third row, or eighteen inches from the bottom of the frame, and so on, until the window be equally divided in this way throughout its whole length. If the diamond, again, be only three inches in length, then the first rod ought to pass at the top of the fourth row, or twelve inches from the bottom, this proportion of distance being, of course, maintained throughout. The usual distance is fourteen inches, but this must be regulated by the breadth of the window between the mullions. If the mullions are of stone, the grooves in which the window is set ought to be filled up with Roman cement, or mastic. If of wood, with oil putty.

THE CUTTING DIAMOND.

Before the introduction of the diamond as an agent in cutting glass, that operation was performed by means of emery, sharp pointed instruments of the hardest steel, and sometimes red-hot iron. These were the only contrivances known and practised by the ancient glaziers.

In considering the diamond in its relations to the purposes of the window-glass cutter, there occur some circumstances not unworthy of remark. Amongst these, it may be noticed, that the cutting point of the diamond must be a natural one; an artificial point, however perfectly formed will only scratch the glass, not cut it. The diamond of a ring, for instance, will not cut a pane, but merely mark it with rough superficial lines, which penetrate but a very little way inwards. Artificial points, corners, or angles, therefore, produced by cutting the diamond, are adapted only for writing or for drawing figures on glass, and such were those used by Schwanhard, Rost, and the other old artists who were celebrated for ornamenting glass vessels. The cutting diamond does not write so well on glass, from the circumstance of its being apt to enter too deeply, and take too firm a hold of the surface, and thus become intractable. It may further be noticed, that an accidental point produced by fracturing the diamond, is as unfit for cutting as an artificial one. Such a point will also merely scratch the glass. No point, in short, that is not given by the natural formation of the mineral, will answer the purposes of the window-glass cutter.

The large sparks, as the diamonds used for cutting glass are called, are generally preferred to the small ones, from the circumstance of their being likely to possess, although this is by no means invariably the case, a number of cutting points; while the very small sparks are not always found to possess more than one. Thus, if the point of the latter is worn or broken off, although the spark be turned, and reset in its socket, it will still be without the power of cutting, and consequently useless, while the former, on undergoing the same operation, will present a new and effective point.

The large sparks are called *mother sparks*, and are sometimes cut down into as many smaller fragments bearing the same name, as there are natural points in them. Each of these, therefore, can have only one cutting point, and are consequently only proportionately valuable to the glazier, since they cannot be restored by resetting.

The Setting of Diamonds is a process with which every glazier ought to be acquainted; nor is it an art of difficult acquirement; some practice, and a little patience, are all that is necessary.

After having selected a stone, as clear and pellucid as possible, resembling a drop of water, and of an octoedrical shape, or as near to that form as it can be procured, the workman proceeds to ascertain which is its cutting point, or, if it has more than one, which is the best. This will be found to be that point which has the cutting edges of the crystal placed exactly at right angles to each other, and passing precisely through a point of intersection made by the crossing of the edges.

He then provides a piece of copper or brass wire, a quarter of an inch in diameter, having a hole drilled in one of its ends large enough to contain three fourths of the diamond to be set. Having temporarily secured the diamond in this hole, the setter ascertains the cutting point, by trying it on a piece of glass; and when he has discovered it, he marks its position by making a slight notch in the wire with a file or otherwise, exactly opposite to the cutting point, as a guide to him in his operations when he comes to fix it permanently in the socket head of the handle. When doing this, care is taken to keep it exactly parallel with the inclined plane of the socket head.

The cutting point having been ascertained, and the diamond fixed into its place, the wire is then cut off about a quarter of an inch below the diamond, and filed down to fit exactly into the aperture in the socket head, into which it must be soldered. The rough or superfluous metal around the stone is removed with a file; and, lastly, the setting is polished with emery or sand paper. Such is the most approved method of setting new diamonds, and it applies equally to the resetting of old ones. But in the latter case, the first process, that of detaching the stone from its bed, is accomplished either by means of a knife, or by applying the blowpipe.

The art of managing the diamonds in glass-cutting, so as to produce effective results, can only be attained by considerable experience. The diamond must be held in a particular position, and with a particular inclination, otherwise it will not cut, and the slightest deviation from either renders an attempt to do so abortive. In the hands of an inexperienced person, it merely scratches the glass, leaving a long rough furrow, but no fissure. The glazier judges by his ear of the cut made. When the cut is a clean and effective one, the diamond produces, in the act of being drawn along, a sharp, keen, and equal sound. When the cut is not a good one, this sound is harsh, grating, and irregular. On perceiving this, the operator alters the inclination and position of his diamond, until the proper sound is emitted, when he proceeds with his cut.

Although the diamond cuts glass of an ordinary thickness with facility, it does not easily cut that which is of more than a medium thickness. In such cases, the desired division is effected by the application of a hot iron, which being brought in contact with the glass at certain points, produces a fissure in the direction required.

The diamonds employed in glass-cutting, are of the description known by the technical name of *bort*, a classification which includes all such pieces as are too small to be cut, or are of a bad colour, and consequently unfit for ornamental purposes. These are accordingly selected from the better sort, and sold separately, at an inferior price.

Though there are many substances that will scratch glass, the diamond was thought to be the only one that would cut it; but some experiments of Dr Wollaston have shown that this is not strictly correct. That eminent philosopher gave to pieces of sapphire, ruby, spinel ruby, rock crystal, and some other substances, that peculiar curvilinear edge which forms the cutting point in the diamond, and in which, and in its hardness, its singular property of cutting entirely lies, and with these succeeded in cutting glass with a perfectly clear fissure. They lasted, however, but for a very short time, soon losing their edge, although prepared at a great expense of labour and care; while the diamond comes ready formed from the hand of nature, and will last for many years.

MANUFACTURE OF FLINT-GLASS OR CRYSTAL.

This is the species of glass of which the finest and most beautiful articles used for domestic purposes or for ornament are made. It is also largely employed in the manufacture of optical glasses, and for other philosophical purposes. It is the heaviest, the most brilliant, and also the most costly, of all the vitrified compounds. In order to convey an idea of the manufacture of flint-glass, we propose to give an account of a work in the vicinity of Edinburgh. Our description will be best understood by fre-

Flint-Glass.

quently referring to Plate CCLXXI. Fig. 1 represents a cone twenty-two feet two inches in diameter at the bottom, eight feet diameter at the top, and sixty feet in height. It contains twelve arches; *a* is a front view of one of them. Each of these arches contains one pot, and the whole of them are heated by means of flues which ramify round the whole cone, proceeding from one general furnace. The furnace, which is circular, is fifteen feet four inches in diameter, and six feet in height inside to the centre of the crown. Fig. 2 represents a pot which is manufactured of Stourbridge clay, of the best quality. From the bottom to the highest part the pot is thirty-eight inches in height, and the width outside thirty-four inches. The orifice of the pot measures about eight inches across. About fourteen hours are necessary before the pots can all be filled, on account of the metal sinking into less bulk as it melts. During the whole time the furnace must be kept as hot as possible. After the pots are all filled, about forty-four hours elapse before the vitrified mass is brought to a proper state for working. More or less time is necessary according to the state of the materials, and from time to time the pots must be carefully scummed in order to remove any impurities.

As in every other branch of glass making, the proportions of the ingredients used for making flint-glass vary with almost every manufactory. The following is reckoned an excellent compound. Fine white sand, six hundredweights and a half; red lead or litharge (*minium*), three hundredweights and a half; calcined potash, two hundredweights; nitre, eighty-four pounds; manganese, from eight to eighteen ounces, according to circumstances; arsenic, from one to two pounds; cullet, or broken crystal, a quantity sufficient to fill up the pots. The above quantities of materials fill two pots. On the authority of the Messrs Aikin,[1] a very excellent article may be made from 120 parts of fine white sand, forty parts well purified pearl ash, thirty-five parts litharge, thirteen parts nitre, and a small quantity of black oxide of manganese. The principal difference between flint and other kinds of glass is in there being present in its composition a considerable quantity of some metallic oxide. All metals in a state of oxidation will combine with silica and an alkali to form glass. Only lead and bismuth, however, can be employed in sufficient quantity so as to produce a bright colourless article. The other metals impart various hues to the mass. Lead being the cheapest of the two metals, is that universally employed. If it be used, however, in too great a quantity, it will not only tinge the glass of a yellow colour, but produce an inconveniently soft material.

After the metal has been brought to a state when it is fit for being wrought, the workmen commence operations. The implements which they use are few in number and simple in construction. The first tool required is a hollow iron tube between four and five feet in length, and one eighth of an inch in the bore; it is technically called the *iron*, and is dipped into the pot in the manner represented in Plate CCLXXI. figs. 5 and 6. After a sufficient quantity has been collected on the end of this rod, it is withdrawn from the pot and suspended for a few seconds in a perpendicular position, that the glass, which is at the under end, may be lengthened out beyond the rod. It is then rolled upon the marver. This process, by which the glass is rolled into a cylindrical form, is represented by fig. 7. The glass is now of a consistency to admit of its being blown into a hollow globe, as exhibited in fig. 8. The globe, however, not being rendered sufficiently thin by this first distension, it is repeated until the vessel has assumed the dimensions required. In every case of blowing, the pressure of the breath must be continued upon the tube for a short while, to prevent the globe from collapsing, which would be the case were the confined air allowed to escape. The external pressure would be greater than the resistance offered from within. If it is required to elongate the globe, this may be effected by dexterously whirling it in a circular manner through the air. The crystal is now in a fit state for lying horizontally upon the *chair arms*, as shown in figs. 9 and 10. The chair arms are merely two pieces of wood lying parallel to each other upon the workman's seat or chair. The arm which lies next the heated metal is protected from injury by being covered with an iron plate. Another instrument, called a *punty* or "pontil," is employed. This is a solid iron rod of a cylindrical shape, and smaller and lighter than the hollow tube at first used. A small quantity of melted glass is collected upon one end of this by an assistant, and applied to the end of the globe, as shown in fig. 9. The two masses of glass are thus united together, and that attached to the hollow tube is easily separated from it by touching it near to where the tube enters the globe, with a small piece of iron wetted with water. By this means the glass cracks, and a smart blow upon the iron tube completes the disunion. The workman now takes the punty from his assistant, and laying it upon the chair arms, rolls it backwards and forwards with his left arm, whilst with his right he moulds it into the various shapes required, by means of a very few simple instruments. By one of these, called a *procello*, the blades of which are attached by an elastic bow, like a pair of sugar tongs, the dimensions of the vessel can be enlarged or contracted at pleasure. Any superfluous material is easily cut away by means of a pair of scissars, glass when red hot being very easily divided. For smoothing and equalizing the sides of the vessel, a piece of wood, generally cedar, is used; and the workman is also furnished with compasses and graduated scale, to ensure the regularity in shape and size required. The article being finished, is detached from the punty in the same way as formerly, and weighed in a pair of scales to see that there has been the proper quantity of glass consumed in its manufacture. It is then carried by means of a pronged stick to the annealing oven, or *lier* as it is technically called.

The process of annealing is one of the last importance; because, were glass not properly annealed, it would crack with even very slight changes of temperature; see the article ANNEALING in this work. Plate CCLXXI. fig. 3, represents an annealing oven. It is simply a long, low, rectangular chamber, heated at one end, and provided with various shallow iron trays, which can be passed along the bottom of the chamber. Upon these trays the manufactured goods are put; and the lier pans, as they are successively filled, are pushed towards the colder end of the oven, from whence they are taken in a state little warmer than the temperature of the external atmosphere.

Glass Cutting.—The cutting, or rather the grinding of crystal, forms a distinct business in a flint-glass-house. In the manufactory before alluded to, steam power is employed to give motion to the machinery by which the process of cutting is effected. A shaft proceeding from the engine causes the revolution of several large drums, which run along each side of the cutting room. Upon these drums belts run, which proceeding upwards, pass over smaller wheels (such as *a*, fig. 4). By this means the cutting wheel *b* is made to revolve with great celerity. Opposite it the workman is placed, and applies to the surface of the wheel the article which is to be cut. Above the cutting wheel is a conical-shaped vessel *c*, made of wood, and filled with fine sand, which being moistened with water, runs arough upon the cutting wheel at the lower extremity, in regular discharge. The hole in the bottom is of such imensions, and so situated, as to admit the escape of the equisite quantity of moistened sand. Below the wheel is vessel, *d*, which receives the sand and water run down pon the wheel. Every one who has seen a crystal shop, ıust have remarked the infinitely varied appearances which ie articles formed of flint-glass present. It is evident iat, to produce these, the wheels must be of very various rms, broad, narrow, flat edged, mitre-edged, that is, hav- g two faces, which form a sharp angle at their point of eeting, convex, concave, &c. They are made of iron oth cast and malleable, of Yorkshire stone, and of willow ood. The iron wheels are used in the roughest part of e operations, and articles ground by these are further noothed down by a wheel of Yorkshire stone. Wooden heels are employed in the further smoothing and polish- g of the crystal. For smoothing the surface, the edge the wheel is dressed with either rotten stone or pumice one; and for imparting to it the highest degree of polish, itty powder is employed.

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[1] *Dictionary of Chemistry*, vol. i. p. 496.

There are certain crystal shades in use for softening the ght diffused by lamps. The process by which this lessen- g of the transparency is effected is called frosting. The ughness is imparted to the inner, not the outer surface the vessel; and it is done by the former being fixed in a the, and rubbed by a workman with a piece of wood co- red with wet sand.

BOTTLE-GLASS.

Bottle-Glass.

Plate CCLXVIII. fig. 4, is a ground plan, showing all e necessary buildings for two bottle-houses, and in one the houses the ground plan of a four-pot furnace and h arches. The furnace is an oblong square, similar to iat we have described the crown-furnace to be, but arch- over in the barrel shape. It is erected in the centre of e brick cone, above a cave, which admits the atmo- here to the grating. The working holes of this furnace, posite each pot, for putting in the materials and taking t the liquid glass, are each about one foot in diameter. t each angle of the furnace there is also a hole about the me size communicating with the calcining arch, and mitting the flame from the main furnace, which re- rberates on and calcines the materials in the arch. Fig. 1 ows the main furnace; 2, 3, 4, 5, the ash arches for lcining the materials; 6, 7, 8, 9, 10, 11, annealing arch- ; 12, two-pot arches; 13, what is considered an improv- plan; 14, clay-house, for picking, grinding, sifting, and erwards working the clay into paste for the purpose of anufacturing pots; 15, mill house for grinding clay; 16, building containing a calcar furnace for experiments, for preparing the materials, when the ash arch attached the main furnace is under repair, including, 1, a sand crib, d 2, an ash crib for sifting and mixing the materials, suffi- ent for two houses.

The common green or bottle glass is made of the coarsest terials; sand, lime, sometimes clay, any kind of alkali alkaline ashes, whose cheapness may recommend it to e manufacturer, and sometimes the vitreous slag produ- d from the fusion of iron ore. The mixture most com- only used is soap-maker's waste, in the proportion of three easures to one measure of sand. The green colour of is glass is occasioned by the existence of a portion of n in the sand, and, it may be, also in the vegetable ashes which it is composed.

To distinguish it from flint-glass, which pays a higher ty, government does not allow the use of any but the arsest kind of sea or river sand. When castor oil or ampaigne bottles are wanted, a portion of crown-glass llet is added, to improve the colour. The impurity of the alkali, and the abundance of fluxing materials of an earthy nature, combined with the intense heat to which they are subjected, occasion the existence of but a very small proportion of real saline matter in the glass; and thereby render it better than flint-glass for holding fluids possessing corrosive properties.

The soap-maker's waste is generally calcined in two of the coarse arches, figs. 3 and 4, which are kept at a strong red heat from twenty-four to thirty hours, the time required to melt the materials and work them into glass, which is termed a journey. After the soap-maker's waste is taken out of the arch, it is ground and mixed with sand in the proportions already mentioned. This mixture is put into the fine arches, and again calcined during the working journey, which occupies about ten or twelve hours more. When the journey is over, the pots are again filled with the red-hot materials out of the fine calcining arch. Six hours are required to melt this additional quantity of materials. The pots are again filled up, and in about four hours this filling is also melted. The furnace is then kept at the highest possible degree of heat, and in the course of from twelve to sixteen hours, according as the experience of the founder may determine, the materials in the pots are formed into a liquid glass fit for making bottles. The furnace is now checked by closing the doors of the cave, and the metal cooling, it becomes more dense, and all the extraneous matter not formed into glass floats upon the top. Before beginning to work, this is skimmed off in the way already described in our account of crown-glass making. A sufficient quantity of coals is added at intervals, to keep the furnace at a working heat till the journey is finished.

After the pots have been skimmed, the person who begins the work is the gatherer, who, after heating the pipe, gathers on it a small quantity of metal. After allowing this to cool a little, he again gathers such a quantity as he conceives to be sufficient to make a bottle. This is then handed to the blower, who, while blowing through the tube, rolls the metal upon a stone, at the same time forming the neck of the bottle. He then puts the metal into a brass or cast-iron mould of the shape of the bottle wanted, and, continuing to blow through the tube, brings it to the desired form. The patent mould now in use is made of brass, the inside finely polished, divided into two pieces, which the workman, by pressing a spring with his foot, opens and shuts at pleasure. The blower then hands it to the finisher, who touches the neck of the bottle with a small piece of iron dipt in water, which cuts it completely off from the pipe. He next attaches the punty, which is a little metal gathered from the pot, to the bottom of the bottle, and thereby gives it the shape which it usually presents. This punty may be used for from eighteen to twenty-four dozen of bottles. It is occasionally dipped into sand to prevent its adhering to the bottle. The finisher then warms the bottle at the furnace, and taking out a small quantity of metal on what is termed a ring iron, he turns it once round the mouth, forming the ring seen at the mouth of bottles. He then employs a shears to give shape to the neck. One of the blades of this shears has a piece of brass in the centre, tapered like a common cork, which forms the inside mouth; to the other blade is attached a piece of brass, used to form the ring. The bottle is then lifted by the neck on a fork by a little fellow about ten years of age, and carried to the annealing arch, where the bottles are placed in bins above one another. This arch is kept a little below melting heat, till the whole quantity, which amounts to ten or twelve gross in each arch, is deposited, when the fire is allowed to die out.

Such is a brief view of the various methods of manufacturing glass. The physical properties of this useful sub-

Duties.

stance will naturally fall to be treated of under the heads of the several sciences in which glass is employed.

The manufacture of glass is subjected to the excise laws; and the duties are not only very heavy, but the regulations for levying them are most complex and oppressive. The injuries which are inflicted upon trade by such a system of taxation are strikingly exemplified in the case of glass. In 1794, when the duty was L.1. 1s. 5d. per cwt. for plate and flint, the other kinds being taxed in proportion, the quantities paying duty were as follow: Flint and plate, 67,615 cwt.; broad, 20,607; crown, 83,940; bottle, 227,467. The duties were successively raised, until in 1813 they amounted to L.4. 18s. The result of this was, that in 1816 the consumption had declined to, plate, 29,600; broad, 6140; crown, 55,502; bottle, 155,595.

In 1825 the duty was reduced one half, and the consumption rose to about what it was in 1794. But since the wealth and population of the country have more than doubled since that period, and as general luxury has been greatly extended, the manufacture of glass ought to have been nearly trebled. This would certainly be the case were the duties lowered or abolished. The following accounts show the pernicious influence of the existing duties:

I.—*Account of the number of Glass-Houses respectively employed in the Manufacture of Broad, Crown, Flint, Plate, and common Bottle Glass, in each year from* 1829 *to* 1832 *inclusive, in the United Kingdom.*

Years.	Broad Glass.	Crown.	Flint.	Plate.	Common Bottle-Glass.
1829	2	28	54	3	42
1830	2	25	54	2	39
1831	2	24	55	2	36
1832	2	28	59	2	39

II.—*Account of the Quantities of Flint, Plate, Broad, Crown, and Bottle Glass, charged with the Duty in each year from* 1829 *to* 1832 *respectively, with the Rates of Excise Duty and Revenue accruing thereon.*

Years.	Flint-Glass.	Rate of Duty.	Plate.	Rate of Duty.	Broad.	Rate of Duty.	Crown.	Rate of Duty.	Bottle-Glass.	Rate of Duty.	Gross Duty.			Drawback.			Revenue.		
	Cwt.	*s.*	*Cwt.*	*s.*	*Cwt.*	*s.*	*Cwt.*	*s. d.*	*Cwt.*	*s.*	*L.*	*s.*	*d.*	*L.*	*s.*	*d.*	*L.*	*s.*	*d.*
1829	79,250	56	14,484	60	6,864	30	114,862	73 6	382,894	7	831,809	18	10	224,794	17	2	607,015	1	8
1830	72,942		13,301		4,845		96,565		340,793		725,597	1	3	182,678	4	8	542,918	16	7
1831	75,619		15,067		5,915		100,086		293,868		736,512	0	1	204,152	2	0	532,359	18	1
1832	75,771		12,270		5 304		103,902		316,365		748,097	3	11	189,565	7	8	558,531	16	3

III.—*Account of the Quantities of British-made Glass retained for Home Consumption, with the Imports of Foreign Glass entered for Home Consumption; the Amount of Customs-Duty on the latter, and the Nett Revenue arising from British Glass, in each year from* 1829 *to* 1832 *both inclusive.*

British.						Foreign.						
Years.	Flint.	Plate.	Broad.	Crown.	Bottle.	Plate.	Crown.	Bottle.	Revenue on Foreign Glass.	Nett Revenue on British Glass.		
	Cwt.	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Square Feet.*	*Cwt.*	*Quarts.*	*L.*	*L.*	*s.*	*d.*
1829	49,004	14,299	6,864	97,134	209,862	1,763	152	764,778	16,708	610,307	1	8
1830	48,063	13,057	4,845	84,178	165,549	1,436	104	743,768	16,411	526,507	16	7
1831	48,887	14,796	5,915	83,527	143,989	863	104	693,454	15,841	516,518	18	1
1832	49,552	11,990	5,304	90,253	151,705	717	25	645,526	14,532	543,999	16	3

We can only notice a few of the regulations as to the manufacture of glass. Every glass-maker must take out an annual license, which costs him L.20 for each glass-house; and he must make entry at the next excise-office, of all work-houses, furnaces, pots, pot-chambers, annealing arches, warehouses, and the like, under a penalty of L.200. Previously to the charging of the pots, twelve hours' notice must be given in writing, of the time of beginning, the weight of metal, and the species of glass, on pain of L.50. If any material or preparation be put into a pot after notice has been given and a gauge taken by the officer, penalty of L.50 is incurred; and if the manufacture be of flint-glass, the penalty is L.200. The officers are allowed to have access to the works at all hours by day and night, any attempt to obstruct them incurring a penalty of L.200; and the counterfeiting, altering, or effacing any marks made by them being visited with a penalty of L.500; connivance at its being done subjects the aggressor to a fine of L.200. The whole of the metal intended to be manufactured into common-glass bottles is to be worked within sixteen hours next after the same shall be begun; and when the bottles are put into the annealing arches, manufacturers are then, in the presence of the officer, to charge the pots with fresh materials, other than broken glass, not less than fifty pounds weight; and declarations are to be delivered in writing, of the number of such bottles, on penalty of L.100. Fraudulent weighing of glass is visited with a heavy penalty. Notices are not to be given for drawing out bottles, but only between eight o'clock in the morning and six o'clock in the afternoon. No crown-glass, German sheet-glass, or broad window-glass, can be manufactured beyond the thickness of one-ninth part of an inch, without being subjected to the duty paid on plate-glass. Such are a few of the laws and regulations, alike vexatious and impolitic, which have retarded the progress of glass-making, and that too at a time when almost every other species of manufacture had far more than doubled itself. In fact, from the making of the pots themselves to the packing up of the glass for sale, every thing is done after a certain manner, which is determined by act of parliament. This being the case, how improvements are to be made in the art it is difficult to conceive. The laws which regulate the packing and exportation of glass are equally burdensome with those relative to its manufacture. The amount of drawback allowed upon this article will be seen from the table above given.

(Y. Y. Y.)

Glatz
||
Glauber.

Engraving on Glass. Professor Beckmann has proved, at, as early as the year 1670, the art of etching upon ass was discovered by Henry Schwanhard, son of George chwanhard, who was a celebrated glass-cutter, patronis- by the Emperor Ferdinand III. about the middle of e last century. At the time of his death, 1697, the fa- er practised his art at Prague and Ratisbon. Whether e son followed the same business at the same towns, or moved to Nuremberg, is not very evident; but in the ar above mentioned, some *aqua-regia* (nitro-muriatic id) having accidentally fallen on his spectacles, he was rprised to find the glass corroded by it, and become ite soft. He thus, it is said, found himself in posses- n of a liquid by which he could etch writing and figures on plates of glass.

But it is probable, as Beckmann seems to think, that he d discovered the fluoric acid itself; for in the year 1725 ere appeared in a periodical work the following receipt r making a powerful acid, by which figures of every kind n be etched upon glass.

“ When the *spiritus nitri per distillationem* has passed to the recipient, ply it with a strong fire, and when well phlegmated, pour it, as it corrodes ordinary glass, into Weldenberg flask. Then throw into it a pulverised green ohemian emerald, otherwise called *hesphorus* (which, en reduced to powder, and heated, emits in the dark a een light), and place it in warm sand for twenty-four urs. Take a piece of glass well cleaned, and freed from grease by means of a ley; put a border of wax round about an inch in height, and cover it all over with the ove acid. The longer you let it stand so much the bet- r; and at the end of some time the glass will be corrod- l, and the figures which have been traced out with sul- ur and varnish will appear as if raised above the pane glass.”

That the Bohemian emerald, or *hesphorus*, mentioned in is receipt, is green sparry fluor, cannot, says the profes- r, be doubted; and he seems to have as little doubt of e receipt itself having passed from Schwanhard and his holars to the periodical work of 1725, from which it was serted in the Oekonomische Encyclopädie of Krunitz. his supposition certainly acquires a considerable degree probability from the similarity of Schwanhard's method etching to that which is here recommended, and which so different from what is now followed. At present the ass is covered with a varnish either of isinglass dissolv- l in water, or of turpentine oil mixed with a little white ad, through which the figures to be etched are traced on copper; but Schwanhard, when he had drawn his gures, covered them with varnish, and then by his liquid rroded the glass around them. His figures, therefore, hen the varnish was removed, remained smooth and ear, appearing raised from a dim or dark ground; and . Beckmann, who had persuaded some ingenious artists make trial of this ancient method of etching, declares at such figures have a much better effect than those hich are cut into the glass.

Burning Glass. See Burning Glass.

Weather Glass. See Barometer.

Musical Glasses. See Harmonica.

Looking Glasses. See Mirror.

GLASTONBURY, a town of Somersetshire, in the undred of Glaston Twelve Hides, 130 miles from Lon- on. It is situated in a district of peculiar fertility, and uch of the pasture land within the two parishes of which e town consists is of higher value for fattening cattle an any other in the rich county in which it stands. his place was once an island, called in Latin Avalonia. was surrounded by water forced up by the strength of e tide, but embankments having been made and drains onstructed in very remote ages, the land has been converted into rich pasture. This was effected by the abbot and his monks, who, notwithstanding the vast expenditure lavished upon their abbey, were the great leaders of the agricultural improvements of their age.

The abbey, founded at a very early period, was, for extent and wealth, the next to that of Westminster. The abbot was a lord of parliament; and the ruins which remain are sufficient proofs of the magnificence of the whole establishment. Although, as might be expected from its age, the abbey is in a dilapidated state, yet the architectural beauty of what remains, and especially that of the chapel, causes the whole to be visited with eager curiosity. The abbot's kitchen is tolerably perfect, and the eastern window of the chapel is worthy of admiration. The legend of the visit of Joseph of Arimathea, and his budding staff converted into a thorn, blooming at Christmas, is well known; as well as that of St Dunstan having taken the devil by his nose with a pair of red hot tongs. Both are related of this place, though the first is doubted and the second ridiculed.

Near the town, upon an insulated and lofty mount, Glastonbury tower is visible from all parts of the surrounding country. It was formerly an oratory, dedicated to St Michael, and afterwards enlarged so as to form a magnificent church and monastery, both of which were destroyed by an earthquake in 1271. Many of the private buildings in the town still display curious decorations of carved work of very ancient date. The present town contains two parish churches, dedicated to St John and to St Benedict. It was an ancient corporation, and returned members to parliament till the year 1539, when the abbot was put to death, and that charter taken away; but a new charter was granted in the reign of Queen Anne, under the powers of which the town is governed by a mayor, eight aldermen, and sixteen burgesses. The market is held on Tuesday, and is but thinly attended. The population amounted in 1801 to 2035, in 1811 to 2340, in 1821 to 2630, and in 1831 to 2984. There is now but little trade in the town, and the making of stockings, which once afforded employment, is nearly lost. Being on the great road leading from Bristol and Bath to Exeter and Plymouth, there is much travelling, especially of late years, since the roads have been improved.

GLATZ, a strongly fortified city, the capital of a circle of the same name, in Prussian Silesia. It stands on a sand hill above the river Neisse, and is defended by two powerful forts, which command the passes from Austria. It contains five Catholic and two Lutheran churches, several barracks, and 889 houses, with 8231 inhabitants, exclusively of the garrison. It is a place where many manufactories are carried on, especially that of damask table linen, and other goods, both of linen and woollen; also soap-boiling, tannery, and distilling. Long. 16. 34. E. Lat. 50. 23. N.

GLAUBER, John Rodolph, a German chemist, born at the commencement of the sixteenth century, was one of those who were most ardently occupied with “the great work,” namely, the discovery of the philosopher's stone. Full of love and enthusiasm for the marvellous, he abandoned himself without reserve to the extravagant ideas which then prevailed in chemistry. His long and painful labours, pursued with indefatigable perseverance, and an energy worthy of a nobler object, were almost always directed towards the discovery of the panacea, the philosopher's stone, and other chimeras with which the alchymists amused the imagination. Infatuated with the doctrine of the adepts, he may be said to have passed his life over alembics and furnaces, and, in fact, he is regarded as a second Paracelsus. Not less presumptuous than his model, he boasted of the discovery of several wonderful secrets. Whether he was truly convinced of the reality of his inventions, or whether, like empirics of all classes, he proposed to profit by the ignorance and blind credulity of men, he had the art to seduce many persons by promises as vain as they were exaggerated. He is even reproached with having carried on a vile traffic in pretended secrets, which he sometimes sold at an exorbitant price to different individuals, and afterwards published with his name in order to enhance his reputation. Devoid of the instruction and force of mind necessary to enable him to deduce just inferences from the numerous experiments which he had performed with ability and address, Glauber only attained a subaltern or secondary rank amongst the chemists. But he, nevertheless, discovered several important facts, which have materially contributed to make better known certain salts and some metals, which, eventually, had a marked influence on the progress of chemistry and materia medica. Thus, in examining the residue of the decomposition of sea-salt by the sulphuric acid, this laborious chemist discovered the sulphate of soda, to which his name is irrevocably attached under the denomination of Glauber's Salt. His writings on dry baths and sulphurous fumigations entitle him, in certain respects, to be regarded as the inventor of confined vapour baths, which have been latterly brought forward as a new discovery; and he is equally the inventor of several chemical medicaments, the use of which is still preserved in most of the pharmacopœias. We are also indebted to him for a great number of works (thirty in all), an exact list of which may be found in the curious article entitled Glauber, in the fourth volume of Adelung's *History of Human Folly*. A collection of them was printed in several volumes 8vo, and in two volumes 4to, at Frankfort, 1658, 1659, and translated into English by Pack, London, 1689, in folio. Of these the principal are, 1. *Deutschlands Wallfahrt*, or Prosperity of Germany, Amsterdam, 1656, often reprinted; 2. *Furni Novi Philosophici*, or Description of a new Method of Distilling, Amsterdam, 1648, in 8vo, translated into French by Duteil, Paris, 1659, in 8vo; 3. De Medicina Universali, sive de Auro potabili vero, Amsterdam, 1658, in 8vo; 4. Miraculum Mundi, Amsterdam, 1653, in 8vo; 5. Pharmacopœia Spagyrica, Amsterdam, 1654, in 8vo; 6. De Tartaro ex Vini fœcibus, 1655, in 8vo; 7. Dissertatio Medica Hermetica et Catholica magni Naturæ magisterialis Mysterii, Frankfort, 1656, in 8vo; 8. Consolation of Navigators, Amsterdam, 1659, in 8vo; 9. Opus Minerale, Amsterdam, 1651, in 8vo; 10. De Elia Artista, Amsterdam, 1668, in 8vo. Glauber published many other alchymical productions, which are neither less obscure nor less enigmatical than the preceding, and in which vague hypotheses and chimerical conceptions supply the place of facts and of reasoning. All his works are in German; and although most of them have the first words of the title in Latin, there is good ground for believing that Glauber did not understand that language. (A.)

GLAUCHA, a city of the circle of Erzgeberg, in the kingdom of Saxony. It is in the form of a half moon, situated on the river Mulda, is walled, and contains 742 houses, with 4340 inhabitants, who are employed in the manufactures of various cotton goods.

GLAUCOMA, in *Medicine* and *Surgery*, the name of a disease in the eye, in which the crystalline humour is converted into a bluish or greenish colour, and its transparency thereby diminished. The word comes from γλαυκος, sea-green, sky-coloured, or greyish.

GLAUCUS, a marine god, or deity of the sea. There are a great many fabulous accounts of this divinity; but his poetical history is, that, before his deification, he was a fisherman of the town of Anthedon, and having one day taken a considerable number of fishes, which he laid upon the bank, he on a sudden perceived that these fishes, having touched a kind of herb which grew on the shore, received new strength, and leaped again into the sea; upon which he was tempted to taste of the herb himself, and presently leaped into the sea after them, where he was metamorphosed into a Triton, and became one of the sea-gods.

GLAZIER, an artificer who works in glass. The principal part of a glazier's business consists in fitting panes of glass to the sashes and window-frames of houses, pictures, and the like, and in cleaning the same.

GLAZING, the encrusting of earthen ware with a vitreous substance, the basis of which is lead.

The workers of common earthen ware, however, are not at the trouble of thus previously making a pure glass of lead. Their usual composition for glazing ware is formed, of white sand forty pounds, of red lead twenty pounds, of pearl ashes twenty pounds, and of common salt twelve pounds. The sand is powdered by grinding, and then the other ingredients are added and ground together; after which they are calcined for some time with a moderate heat, and when the mixture is cold it is reduced to powder, and when wanted for use tempered with water. The proportion of these ingredients may be occasionally varied. The ware, after being turned on the wheel and dried in the open air, is covered over with the above composition by means of a brush; and when set in the furnace the violent heat soon reduces it to a perfect glass, covering the whole internal and external surface of the vessel.

We may observe in general, however, that lead ought to be excluded from the composition of glazings, and other fluxes substituted in its stead. A transparent glazing may be prepared without lead, by calcining forty pounds of white sand, twenty-five pounds of pearl ashes, and fifteen pounds of common salt, and proceeding as before; and a more perfect transparent glazing may be made of sand forty pounds, of wood ashes perfectly burned fifty pounds, of pearl ashes ten pounds, and of common salt twelve pounds. The receipts annexed are taken for the most part from Kunckel, who says that they are the true glazings used at Delft, and in other Dutch manufactories.

Black is made of red lead eight parts, iron filings three parts, copper ashes three parts, and zaffer two measures. This when melted makes a brown black; and if it be wanted blacker, more zaffer must be added to it.

Blue is thus prepared; take lead ashes or red lead one pound, clear sand or powdered flints two pounds, common salt two pounds, white calcined tartar one pound, Venice or other glass half a pound, zaffer half a pound; mix them well together and melt them several times, quenching them always in cold water. If it be desired to have it fine and good, put the mixture into a glass furnace for a day or two.

Another blue glazing may be formed of one pound of tartar, a quarter of a pound of red lead, half an ounce of zaffer, and a quarter of a pound of powdered flints, which must be fused and managed as in the last receipt. Or, take two pounds of calcined lead and tin, add five pounds of common salt, five pounds of powdered flints, and of zaffer, tartar, and Venetian glass, each one pound; calcine and fuse the mixture as before. Or, again, take of red lead one part, of sand three parts, and of zaffer one part. For a violet-blue glazing, take four ounces of tartar, two ounces of red lead, five ounces of powdered flints, and half a drachm of manganese.

Brown is made of red lead and flints, of each fourteen parts, and of manganese two parts, fused; or of red lead twelve parts, and manganese one part, fused. A brown glazing, to be laid on a white ground, may be made of manganese two parts, and of red lead and white glass one part of each, twice fused. Flesh-coloured is made of twelve parts of lead ashes, and one of white glass. To prepare the gold-coloured, take of litharge three parts, of sand or calcined flint one part; pound and mix these well together, then run them into a yellow glass with a strong fire. Pound tis glass, and grind it into a subtile powder, which moisten vth a well-saturated solution of silver; form it into a ste, then put it into a crucible, and cover it with a lid. pply at first a gentle degree of fire; then increase, and ntinue it until a green glass has been obtained. Pound tis glass again, and grind it to a fine powder; moisten te powder with some beer, so that by means of a hair penc you may apply it upon the vessels or any piece of earthc ware. The vessels which are painted or covered over vth this glazing must first be well heated, then put under a muffle; and as soon as the glass runs, they must be soked, by holding them over burning vegetables, and ten taken out. Heinsius of St Petersburg, who sent this reeipt to the Royal Society, uses the words *afflare debes fnum*, which is rendered "smoke them," in the transactns. (*Phil. Trans.* No. 465, sect. 6.)

Kunckel gives several preparations for a gold-coloured yllow glazing. This may be produced by fusing a mixture three parts of red lead, two parts of antimony, and one prt of saffron of Mars; by again melting the powdered ass, and repeating the operation four times; or by fusing fur or five times a composition of red lead and antimony each an ounce, and of scales of iron half an ounce; or calcining and fusing together eight parts of red lead, s parts of flints, one part of yellow ochre, one part of antmony, and one part of white glass. A transparent goldloured glazing may be obtained by twice fusing red lead d white flints, of each twelve parts, and of filings of iron e part.

Green may be prepared from eight parts of litharge or l lead, eight parts of Venice glass, and four parts of brass st or filings of copper; or from ten parts of litharge, elve of flint or pebble, and one of *æs ustum* or copper hes. A fine green glazing may also be produced by fusing e part of the Bohemian granate, one part of filings of pper, one part of red lead, and one part of Venetian ass; or by fusing one part of white glass, and the same antity of red lead, and of filings of copper, powdering e mass, and adding one part of Bohemian granate to two rts of this powder. A fine green may likewise be obned by mixing and grinding together any of the yellow azings with equal quantities of the blue glazings; and all e shades and teints of green will be obtained by varying e proportion of the one to the other, and by the choice the kind of yellow and blue.

Sea-green is made of five pounds of lead ashes, one und of tin ashes, three pounds of flint, three quarters of pound of salt, half a pound of tartar, and half a pound of pper dust. Iron colour is prepared from fifteen parts of d ashes or red lead, fifteen of white sand or flints, and e of calcined copper. This mixture must be calcined d fused. Liver colour is prepared from twelve parts of harge, eight of salt, six of pebble or flint, and one of nganese. Purple brown consists of lead ashes fifteen rts, clean sand or powdered flints eighteen parts, mangase one part, and white glass fifteen measures, to which me add one measure of zaffer. Red is made of antimony ree pounds, litharge or red lead three, and rust of iron e, which are ground to a fine powder; or take two unds of antimony, three of red lead, and one of calcined ffron of Mars, and proceed as before.

The white glazing for common ware is made of forty unds of clear sand, seventy-five pounds of litharge or d ashes, twenty-six of potashes, and ten pounds of salt; d these are thrice melted into a cake, quenching it each ne in clear cold water. Or it may be made of fifty unds of clean sand, seventy of lead ashes, thirty of wood hes, and twelve of salt. For a fine white, take two unds of lead and one of tin; calcine them to ashes; of is take two parts, calcined flint, white sand, or broken ite glass, one part, and salt one part; mix them well together and melt them into a cake for use. The trouble of calcining the tin and lead may be prevented by procuring them in a proper state. A very fine white glazing may be obtained by calcining two parts of lead and one part of tin; and taking one part of this mass, and of flints and common salt one part each, and fusing the mixture. A white glazing may also be prepared by mixing a hundred pounds of masticot, sixty pounds of red lead, twenty pounds of calcined tin or putty, and ten pounds of common salt, and calcining and powdering the mixture several times.

Yellow is prepared of red lead three pounds, calcined antimony and tin two pounds of each; or, according to some, of equal quantities of the three ingredients. These must be melted into a cake, then ground to a fine powder, and this operation must be repeated several times; or it may be made of fifteen parts of lead ore, three parts of litharge of silver, and fifteen parts of sand. A fine yellow glazing may be procured by mixing five parts of red lead, two parts of powdered brick, one part of sand, one part of the white glazings, and two parts of antimony, calcining the mixture and then fusing it. Or take four parts of white glass, one part of antimony, three parts of red lead, and one part of iron scales, and fuse the mixture; or fuse sixteen parts of flints, one part of iron filings, and twenty-four parts of litharge. A light-yellow glazing may be produced with ten parts of red lead, three parts of antimony and three of glass, and two parts of calcined tin. A citron-yellow is made of six parts of red lead, seven parts of fine red brick dust, and two parts of antimony. This mixture must be calcined day and night for the space of four days, in the ash-hole of a glass-house furnace, and at last urged to fusion.

The Romans had a method of glazing their earthen vessels, which in many respects appears to have been superior to ours. The common brown glazing easily scales off, cracks, and in a short time becomes disagreeable to the eye; besides, it is very easily destroyed by acids, nor can vessels glazed in this manner be even employed to hold water, without part of it oozing through their pores. Lead is also very destructive to the human body; and if acids are unwarily put into vessels glazed with lead, the liquors will receive a dangerous impregnation from the metal. The Roman glazing, which is still to be seen upon urns excavated in several places, appears to have been made of some kind of varnish; and Pliny gives us a hint that it was made of bitumen. He tells us that it never lost its beauty, and that at length it became customary to glaze over statues in this manner. As this varnish sunk deep into the substance of the ware, it was not subject to those cracks and flaws which disfigure our vessels; and as it was not liable to be corroded by acids, it was not subject to any of the accidents which may ensue from the use of vessels glazed with lead.

GLEBE, amongst miners, signifies a piece of earth in which is contained some mineral ore.

Glebe, in *Law*, the land belonging to a parish church, besides the tithes.

GLENDALAGH, otherwise called *the Seven Churches*, anciently a celebrated town of Ireland, situated five miles north-west of Rathdrum, in the county of Wicklow, and province of Leinster. The name signifies the valley of the two lakes.

GLISSON, Francis, an English physician, born in 1597, at Rampisham, in the county of Dorset, was educated at Cambridge, and, during forty years, occupied the chair of medicine in that university. In 1634, he was admitted into the college of physicians in London, of which he afterwards became president; and, in 1639, this body appointed him professor of anatomy. He filled this situation with much credit at the commencement of the civil war, when he took refuge in Colchester; but after the surrender of that city to the parliamentary forces, he went to London, and became a member of that association of learned men which was afterwards transformed into the Royal Society. In 1650, he published his treatise *De Rachitide, seu morbo puerili*, a malady then new in England, where it had only appeared about thirty years before. Glisson was assisted in the composition of this treatise by Doctors Bate and Regemortes. In 1654, appeared his *Anatomia Hepatis*, in 8vo, with an appendix concerning the lymphatic ducts, then recently discovered; in 1672, the *Tractatus de natura substantiæ energetica, seu de vita Natura ejusque tribus primis facultatibus;* and in 1677, the year of his death, the book *De Ventriculo et Intestinis*, in 4to, the first work containing conjectures as to the nature of the simple fibre, and an exposition of the innate principle of irritability, as it is denominated by our author. Glisson was also the first who attributed the contraction of the heart, and of the other muscles, to the action of a stimulus on their irritable principle. He likewise treats largely and judiciously of the peristaltic and antiperistaltic motion. The greater part of his works have often been reprinted in different countries. They contain new methods and discoveries, amongst others that of the capsule of the *vena portæ*, at least he had the merit of being the first to examine and describe it with accuracy. He was also the author of a treatise *De Lymphæductis nuper repertis*, Amsterdam, 1659, which, and his book entitled *Anatomica prolegomena et Anatomia Hepatis*, are considered as the best of his works. Boerhaave regarded him as the most exact of all the anatomists; and Haller, speaking of one of his works, describes it as an excellent book, "like all those written by the same author." Glisson's views on physiology are now held in little estimation. (A.)

GLOBE, in *Geometry*, a round or spherical body, commonly called a *Sphere*.

GLOBE is more particularly used for an artificial sphere of metal, plaster, paper, or other matter, on the convex surface of which is delineated a map, or representation either of the earth or heavens, with the several circles of the sphere.

Globes are of two kinds, *terrestrial* and *celestial;* both of considerable use, the one in astronomy, and the other in geography, for performing many of the operations in these sciences, in an easy and obvious manner, so as to be conceived without any knowledge of their mathematical principles.

The fundamental parts, common to both globes, are an axis, representing that of the world; and a spherical shell, or cover, forming the body of the globe, on the external surface of which the representation is drawn.

GLOGAU, a city of Prussian Silesia, the capital of a circle to which it gives its name. It is situated on the left bank of the Oder, where the Dominsel falls into that river. It is strongly fortified, and has also a citadel. It contains the cathedral on an island in the Oder, eight other Catholic, and two Lutheran churches, one Reformed church, and 885 houses, with 10,253 inhabitants, of whom 1800 are Jews. It is a manufacturing city, and produces much linen and cotton goods; and it has tanneries, breweries, and other trades. Long. 16. 1. 25. E. Lat. 51. 38. N.

GLORY, renown or celebrity. The love of renown, or the desire of fame and reputation, appears to be one of the principal springs of human action. Glory, therefore, is not to be contemned, as some of the ancient philosophers affected to teach; but it imports us to regulate our pursuit of it by the dictates of reason; and if the public approbation follow not, the search must be abandoned. We ought to have our judgment well instructed as to what actions are truly glorious, and to remember, that in every important enterprise, as Seneca observes, *Recte facti fecisse merces est, officii fructus ipsum officium est*, the reward of a thing well done is to have done it, the fruit of a good office is the office itself. Those who by other methods contrive to place their names in many mouths, show that they rather seek after a great reputation than a good one, and their reward is oftener infamy than fame.

Men generally, and indeed almost instinctively, affix glory to such actions only as have been produced by an innate desire of public good; and this may be measured by that degree of influence which the thing done has upon the common happiness. If the actions of the hero conduct soonest to glory and with the greatest splendour, and if the victorious general is so great after a signal engagement, it is because the service he has performed is considered as a service done for all; and because we think without reflecting, that he has saved our habitations, our wealth, our children, and every thing that attaches us to life. If the man of science, who in his study has discovered and calculated the motions of the heavenly bodies, who in his alembics has detected some of the secrets of nature, or who has exhibited to mankind a new art, rises with less noise to fame, it is because the service which he renders is more widely diffused, and is often of less service to the present than to succeeding generations.

The consequences of these two advantages are, therefore, as opposite as the causes are different; and whilst the benefits secured by the warrior appear to exert no more influence, and his glory is obscured, that of a celebrated writer or inventor still increases, and becomes more and more enlarged. His works every day recall his name to the remembrance of those who read them, and thus still add to his celebrity and fame.

This posthumous fame indeed has been decried by some writers, and, in particular, the author of the *Religion of Nature delineated* has treated it as highly irrational and absurd. "In reality," says he, "the man is not known ever the more to posterity, because his name is transmitted to them; he doth not live, because his name does. When it is said Julius Cæsar subdued Gaul, conquered Pompey, &c., it is the same thing as to say, the conqueror of Pompey was Julius Cæsar; that is, Cæsar and the conqueror of Pompey is the same thing; Cæsar is as much known by one designation as by the other. The amount then is only this, that the conqueror of Pompey conquered Pompey; or somebody conquered Pompey; or rather, since Pompey is as little known now as Cæsar, somebody conquered somebody. Such a poor business is this boasted immortality, and such is the thing called glory among us! To discerning men this fame is mere air, and what they despise, if not shun."

But surely it were to judge a little too curiously to view matters thus. For, as is observed by the judicious author of Fitzosborne's Letters, although fame with posterity should be, in the strict analysis of it, no other than what is here described, a mere uninteresting proposition, amounting to nothing more than that somebody acted meritoriously; yet it would not necessarily follow, that true philosophy should banish the desire of it from the human breast; since this passion may be, as most certainly it is, wisely implanted in our species, notwithstanding the corresponding object should in reality be very different from what it appears in imagination. Do not many of our most refined and even contemplative pleasures owe their existence to our mistakes? It is but extending some of our senses to a higher degree of acuteness than we now possess them, to make the fairest views of nature, or the noblest productions of art, appear horrid and deformed. To see things as they truly are in themselves, would not always, perhaps, be of advantage to us in the intellectual world, any more than in the natural. But, after all, who shall certainly assure us that the pleasure of virtuous fame dies with its possessor, and reaches not to another scene of existence? There is nothing, it should seem, either absurd or unphilosophical in supposing it possible, at least, that the praises of the good and the judicious, the sweetest music to an honest ear in this world, may be echoed back to the mansions of the next; that the poet's description of Fame may be literally true, and that though she walks upon earth, she may yet lift her head into heaven.

To be convinced of the great advantage of cherishing this high regard to posterity, this noble desire of an after life in the breath of others, one need only look back upon the history of the ancient Greeks and Romans. For what other principle was it which produced that exalted strain of virtue in those days, which may well serve, in so many respects, as a model to these? Was it not the *consentiens laus bonorum*, the *incorrupta vox bene judicantium*, as Cicero calls it, "the concurrent approbation of the good, the uncorrupted applause of the wise," that animated their most generous pursuits?

In short, can it be reasonable to extinguish a passion which nature has universally lighted up in the human breast, and which we constantly find burning with greatest strength and brightness in the noblest and best constituted natures? Accordingly, revélation is so far from endeavouring to eradicate the seed which nature has thus deeply implanted, that it rather seems, on the contrary, to cherish and forward the growth thereof. To be "exalted with honour," and to be "had in everlasting remembrance," are among the number of those encouragements which the Jewish dispensation offered to the virtuous; and the person from whom the sacred Author of the Christian system received his birth, is herself represented as rejoicing that "all generations would call her blessed."

GLOSS, a comment on the text of any author, intended to explain his sense more fully, whether in the same language or in any other. (See the article COMMENTARY.) The word evidently comes from the Greek γλωσσα, tongue; the office of a gloss being to explain the text, as that of the tongue is to unfold the feelings and sentiments of the mind.

GLOSS is likewise used to signify a literal translation, or an interpretation of an author, word for word, in another language.

GLOSSARY, a dictionary, explaining the obscure and antiquated terms in some old author. Such are Du Cange's Latin and Greek Glossaries, Spelman's Glossary, and Kennet's Glossary at the end of his *Parochial Antiquities.*

GLOSSOPETRA, or GLOTTOPETRA, in *Natural History*, a kind of extraneous fossil, somewhat in the form of a serpent's tongue. It is frequently found in the island of Malta, and other places.

GLOUCESTER, a city, the capital of the county of the same name, 106 miles from London. It is situated in a rich and beautiful valley, on the banks of the river Severn. It is sheltered on the east by a range of hills, on descending which the vale displays itself, containing the verdant plains, the ancient buildings of the city, the winding river, and, in the distance, the group of picturesque eminences called the Malvern Hills. The city consists of four streets, distinguished by the names of the cardinal points, and crossing each other in the centre at right angles. They are broad, well built, clean, and excellently paved. The chief building is the cathedral, begun in 1047, and the ecclesiastical residences around it. That edifice was enlarged at subsequent periods, till it was erected into a bishop's see in the reign of Henry VIII. It is 4[illegible] feet in length, 144 in breadth, and adorned with a tower 199 feet in height. The interior has an impressive aspect, and is decorated with several monuments, and a lofty choir. It is a corporation, consisting of a recorder and twelve aldermen, one of whom is the mayor, and a large body of freemen, who elect two members to the House of Commons. This city gives the title of duke, which has been commonly conferred upon a member of the royal family. The principal manufacturing employment is making pins, great quantities of which are sent to London; but, besides this, making malt and cordage, and building barges, afford some occupation. There is a little foreign trade in the importation of wine, spirits, and West India produce; and this has been increased by the construction of a canal parallel to the Severn, which allows ships to avoid the shoals and sinuosities of that river. There is also some transit trade in iron ware, pottery, salt, and in timber, which descend the Severn from the counties to the northward. Some mineral springs, similar to those of Cheltenham, have lately been discovered, which have been resorted to by visitors, and have occasioned an increase of buildings appropriated for their reception. There are well-supplied markets on Wednesdays and Saturdays. The population amounted in 1801 to 7597, in 1811 to 8280, in 1821 to 9744, and in 1831 to 11,993.

GLOUCESTER is the name of several counties and towns in the United States of America. The counties will be described in the articles upon the several states where they are situated; and the towns are too unimportant to require separate notice.

GLOUCESTERSHIRE, one of the English counties on the western side of the kingdom. On the north-east it is bounded by Warwickshire, on the north-west by Worcestershire; Oxfordshire and Berkshire bound it on the east, Wilts and Somerset on the south, and Hereford and Monmouth on the west. The greatest length is seventy miles, and the greatest breadth thirty-five. Its area, including its rivers, is 1718 square miles, or 1,099,520 acres.

The number of inhabitants at each of the four decennial censuses has been as follows, viz.:—in 1801, 250,809; in 1811, 285,514; in 1821, 335,843; and in 1831, 386,700. In this enumeration the city of Bristol is included; for, though a part of it stands within the county of Somerset, yet in each of the parliamentary surveys it is considered as a part of the county of Gloucester, within which division the greater portion of it is situated. The most considerable places, and their population, are the following:

Bristol	103,886	Minchin-Hampton	7,255
Gloucester	18,376	Painswick	4,099
Cheltenham	22,942	Horsley	3,690
Stroud	8,607	Dursley	3,226
Tewkesbury	5,780	Newent	2,859
Bisley	5,896	Tetbury	2,939
Cirencester	5,420		

The foreign trade of this county is considerable, and centres chiefly in Bristol. Latterly, however, Gloucester has enjoyed a considerable share of it. This has been chiefly owing to the completion of a broad and deep canal parallel to the Severn, which admits vessels from sea to reach Gloucester. The principal trade from Bristol is to the West Indies, but both places maintain intercourse with America, Portugal, Spain, and other foreign territories, and import much wine, Merino wool, oil, and other commodities.

The internal trade of this county is, however, by far the most important. By the river Severn, which passes through it, it is enabled to maintain a regular intercourse with the potteries and glass manufactories of Worcestershire and Staffordshire, with the salt works of Droitwich, and with those parts of Warwickshire, Staffordshire, and Shropshire, which furnish the heavy iron goods that would not bear the expense of land-carriage. Though the Severn is not navigable except for flat-bottomed vessels, and for these only at spring tides, yet the craft on that river is very considerable; and at Stourport there is a connection with all the numerous canals which traverse the centre of the kingdom. Besides the river Severn, the Wye is navigable for small craft to a considerable distance from its mouth, and facilitates the commercial intercourse with Monmouthshire and Herefordshire.

Several navigable canals have been constructed in this county with the view of promoting its internal communication. The most remarkable of these is the Thames and Severn Canal, which communicates with the latter river through the Stroud Canal, and with the former river at the town of Lechlade. It was begun in 1783, and finished in ten years. The summit-level is two hundred and forty-one feet above the level of the Stroud Canal, and a hundred and thirty feet above the river Thames at the place of its junction. These rises of level are surmounted by locks, admirably contrived and executed; and in one place it passes under the park of Lord Bathurst, through Sapperton tunnel, and, after being buried for the distance of two miles and five furlongs, again emerges near Cirencester. The tunnel is lined with masonry, arched above, and at the bottom has an inverted arch, except in some very few places, where, passing through a solid rock, that expense has been spared. The breadth of the canal is forty-two feet at the top and thirty feet at the bottom, and it is constructed for barges adapted to the locks upon the river Thames, as well as those of the canal. The barges are twelve feet wide, from seventy to eighty feet long, and when loaded carry seventy tons, and draw about four feet of water. This work has, however, been more splendid than beneficial. The expense of its construction exceeded L.250,000, and the tolls are scarcely more than sufficient to defray the expense of the necessary repairs. In fact, it connects two rivers, the navigation of which is bad; but especially that of the Thames, which, before it reaches Oxford, is subject to great expense in horses to draw the barges; it has many shallows where the vessels must be lightened to pass over them, and is liable to frequent impediments, sometimes from a scarcity of water, and sometimes from inundations. The trade which once passed through this canal has been diminished by the opening of the Kennet and Avon, which forms a better medium for the transit of goods from Bristol or Gloucester to London. The Hereford and Gloucester Canal, designed to connect these two cities, passes near Boyce through a tunnel one mile and a quarter in length, between the Severn and Ledbury, to which place, a distance of seventeen miles, the rise is a hundred and eighty-three feet.

The mineral riches of this county are almost wholly confined to iron; for, though veins of lead exist at Sodbury, Deynton, and other places, they are not sufficiently productive of ore to induce the working of them. Iron is abundant in many parts of the county; but the principal forges are on the western side of the Severn, near Lydney, in the forest of Dean, where both charcoal and coal are abundantly produced. On both sides of the Severn coal is worked to a considerable extent. The forest of Dean contains upwards of a hundred and twenty coal pits, whence the city of Gloucester and its vicinity are supplied with that necessary article. At Kingswood, near Bristol, there are considerable veins, but these being at a great depth, the proprietors can scarcely compete with the miners of Monmouthshire, though by many of the inhabitants of the city the coals of Kingswood are preferred to those brought by water from Newport. The mineral springs in this county, at Clifton, at Cheltenham, at Stow-on-the-Wold, and at Bourton-on-the-Water, are well known; and the two former places, as well by their natural beauties as by their medicinal waters, attract considerable numbers of occasional visitors, who there find all those accommodations which the best watering-places can afford. No part of the kingdom produces better or more abundant stone than is raised from the quarries of Gloucestershire. Limestone of excellent quality extends from Cromhall south-east to Sodbury, and south-west to Aust-Cliff; and the rocks of Clifton yield an excellent stone, from which much lime is made, both for domestic consumption and for exportation to the West Indies. Freestone is found on the Cotswold Hills, and near Lydney some gritstones are raised, which are adapted by the mill-wrights to their purposes.

Gloucestershire is one of the chief manufacturing counties; and though a greater progress has been made of late years in the northern counties of Lancaster and York, it is still very much distinguished in this particular. The woollen manufacture has long been established in what are provincially called *the Bottoms*, a district in the valleys, between the range where the Cotswold Hills, with a less elevation, assume the name of the Stroud Hills. Between the ranges of these hills there are clear and rapid streams, which supply the mills in which the manufactures are carried on. The principal seats of the manufactures are in the thickly-peopled parishes of Bisley, Hampton, Stroud, Painswick, Woodchester, Horsley, Stonehouse, Stanley, Uley, Dursley, and Wotton-under-Edge. Almost the whole process is now performed by machinery except the weaving. The dyers in this district are celebrated for their scarlet, but more especially for their dark-blue colours, the excellence of which is attributed to some peculiar properties in the Stroud water. The greater part of the cloths of this county are dyed in the piece, not in the wool. Those of the superior quality, made from Merino wool, are destined either for the consumption of the kingdom or for the supply of Russia; and some few are exported to America. The inferior kinds, made of the wool of the Cotswold, the Hereford, or the Southdown sheep, are mostly calculated for the markets of India and China. These are sent to London white, and the agents of the East India Company select such as suit their demand, which are dyed to the requisite colours, and pressed and packed by their own different tradesmen in the vicinity of the metropolis. Cassimeres of the best quality are also made in this district to a very considerable extent.

In the city of Gloucester and its vicinity there are several considerable manufactories of pins, which, minute as is the article, furnish employment to upwards of fifteen hundred persons. A bell foundery was established there in 1500, which has been continued to the present time, and is a kind of hereditary occupation in a family of the name of Rudhall, who have carried it on for the last hundred and fifty years, and during that period have cast several thousands of bells for different churches.

The vicinity of Bristol is crowded with manufactories of various kinds. The sugar refinery is very considerable, and produces some of the best kinds of white sugar. Glass of all kinds, for windows and for domestic purposes, is made there. The copper and brass manufactures are also large establishments. Hard white soap is an article of considerable importance; much is sent to London, and a large quantity is exported to America and the West Indies. Hats, leather, saddlery, shoes, white lead, gunpowder, earthen ware, salt, snuff, and beer, are made in the city or neighbourhood of Bristol, and form the rudiments of its foreign trade, as well as administer to its domestic intercourse with the western counties, and with Wales.

The agriculture of Gloucestershire partakes of very different characters, according to the elevation of the land. On the eastern side of the county, a district of 200,000 acres, extending over the Cotswold Hills, is provincially distinguished by the name of *stone brash land*. This tract of country is very undulating, but none of the summits rise to a great height, so that the whole is cultivated. In the intervals between the ridges of hills there are genelly beautiful rivulets, by which the inhabitants are nabled so to irrigate their meadows as to produce early rass for their young lambs. The hills, whatever be the urface, have uniformly a calcareous basis, which admi- bly adapts them for the growth of sainfoin. In no part England is that valuable grass cultivated to so great an xtent, or with such bountiful results. It has been an ar- cle of very ancient cultivation, and in this soil has the operty of producing hay for twenty successive years. requires, however, great care in the first laying down, d that all other grasses, as well as weeds, be eradicated; ter which, as it draws its nourishment from a great depth, has little or no tendency to exhaust the soil on the sur- ce. In process of time it becomes choked by other asses, when the land is again returned to the arable state. is the practice of the best farmers to have one seventh rt of their land constantly bearing sainfoin. The re- aining six portions of the farm are divided pretty near- in equal proportions between turnips, barley, clover rye-grass, wheat, peas, and oats. The principal de- ndence for producing fertility is the large flocks of eep which are bred here, and which are usually folded a dressing for the turnips. It is a common practice to re the soil, and burn it, that the weeds may be destroyed, d that the ashes may furnish manure. The crops of bar- y are moderately good. Wheat is sown at very early riods, sometimes in August, but it seldom produces even moderate crop if sowed later than September or early October. The average produce of that grain does not ceed sixteen bushels to the acre, and it is not of the st quality. The soil is more congenial to the produc- on of peas than to any other crop, and hence they form important article of cultivation. The sheep of this strict, for whose food, as the enumeration of the crops ows, the principal provision is made, are of a peculiar eed, without horns, the wool rather long, and not of a ry fine quality. They are said to be indigenous to these lls, but have of late been improved by crossing with her races. The Southdown sheep have recently been ed here, and are gradually acquiring a preference, as ey do wherever they are introduced on soils of an infe- or quality. Few parts of England have been more im- oved in cultivation within the last forty years than the otswold Hills. They have, however, in spite of this im- ovement, but a cold and barren appearance, owing to eir being nearly destitute of trees, and to the want of rdant hedges; for the fences are almost uniformly stone alls, about four feet and a half in height. The farms are nerally large, from three hundred to twelve hundred res; and the homesteads, as well as the cottages of the bourers, being usually situated in the valleys, and there- re not in sight at a distance, the face of the country s a poor and depopulated aspect. The depth of the il is scarcely more than five inches: sometimes, how- er, it is very tenacious, but the experience of the natives s taught them, that even the most clayey soils do not quire frequent ploughings. At each ploughing, consi- rable quantities of stone-rubble are brought to the sur- ce.

To the westward of the Cotswold Hills, and inclining the northwards, the rich vales of Evesham, Gloucester, d Berkley, are spread. The agricultural system which practised, though it has some variations, is generally milar. The vale of Evesham, a considerable part of hich is in Worcestershire, is watered by the river Avon, d is highly productive in corn, pasture, and fruits. On e arable lands, the most general rotation is a clean fal- w; then barley or oats; next beans or clover; and, lastly, heat. The wheat is generally sown in November or ecember, the produce is commonly abundant, and the ain is of the best quality. The district is well wooded. The hedge-rows are filled with elm, oak, ash, and maple trees, and the apple and pear trees are abundantly scattered in the fields, as well as in large orchards near the villages. Cider and perry form very valuable portions of the produce of each farm. The proportion of arable land is small; the rich pastures feed numerous cows; and butter and cheese are the articles on which many farmers almost wholly depend.

The vale of Gloucester is in the form of an arc, of which the river Severn may be said to form the chord. It is protected from the cold northerly and easterly winds by the Cotswold and Stroud Hills, and hence is well adapted for the growth of fruit trees. Though there are now no vineyards, William of Malmesbury, in the twelfth century, said that "no county in England has more numerous or richer vineyards; or which yields grapes more abundantly or of better flavour, as the wine is but little inferior to that of France in sweetness." The apple and pear trees of the district yield, however, most profusely, liquors which, in the estimation of the inhabitants, are far preferable to any wine from foreign countries. The soil of this vale is generally of a rich sandy loam, on a very retentive and tenacious subsoil of clay. Fallowing is deemed indispensable on all the arable lands, which are thrown in very high ridges, about eight yards in breadth, with furrows between them, from twenty-four to thirty inches deep. Barley, oats, clover, beans, and wheat yield most abundant crops, and of the best quality. The greater part of the land is, however, in permanent pasture, receiving no other manure than the fæces of the cattle that are grazed on it, and, in some instances, the rich sediment deposited by occasional inundations. The meadows feed numberless cows, and the dairies, besides the cheese, the name of which is derived from this county, furnish large quantities of butter, fatten many calves, and, with the whey and buttermilk, rear and fatten great numbers of swine. The swine are of a peculiarly large breed, and the market for them at Gloucester is by far the most considerable in the kingdom. The fattening of them does not, however, wholly depend on the dairy, but large quantities of oil-cake are applied to that purpose. The cheese denominated Gloucester has long enjoyed great celebrity both at home and abroad. It is usually made in the summer months, from May to October inclusive. The number of cows belonging to individuals seldom exceeds from thirty to forty. The uniformity of the quality is such that the factors, who are the middlemen, contract for the whole produce of the dairies without examining it, knowing the value of the cheese from the quality of the land on which the cows are pastured.

The vale of Berkley is separated from that of Gloucester by a natural intersection, and, like it, is bounded to the westward by the river Severn. Its surface is more irregular, but though the undulations are numerous, they are not excessive. The hills are covered with beech trees, and the face of the district is both rich and picturesque. The soil is uniformly fertile in a very extraordinary degree. Nearly the whole is rich pasture or orchard, and the arable land does not form one seventh part of the valley. The soil is a rich fat loam, occasionally mixed with a prolific clay, and generally resting on a retentive subsoil. The dairy farms are of smaller extent than in the adjoining vale, but they far excel them in the proportional quantity of the cheese which they yield, and the quality is also much superior. The cheese commonly denominated *double Gloucester* is almost wholly made in the vale of Berkley, and in the neighbourhood is known by that name. It is usually made in the months of May, June, and July in dairies, where, later in the summer, a thinner kind is manufactured. Its excellence depends upon attention to its management, as well as on the quality of the land on which the cattle are fed. The quantity of cheese made in this vale is about 1200 tons annually, and each cow is estimated to yield 350 pounds.

The western side of the Severn is principally occupied by the forest of Dean. It abounds with excellent oak and beech trees, and produces abundance of cider, especially one kind called Stire-cider, which is highly valued. The forest formerly contained 43,000 acres, but has been diminished by several royal grants; it is, however, now a most important district, on account of the large ship-timber which it produces. It abounds with coal and with iron ore, and the miners are regulated by peculiar courts.

The most remarkable curiosities of this county are the Roman antiquities at Woodchester, which have been accurately described by that indefatigable antiquary Lysons; the Roman roads, which traverse it in various directions; the numerous antique coins which have been frequently found in the fields; the vestiges of ancient fortifications, and the ruins of monastic edifices.

This county has long conferred the title of duke on various members of the royal family, or in ancient times on those connected with that of the reigning prince. It gives titles also to Marquis Camden, Earl of Berkley, Earl Bathurst, Lord Sherborne, and Lord Segrave. For election purposes it is formed into the eastern division, the polling-places of which are Gloucester, Stroud, Tewkesbury, Cirencester, Camden, Northleach, and Cheltenham; and the western, the polling-places of which are Wotton-under-Edge, Newent, Newenham, Coleford, Sodbury, Thornbury, and Dursley.

Two members for each are returned to parliament from Bristol, Gloucester, Cirencester, and Tewkesbury; and one for each from Cheltenham and Stroud; making, with four for the county, fourteen in all. The seats of noblemen and gentlemen are very numerous, but the most remarkable of these are Badminton, the Duke of Beaufort's; Berkley Castle, Lord Segrave's; Oakley Grove, Lord Bathurst's; Sherborne, Lord Sherborne; Tolworth, Lord Ducie; King's Weston, Lord de Clifford; Hengham Court, Sir William Guise's; Fairford, Mr Raymond Barker; Whitcombe Park, Sir William Hicks; Gatcombe Park, Mr Ricardo; and Blaze Castle, Mr Harford's.

GLOVE, a covering for the hand and wrist. To throw the glove was a practice or ceremony very usual amongst our forefathers, being the challenge by which one man defied another to single combat. It is still retained at the coronation of our kings, when the king's champion casts his glove in Westminster hall, and thus challenges all men to dispute the royal title.

Favyn supposes the custom to have arisen amongst the eastern nations, who in all their sales and deliveries of lands, goods, and the like, used to give the purchaser their glove by way of delivery or investiture. To this effect he quotes Ruth (iv. 7), in which the Chaldee paraphrase has *glove* where the common version renders the Hebrew word by *shoe*. He adds, that the Rabbin interpret by *glove* that passage in the 108th Psalm, *In Idumeam extendam calceamentum meum*, Over Edom will I cast out my shoe. Accordingly, amongst us, he who took up the glove, thereby declared his acceptance of the challenge, and as a part of the ceremony, took the glove off his own right hand, and cast it upon the ground, that it might be taken up by the challenger. This had the force of a mutual engagement to meet at the time and place which might be appointed by the king, the parliament, or the judges.

Gloves are now a common article of dress. They are most commonly made of leather; but there are others made of silk, thread, cotton, or worsted. Leather gloves are made of the skins of the chamois, kid, lamb, beaver, doe, elk, and other animals. The leather of gloves is not, properly speaking, tanned, but cured with alum, by which it is rendered soft and pliable. Some sorts of leather gloves admit of being washed, others do not. Woodstock and Worcester, but particularly the former, are famed for the manufacture of leather gloves of a superior quality. The produce of the Worcester manufacture has been estimated at about 42,000 dozen pairs of oil-leather or beaver gloves, and 470,000 dozen pairs of kid and lamb-skin gloves, the value of the whole being about L.375,000. There are other places in England celebrated for their manufacture of gloves; and Dundee, in Scotland, has long been famed for the production of this article. Machinery is occasionally employed in sewing gloves; but this process is not considered as cheaper than that accomplished by manual labour, and is only had recourse to when it is wished to have the stitches correctly equidistant. Limerick used to be famous for the manufacture of a kind of ladies' gloves, called chicken gloves. Great quantities of cotton gloves are made at Nottingham and Leicester. Until the year 1825 the importation of leather gloves and mitts was prohibited; but at that period a duty was laid upon them, and they are now allowed to enter. The total quantity of these articles imported in the year 1832 was 126,386 dozen pairs, and the total receipt of duty on them L.27,106. The number of lamb and kid skins entered for home consumption in the year ending 1831 was 3,901,241, and the number of dozen pairs of gloves produced in the same year 585,180.

Gloves were used for certain purposes at a very early period. It is believed that the Persians used them, and they were employed by the Greeks and Romans in certain kinds of labour. During the middle ages gloves were worn by certain functionaries as a mark of dignity, but as civilization advanced they gradually became common to all classes of the community.

GLOVER, Richard, was the son of Richard Glover, a Hamburg merchant in London, and was born in St Martin's Lane in the year 1712. He very early evinced a strong propensity for poetry, and whilst at school wrote, amongst other pieces, a poem to the memory of Sir Isaac Newton, which is prefixed to the view of that incomparable author's philosophy, published by his intimate friend Dr Pemberton, 1728, in 4to. But though possessed of talents which were calculated to obtain distinction in the literary world, he was content to devote his attention to commerce, and at a proper period commenced Hamburg merchant. He still, however, cultivated literature, and associated with those who were eminent in science. One of his earliest friends was Matthew Green, the author of some poems, which after his death were collected and published by Mr Glover in 1737. In that year Mr Glover married Miss Nunn, with whom he received a handsome fortune; and in the same month published *Leonidas*, a poem in quarto, which in two years passed through three editions. This poem was inscribed to Lord Cobham, and upon its first appearance was received by the world with great approbation, though it has since been unaccountably neglected. Lord Lyttleton, in a popular publication called *Common Sense*, and in a poem addressed to the author, praised it in the warmest terms; and in 1738 Dr Pemberton published observations on poetry, especially epic, occasioned by the poem of Leonidas, merely with a view to point out its beauties. In 1739 Mr Glover published *London, or the Progress of Commerce*, quarto; and a ballad entitled *Hosier's Ghost*. Both these pieces seem to have been written with a view to incite the public to resent the misconduct of the Spaniards; and the latter had a very considerable effect. At this period political dissensions raged with great violence, more especially in the metropolis; and at different meetings of the livery on these occasions, Mr Glover was always called to the chair, and acquitted himself in a very able manner, his conduct being patriotic and his speeches masterly. In the year 1744 the Duchess of Marlborough died, and by her will left to Mr Glover and Mr Mallet L.500 each, to write the history of the Duke of Marlborough's life. This bequest, however, never took effect. It is supposed that Glover early renounced his share of it; and Mallet, though he continued to talk of performing the task almost as long as he lived, is now known never to have made the least progress in the work. About this period Mr Glover withdrew a good deal from public notice, and lived in retirement. He had been unsuccessful in business, and with a laudable delicacy had preferred an obscure retreat to popular observation, until his affairs should be placed on a better footing. He had been honoured with the attention of Frederick prince of Wales, who once presented him with a complete set of the classics, elegantly bound, and, on his absenting himself for some time on account of the embarrassment in his circumstances, sent him, it is said, L.500. The prince died in March 1751; and in the May following Mr Glover was once more drawn from his retreat by the importunity of his friends, and stood as candidate for the office of chamberlain of London. But it unfortunately happened that he did not declare himself until most of the livery had engaged their votes, and hence he lost his election. In 1753 Mr Glover produced at Drury Lane his tragedy of *Boadicea*, which was acted nine nights, in the month of December. It had the advantage of the performance of Garrick, Mossop, Mrs Cibber, and Mrs Pritchard. From the prologue it seems to have been patronised by the author's friends in the city; and Dr Pemberton wrote a pamphlet to recommend it. In 1761 Mr Glover published *Medea*, a tragedy written on the Greek model; but it was not acted until 1767, when it appeared for the first time on the stage at Drury Lane for Mrs Yates' benefit. On the accession of George III. he appears to have surmounted the difficulties of his situation. In the parliament which was then called, he was chosen member for Weymouth, and continued to sit as such until its dissolution. In 1770 a new edition of the poem of *Leonidas* being required, it was republished in two volumes duodecimo, corrected throughout, and extended from nine books to twelve. It had also several new characters added, and the old ones were placed in new situations. The improvements made in it were very considerable; but public curiosity was not at this period sufficiently alive to recompense the pains bestowed on this once popular performance. The calamities arising from the wound given to public credit in June 1772, by the failure of the bank of Douglas, Heron, and Company, in Scotland, occasioned Mr Glover's taking an active part in settling these complicated concerns, and also in endeavouring to relieve the distress then so universally felt. In February 1744 he called the annuitants of that banking house together, at the King's Arms Tavern, and laid proposals before them for the security of their demands, with which they were fully satisfied. He also undertook to manage the interests of the merchants and traders of London concerned in the trade to Germany and Holland, and of the dealers in foreign linens, in their application to parliament in May 1774. The speeches which he made on both these occasions were published in a pamphlet. In the succeeding year he was engaged in behalf of the West India merchants in their application to parliament, and examined the witnesses and summed up the evidence in the same masterly manner as he had done on former occasions. For the assistance he afforded the merchants in this business, he was complimented by them with a service of plate, of the value of L.300; and the speech which he delivered in the house was also printed. This, we believe, was the last opportunity he had of displaying in public his oratorical talents. Having now arrived at a period of life which demanded a retreat from business, Mr Glover withdrew to ease and independence, and spent the remainder of his days with dignity and honour. It is probable that he still continued his attention to poetry, as it appears that, besides an epic poem of considerable length, he left some tragedies and comedies behind him in manuscript. After experiencing the infirmities of age, he died on the 25th of November 1785, leaving behind him a most estimable character as a man, a citizen, and a writer.

Gluck.

GLUCK, Chevalier Christopher, an eminent musical composer, was born in the Upper Palatinate, on the frontiers of Bohemia, in 1714. He commenced his studies at Prague, and at a very early period of life distinguished himself by the proficiency he had acquired upon several musical instruments, particularly the violoncello. In Italy, whither he went in the service of a nobleman, he received instructions from Martini, and produced his first opera at Milan. He came to England in the year 1745. The rebellion having then just broke out, foreigners were regarded with jealousy, and the opera was on that account closed; but through the exertions of Lord Middlesex it was reopened with a temporary political performance, called *La Caduta de' Giganti*, the music of which Gluck was employed to compose. He afterwards brought out his *Piramo e Tisbe*, which was little else than an assemblage of favourite airs from his previous works. The cold reception this opera met with first convinced him that music, to be effective, must be strictly adapted to the spirit and character of the poetical subject. This consideration induced Gluck to lay down certain general principles, which are said to have influenced all his subsequent labours in composition. These were, first, to impart to music all the force and expression it is capable of producing, and which was best attained by uniting it to the simple but animated poetry, full of natural and well-defined ideas; secondly, to make the air follow the rhythm and accents of the words, and construct the accompaniments so as to invigorate the sentiment, or contrast them with it. The system he adopted may be described as one entirely subservient to the effect of dramatic performance, where the music is never estranged from the scene and situations of the characters, and where the interest results from the perfect interfusion of sound with sense.

His unsuccessful attempts in England at length induced Gluck again to visit Italy, where he found leisure to cultivate his taste both in music and poetry. In pursuance of his new design, he studied the classical Italian poets, and derived from their writings more enlarged ideas as to the effects which might be elicited by the union of poetry with music. His darling object now was to connect himself, and act in conjunction, with some man of true poetic genius; and Gluck was so fortunate as to find such a co-operator in the person of Calzabigi, who undertook to write dramas exactly to his taste. In the following extract from the dedication of *Alceste*, Gluck assigned his reasons for deviating from the beaten track; and describes his ideas on operatic composition with much force and perspicuity. "When I undertook to set this poem, it was my design to divest the music entirely of all those abuses with which the vanity of singers, or the too great complacency of composers, has so long disfigured the Italian opera, and rendered the most beautiful and magnificent of all public exhibitions the most tiresome and ridiculous. It was my intention to confine music to its true dramatic province, of assisting poetical expression, and of augmenting the interest of the fable, without interrupting the action, or chilling it with useless and superfluous ornaments; for the office of music, when joined to poetry, seemed to me to resemble that of colouring in a correct and well-disposed design, where the lights and shades only seem to animate the figures, without altering the outline. I determined, therefore, not to stop an actor in the heat of a spirited dialogue, for a tedious *ritoruel*, nor to impede the progress of passion, by lengthen-

Gluck.

ing a single syllable of a favourite word, merely to display agility of throat; and I was equally inflexible in my resolution not to employ the orchestra to so poor a purpose as that of giving time for the recovery of breath, sufficient for a long and unmeaning cadence. I never thought it necessary to hurry through the second part of a song, though the most impassioned and important, in order to repeat the words of the first part regularly four times, merely to finish the air where the sense is unfinished, and to give an opportunity to the singer of showing that he has the impertinent power of varying passages, and disguising them, till they shall be no longer known to the composer himself. In short, I tried to banish all those vices of the musical drama, against which good sense and reason have in vain so long exclaimed. I imagined, that the overture ought to prepare the audience for the action of the piece, and serve as a kind of argument to it; that the instrumental accompaniment should be regulated by the interest of the drama, and not leave a void in the dialogue between the air and recitative; that they should neither break into the sense and connection of a period, nor wantonly interrupt the energy or heat of the action. And, lastly, it was my opinion, that my first and chief care, as a dramatic composer, was to aim at a noble simplicity; and I have accordingly shunned all parade of unnatural difficulty in favour of clearness, nor have I sought or studied novelty, if it did not arise naturally from the situation of the character and poetical expression; and there is no rule of composition which I have not thought it my duty to sacrifice, in order to favour passion and produce effects."

The opera of *Orfeo* was the first attempt of Gluck in the new course he had shaped out for himself. It was produced at Vienna, and at first excited astonishment, which however soon gave way to delight; and the opera was performed in all the principal cities of Italy with rapturous applause. The Italians were transported with a style at once so novel and chaste, so masculine and energetic. When the *Orfeo* afterwards came to be translated into French, Rousseau was so much charmed with it that he did not miss a single representation; and it is in allusion to this circumstance that he says, "If so much exalted pleasure can be enjoyed in the space of two hours, it serves to convince us that life is really good for something."

In the year 1774 Gluck came to Paris, and after studying with great assiduity and careful examination the characteristics of the French language, he composed his famous operas of *Iphigénie en Aulide* and *Alceste*, which were received with a degree of enthusiasm unparalleled in the annals of music. By these successes Gluck came to be regarded as the national musician of France. The congeniality of his style with the standard favourites Lulli and Rameau called forth general admiration. "The almost universal cry at Paris," says Burney, "was now that he had recovered the dramatic music of the ancient Greeks; that there was no other worth hearing; that he was the only musician in Europe who knew how to express the passions. These and other encomiums preparatory to his apotheosis, were uttered and published in the journals and newspapers of Paris, accompanied with constant and contemptuous censures of Italian music, when Piccini arrived. This admirable composer, the delight and pride of Naples, as Gluck was of Vienna, had no sooner erected his standard in France, than all the friends of Italian music, of Rousseau's doctrines, and of the plan, if not the language, of Metastasio's dramas, enlisted in his service. A furious war broke out; all Paris was on the *qui vive*. No door was opened to a visitor, without this question being asked, previously to his admission, "Monsieur, estes vous Picciniste ou Gluckiste?" But these disputes were obviously futile as regarded the merits of Gluck and Piccini; for the genius and particular styles of these great composers were so essentially different, that to praise the one was by no means to detract from the powers of the other.

Gluck composed in 1774 his opera of *Armide*, which was followed by *Iphigénie en Tauride*, and some others; and after having completely revolutionized the music of France, he returned to Vienna, where he remained until his death in the year 1787.

Gluck has been well called the Michel Angelo of music. He was the originator of a school which has opened up great and various sources of enjoyment to taste, and mightily influenced the character of the whole art. His genius was of the highest order. His invention was unequalled, particularly in dramatic painting and theatrical effect. Some critics complain that he is defective in song; but an intimate acquaintance with his works disproves the assertion; and we have the emphatic declaration of Rousseau, "que le chant lui sortait par les pores." It is true that we cannot perhaps cull from his compositions such melodious flowers as luxuriate in the *chef-d'œuvres* of Cimarosa, Mozart, and Rossini, and which gratify the sense frequently as much when detached, as when blended in their original wreath. The melodies of Gluck will not, with a few exceptions, stand the test of such a partition. They are essentially musical phrases which belong to a great and expanded work of imagination. They are the links of a chain, the component elements of a comprehensive design, which must be judged of relatively, and with reference to combination.

Thus it is that, when we criticise Gluck, we should not examine his operas in detail. We must consider them as we would a noble edifice, in the aggregate of its beauty. The same spirit that actuates us in reading the epics of Virgil and Tasso should exercise its dominion when we listen to the music of Gluck. His aim was rather to satisfy the mind than to flatter the ear; his music appears only to impart energy or softness to the declamation, as the different situations of the several characters require; and such is the effect of his operas when properly performed, that many persons who hear them become so deeply interested, that they cannot for an instant withhold their eyes from the stage, and are kept in perpetual anxiety till the *denouement* of the drama; so fervently does he appeal to the sympathies of mankind, and gratify the sweetest yearnings of our nature.

Whilst we admire the perfect symmetry and almost indefinable beauty of the operas of Gluck, we are equally charmed with the amazing fertility of his inventive powers. His airs are invariably original; he never copies himself. If his melodies do not always catch the ear, it is because we do not take them in connection with the passion or sentiment they are meant to express. Tried by that test, we find them exquisitely appropriate. In recitative Gluck is universally allowed to be greatest among the great. In this department he is still the model which the best masters copy, and nothing can surpass his movements for sublimity, boldness, and sustained beauty. The chorusses in his operas are full of animation and imposing effect. His judicious employment of orchestral accompaniments, and the striking effects which he thereby produced, was a new feature in music; and much as this has since been studied, nothing can better assure us of his superlative genius, than the fact, that up to this day, he stands highest in that essential branch of operatic composition, which indeed it may almost be said he created.

Whatever may be the opinion of some persons in regard to the general effect of the music of Gluck, all are agreed in assigning to him the palm of superiority in his treatment of classical subjects, and depicting scenes of deep and overpowering grief. "He is," says an anonymous author, "the only master capable of grappling with a classical subject; he could give us, better than any,

> Ariadne passioning for Theseus' injury
> And unjust flight.

[illegible] lovers, tyrannically separated for ever, have the despair of his." "It is," says a writer in the *Harmonicon*, "in scenes of great distress, in which the human heart is rent by complicated misery, or in situations where it is torn by the tempestuous fury of unbridled passions, that Gluck, transported beyond the bounds of ordinary genius, shows such energy and colouring of passion, as to become at once poet, painter, and musician. It may be that his expression of passion is sometimes too strong for common hearers; but

> Il échappe souvent des sons à la douleur,
> Qui sont faux pour l'oreille, mais sont vrais pour le cœur."

The operas of Gluck, much to the discredit of modern taste, are seldom heard in France or England; but in Germany they are frequently performed; and in Berlin, when any of his great operas are given, the theatres are crowded to excess. The Germans indeed regard Gluck as the greatest of all dramatic composers. The style of his airs is studied, and great attention bestowed on their effect; and there is a warmth and an intensity displayed by the performers in taking the recitative, and an energy in their action, which nothing but such music as Gluck's could inspire.

Gluck is described as having been of a frank and open character, although his temper was hasty and choleric. He was very rigid in exacting from performers the utmost purity and correctness of execution. (z. z.)

GLUCKSTADT, a city, the capital of the duchy of Holstein, belonging to the German dominions of Denmark. It is strongly fortified on the north bank of the Elbe, where that river is joined by the Little Rhine. It is in a marshy but fertile district, and contains 558 houses, with 5[illegible]00 inhabitants. The harbour is good, and from it several vessels are annually equipped for the Greenland whale fishery. Long. 9. 21. E. Lat. 53. 47. N.

GLUE, an inspissated jelly, of a tenacious nature, employed by artificers as a cement. It is made from various substances, according to the uses to which it is to be applied, but most commonly by boiling the parings of hides and other offals in water, and then straining the viscid matter through a wicker basket, and suffering the impurities to subside, after which process it is again boiled. Common glue is made of the skins of animals, such as oxen, cows, sheep, and the like. The parings are first digested in lime water, to remove grease and dirt from them; they are then steeped in water, and stirred from time to time; lastly, they are piled in a heap to allow of the water being pressed out, and then put into the boiler. The water is generally kept near to a boiling heat, without being suffered to enter into ebullition. When sufficiently thick, the glue is poured into flat frames or moulds; and when congealed it is cut up into square pieces, and afterwards dried in a coarse net. Glue improves by age, and that is considered as the best which, if steeped in water three or four days, swells without melting, and resumes its former dimensions after being dried. A transparent and beautiful glue is made of the shreds and parings of vellum, parchment, or white leather.

GLUTTONY, a voracity of appetite, or a propensity to gormandising.

One of our Danish kings, named Hardyknute, was so great a glutton, that a historian calls him *Bocca de Porco*, Swine's Mouth. His tables were covered four times a day with the most costly viands which the air, the sea, or the land could furnish; and as he lived, so he died; for he fell down dead whilst revelling and carousing at a wedding banquet at Lambeth. His death was so welcome to his subjects that they celebrated the day with sports and pastimes, calling it *Hock-tide*, which signifies scorn and contempt. With this king ended the reign of the Danes in England.

Gmelin.

GMELIN, JOHN GEORGE, public lecturer on botany and physic at Tubingen, member of the Royal Society of Göttingen, and also of the Academy of Sciences at Stockholm, was born on the 12th of August 1709, at Tubingen, where his father was an apothecary. Such was his diligence whilst at school, that he was qualified to attend the academical lectures at the age of fourteen, and was created doctor of medicine when only nineteen. About this time he paid a visit to the metropolis of the Russian empire, that he might have the pleasure of seeing some of his former teachers; and there he became acquainted with Blumentrost, director of the academy, who introduced him to the meetings of the members, and procured for him a pension. At Petersburg he was so much esteemed, that when he intimated a wish, in 1729, to return to Tubingen, he was honoured with a place amongst the regular members of the academy, and chosen professor of chemistry and natural history in the year 1731. In order to carry into execution a plan which had been formed by Peter the Great, for exploring a passage to China and Japan along the coast of the Russian empire, Gmelin was selected, along with two others, as properly qualified for that undertaking, which had also for its object to ascertain the boundaries of Siberia. The department of natural history was assigned to him; and he had with him and his companions, six students, two draftsmen, two hunters, two miners, four land-surveyors, and twelve soldiers, with a sergeant and drummer. They began their journey on the 19th of August 1733; and in 1736 Steller and a painter joined their society, to assist Gmelin in his arduous labours. By exploring Kamtschatka, they hoped to accomplish their mission in a satisfactory manner, for which purpose Steller proceeded to this place, whilst the rest of the party continued their travels through Siberia. In February 1743 Gmelin returned to Petersburg in safety, after a dangerous journey which lasted nine years and a half, but proved of the utmost importance to various branches of science. He resumed the offices which he had filled before; and having paid a visit, in 1747, to his native country, he was chosen professor, whilst absent, in the room of Bachmeister. But in May 1755, he was seized with a violent fever, which put a period to his valuable life, in the forty-fifth year of his age. He was undoubtedly one of the most eminent botanists of the eighteenth century, and has rendered his name immortal by his *Flora Sibirica, seu historia plantarum Siberiæ*, in four parts, large quarto. He determined the boundaries between Europe and Asia, which every geographer has adopted since his day. Through all his works the traces of great modesty, a sacred regard to truth, and the most extensive knowledge of nature, are remarkably conspicuous.

GMELIN, *Samuel Theophilus*, was born at Tubingen on the 23d of June 1745. After having taken the degree of doctor in medicine at the age of nineteen, he went to finish his studies at Leyden, where a conformity of tastes for natural history united him with Pallas. Finding himself involved in difficulties, he entertained the idea of embarking as surgeon on board of a vessel bound for the East Indies; but in the mean time, whilst waiting for assistance from his family, he established himself in the little town of Brill. The vicinity of the sea, and some excursions which he made by water in the neighbourhood, afforded him an opportunity of collecting many marine plants, and examining with attention the sea-weeds, and suggested to him the idea of writing their history. He next visited Belgium, and then proceeded to Paris, where he was well received by Adanson, who inspired him with something of his own aversion to the system of Linnæus. After a short stay in his native country, he was, in 1766, called to St Petersburg, there to profess botany. Catherine II., faithful to the plan executed by several of her predecessors, of causing learned men to travel in different parts of the Russian empire, ordered a new expedition of the same description to be undertaken. Gmelin obtained permission to join this expedition; and after having had the honour of being presented to the empress, he set out in the month of June 1768, visited the Valdaï Mountains, passed the winter at Woronetz, and descended the Don as far as Tscherkask. Here the frightful picture which was drawn of the journey by the steppes, and along the frontier to the mouth of the Terek in the Caspian Sea, induced him to renounce his first project; and he returned by the ordinary route, as far as Zaritzin, in order to proceed to Astrakan by the Volga. In the years 1770 and 1771 he visited different harbours of the Caspian, and examined with peculiar attention those parts of the Persian provinces bordering upon that sea, of which he has given a circumstantial account in his travels. Actuated by a zeal for extending his observations, he attempted to pass through the western provinces of Persia, which are in a state of perpetual disturbance, and infested by numerous banditti. In this expedition he, in April 1772, quitted Enzelli, a small trading place in Ghilan, upon the southern shore of the Caspian; but, on account of many difficulties and dangers, did not, until the 2d of December 1773, reach Sallian, a town situated at the mouth of the river Koor. He thence proceeded to Baku and Kuba, in the province of Shirvan, where he met with a friendly reception from Ali Feth Khan, the sovereign of that district. But after he had been joined by twenty Uralian Cossacks, and when he was only four days journey from the Russian fortress of Kislar, on the Terek, he and his companions were, on the 5th of February 1774, arrested by order of Usméi Khan, a petty Tartar prince, through whose territories he was obliged to pass. Usméi urged as a pretence for this arrest, that thirty years before several families had escaped from his dominions, and had found an asylum in the Russian territories; adding, that Gmelin should not be released until these families were restored. The professor was removed from prison to prison; and at length, wearied out with continued persecutions, he expired, on the 27th of June, at Achmet-Kent, a village of the Caucasus. His death was occasioned partly by vexation for the loss of several papers and collections, and partly by disorders contracted from the fatigues of his long journey. Some of his papers had been sent to Kislar during his imprisonment, and the others were not without great difficulty rescued from the hands of the barbarian who had detained him in captivity. The arrangement of these papers, which form the fourth volume of his travels, was at first consigned to the care of Guldenstaedt, but upon his death was transferred to the learned Pallas. The works of Gmelin are, 1. Historia Fucorum iconibus illustrata, St Petersburg, 1768, in 4to; 2. Voyages dans différentes parties de l'Empire de Russie, pour faire des Recherches relatives à l'Histoire Naturelle, St Petersburg, 1770, 1774, 1784, in four vols. 4to; 3. Several Memoirs in the Collections of the Society of Haerlem, and of the Academy of St Petersburg. Gmelin was also editor of volumes iii. and iv. of the *Hora Sibirica* of his uncle.

GMUND, a bailiwick of the kingdom of Wurtemberg, in the circle of Jaxt, extending over 121 square miles, and comprehending two cities, one market-town, and 131 villages, with 22,640 inhabitants. It is a mountainous and woody district, not yielding corn equal to the demand. The capital is a city of the same name, situated on the river Rems. It contains 806 houses, and 5875 inhabitants, who are employed in making cloths, hosiery, and other clothing, and many of them in the trade of silversmiths and jewellers. Long. 10. 0. 4. E. Lat. 48. 48. 15. N.

GNESEN, a circle of the Prussian province of Bromberg, formerly a part of Poland. It extends over 441 square miles, contains eight cities and towns, and 283 villages, with 31,200 inhabitants. The capital is the city of the same name, which stands on a lake between two hills. It contains a cathedral and twelve Catholic churches, two convents, and a nunnery. It is the see of an archbishop, once the primate of Poland. The town is fortified, and contains 4500 inhabitants, who carry on brewing, distilling, tanning, and making linens, and have two large fairs annually. Long. 17. 31. 25. E. Lat. 52. 25. 30. N.

GNOMES, Gnomi, certain imaginary beings, who, according to the cabalists, inhabit the inner parts of the earth. They are supposed to be small in stature, and the guardians of quarries, mines, and other similar works.

GNOMON, in *Dialling*, the style, pin, or cock of a dial, which by its shadow shows the hour of the day. The gnomon of every dial represents the axis of the earth. (See Dial and Dialling.) The word is Greek, γνωμων, which literally implies something that makes a thing known, in consequence of the style or pin indicating or making known the hour.

GNOSTICS, ancient heretics, who arose principally in the East, from the very origin of Christianity. It appears, from several passages in the sacred writings, that many persons were infected with the Gnostic heresy in the first century, though the sect did not render itself conspicuous, either for number or reputation, before the time of Hadrian, when some writers erroneously date its rise. The name is formed of the Latin *gnosticus*, and that from the Greek γνωστικος, *knowing*, a verbal derivative of γινωσκω, *I know*; and was adopted by the members of this sect, as if they were the only persons who had the true knowledge of Christianity. Accordingly, they looked upon all other Christians as simple, ignorant, and barbarous persons, who explained and interpreted the sacred writings in a too low, literal, and unedifying signification.

At first the Gnostics were only the philosophers and wits of those times, who formed for themselves a peculiar system of theology, agreeably to the philosophy of Pythagoras and of Plato, to which they accommodated all their interpretations of Scripture. But Gnostics afterwards became a general name, comprehending different sects and parties of heretics, who appeared in the first centuries, and who, though they differed amongst themselves as to circumstances, yet all agreed in some common principles. They were such as corrupted the doctrine of the gospel by a profane intermixture with its divine truths of the tenets of the oriental philosophy concerning the origin of evil and the creation of the world. Such were the Valentinians, Simonians, Carpocratians, Nicolaitans, and others.

The denomination of Gnostics was also sometimes applied more particularly to the successors of the first Nicolaitans and Carpocratians in the second century. Such as desire to become thoroughly acquainted with their doctrines, reveries, and visions, may consult Irenæus, Tertullian, Clemens Alexandrinus, Origen, and Epiphanius, particularly the first of these writers, who narrates their opinions at large, and at the same time confutes them; indeed he dwells more expressly on the Valentinians than any other sort of Gnostics; but he shows the general principles upon which all their mistaken opinions were founded, and the method they followed in explaining Scripture. He accuses them of introducing into religion certain vain and ridiculous genealogies, that is, a kind of divine processions or emanations, which had no foundation except in their own wild imaginations.

In fact, the Gnostics admitted that these æons or emanations were nowhere expressly delivered in the sacred writings; but insisted, at the same time, that Jesus Christ had intimated them in parables to such as could understand him. They built their theology not only upon the gospels and the epistles of St Paul, but also upon the law of Moses and the prophets. The writings of the latter were peculiarly serviceable to them, on account of the allegories and allusions with which they abound, and which are capable of different interpretations; but their doctrine concerning the creation of the world by one or more inferior beings of an evil or imperfect nature, led them to deny the divine authority of those books of the Old Testament which contradicted this idle fiction, and filled them with an abhorrence of the religion of Moses, who, they alleged, was actuated by the malignant author of this world, and consulted his own glory and authority, not the real advantage of men. Their persuasion that evil resided in matter, as its centre and source, made them treat the body with contempt, discourage marriage, and reject the doctrine of the resurrection of the body and its re-union with the immortal spirit. Their notion that malevolent genii presided in nature, and occasioned diseases and calamities, wars and desolations, induced them to apply themselves to the study of magic, in order to weaken the powers or to suspend the influence of their malignant agents.

The Gnostics considered Jesus Christ as the Son of God, and consequently inferior to the Father, as a being who came into the world for the rescue and happiness of miserable mortals, oppressed by matter and evil beings; but they rejected our Lord's humanity, upon the principle that every thing corporeal is essentially and intrinsically evil; and hence the greater part of them denied the reality of his sufferings. They attached great value to the beginning of the gospel of St John, where they fancied that they saw their æons, or emanations, under the Word, the Life, and the Light. They divided all nature into three kinds of beings, *hylic* or material, *psychic* or animal, and *pneumatic* or spiritual. Upon the same principle they also distinguished three sorts of men; material, animal, and spiritual. The first, who were material, and incapable of knowledge, inevitably perished, both soul and body; the third, such as the Gnostics themselves pretended to be, were all certainly saved; but the psychic, or animal, who were intermediate between the two others, were capable either of being saved or damned, according to their good or evil actions.

With regard to their moral doctrines and conduct, they were much divided. The greater part of the sect adopted austere rules of life, recommended rigorous abstinence, and prescribed severe bodily mortifications, with the view of purifying and exalting the mind. Some, however, maintained that there was no moral difference in human actions, and thus confounding right and wrong, gave a loose rein to the passions, asserting the innocence of following blindly all their impulses, and of living according to their tumultuous dictates. They supported their opinions and practice by various authorities; some referred to fictitious and apocryphal writings of Adam, Abraham, Zoroaster, Christ, and his apostles; others boasted that they had deduced their sentiments from certain doctrines of Christ which had been concealed from the vulgar; others affirmed that they had arrived at superior degrees of wisdom by an innate vigour of mind; and others asserted that they were instructed in these mysterious parts of theological science by Theudas, a disciple of St Paul, and by Matthias, one of the friends of our Lord. The tenets of the ancient Gnostics were revived in Spain in the fourth century, by a sect called the Priscillianists.

The appellation of Gnostic sometimes also occurs in a good sense, in the writings of the ancient ecclesiastical authors, particularly those of Clemens Alexandrinus, who, in the person of his Gnostic, describes the characters and qualities of a perfect Christian. This point he labours in the seventh book of his *Stromata*, where he shows that none but the Gnostic or learned person has any true religion. He affirms, that were it possible for the knowledge of God to be separated from eternal salvation, the Gnostic would make no scruple in preferring the knowledge; and that if God would promise him impunity for doing any thing he had once spoken against, or offer him heaven on those terms, he would never alter his measures. In this sense the father uses Gnostics, in opposition to the heretics of the same name; affirming that the true Gnostic is he who has grown old in the study of the Holy Scriptures, and who preserves the orthodox doctrine of the apostles and of the church; whereas the false Gnostic abandons all the apostolical traditions, imagining himself wiser than even the apostles. But the name of Gnostic, which was originally the most glorious, became at length infamous from the idle opinions and dissolute lives of the persons who affected it.

GOA, a celebrated city of Hindustan, in the province of Bejapoor, and the capital of all the Portuguese settlements in the East Indies. It is the residence of the viceroy, and of the chief Portuguese inhabitants; the seat of the supreme court of judicature, and the see of an archbishop, who is primate of the East. It is situated on the north side of an island, is about twelve miles long and six broad, and stands at the mouth of the Mandova river. Goa consists of two distinct cities. The old one is eight miles up the river, and is now almost deserted by the secular Portuguese, on account of its being unhealthy. It contains many magnificent churches, and exhibits specimens of architecture superior to any thing attempted by Europeans in other parts of India, particularly the church and convent of St Augustin. The city is large, the streets are straight, the houses regularly and handsomely built of stone in the European style, many of them large and magnificent, though they are now no longer inhabited. The viceroy and principal inhabitants reside in the new city, which is at the mouth of the river, and within the forts. It possesses two harbours, one on each side of the island, both of which are well defended by various castles and batteries mounting heavy cannon. The towns are also fortified, but they are of too great an extent to withstand a siege. Algoada Point, which is in longitude 67. 73. 53. east, latitude 15. 29. north, forms the northern extremity of Goa Bay. It has a lighthouse and small fort on it; but the principal fort is situated close to the sea, on the south-east side of the headland, where there is a well of excellent water, from which the shipping are supplied. Nostra Senhora de la Cabo, a large monastery, of a white appearance, is situated on the summit of the bluff point of land, about two miles and a half south-east of Algoada, which forms the south side of the bay. The common anchorage is abreast of Algoada fort, the flag-staff bearing about north at half a mile distance from the shore. The bar at the entrance of the river is about two miles to the eastward of Algoada Point, having sixteen or eighteen feet on it at high-water of spring-tides. The bottom is hard and rocky; and the channel so winding and intricate, that a ship ought not to enter the river without a pilot. After the early part of May, when it is considered unsafe to remain at the anchorage in the roads, the Portuguese send their large ships, which cannot run into the river, to Marmagon roads, four or five miles to the southward of Algoada fort, where they are sheltered from the south-west monsoon by mooring close under the north-east side of that peninsula. The colonial settlement at Goa seems now to be almost abandoned by the mother country, and the inhabitants scarcely retain the national language or manners. The trade has also greatly fallen off, and the people are impoverished, so that the best families are reduced to gain a scanty subsistence by working at lace or muslin. Not more than three ships arrive from Portugal in the course of the year, and these generally proceed to the British settlements to complete their cargoes for Europe.

The trade from Goa to China is carried on by one or two ships in the year, which are called China ships. These carry to Surat, and the ports to the northward, Chinese and European goods, and returning with cotton and other articles, call at Goa to complete their cargoes for China. They commence their trade at the most southern settlement, which is Ajengo, and thence they proceed to Cochin, Calicut, Tellicherry, and Mangalore, and then to Goa; at these different places they take in pepper, cardamums, cassia, lignea, and other articles, which they resell at their northern settlements, and complete the voyage within the year. A coasting trade is carried on in small vessels with the different ports on the coast, whence they return to Goa with produce, which forms the home cargoes of their ships. With Macao and the British settlements an inconsiderable trade is carried on; the imports consisting principally of piece goods, raw silk, grain, sugar, woollens, and a few European articles, whilst the exports are piece goods, betel nut, hemp, and other articles of trifling amount.

Goa was taken from its Hindu rajahs of Bijanagur, by the Bhamenee sovereigns of the Deccan. On the arrival of the Portuguese on the Malabar coast it was an opulent place, well fortified, and subject to Zabaim, a potent prince, from whom it was taken by the Portuguese general Albuquerque. It was retaken by the native prince, after which Albuquerque, having received reinforcements, again succeeded in 1510 in making himself master of the city after a bloody assault. He improved its defences, and constituted it the capital of all his conquests; and it has ever since remained in possession of the Portuguese, who during the sixteenth century extended their conquests, and obtained possession of numerous places on the sea-coasts of India. In the course of these operations they were involved in hostilities with the Mahrattas; and advancing inland, laid siege to the town of Pondah. Here they were surrounded by a large Mahratta force, and effected their retreat with great difficulty and serious loss. Having formed an alliance with Aurungzebe, they succeeded in repulsing the Mahrattas, with whom they at length concluded a peace. In 1518 the Portuguese power in India was at its height, and from this period it began to decline. In 1580 the Portuguese possessed the following places in India, namely, Diu Damaun, Choul, Baheen, Salsette, Bombay, and Goa. They had factories at Dabul, Onore, Barcelore, Mangalore, Cananore, Calicut, Cranganore, Cochin, and Quilon. They had establishments on the coast of Ceylon, and factories in the Bay of Bengal, at Masulipatam, Negapatam, and St Thome, with commercial stations in Bengal. They possessed, besides, the city of Malacca, and factories on the coasts of the Burman empire and the province of Chittagong. They acquired possession of the Spice Islands in the Eastern Archipelago, and carried on a considerable intercourse with Japan and China. They did not acquire Macao until 1586. After the conquest of Portugal in 1580, by Philip II. of Spain, the intercourse of the colonies with the mother country was much abridged; and this eastern empire, composed of the loose materials of recent conquest, began to decay, from the vices of its internal administration, and from the power of the priests. It has now altogether declined, and forms a very inconsiderable appendage to the mother country. The travelling distance from Poonah is 245 miles, from Bombay 292, from Delhi 1158, and from Calcutta 1300 miles. Long. 73. 42. E. Lat. 15. 30. N. (Milburn, *Oriental Commerce;* Buchanan, *Travels in Mysore;* Macpherson, *History of the Trade of India;* &c.)

GOACH, the capital town of the Macassar country, in the island of Celebes. It is sometimes called the kingdom of Goach. Here the Malays, after the arrival of the Portuguese in 1512, were allowed to build a mosque, as they were not yet converted to the Christian religion. In 1778 the city was stormed by the Dutch, and the fortifications razed.

GOALPARAH, a town of Hindustan, in the province of Bengal, and district of Rangamatty, situated on the south shore of the Brahmapootra, near the frontier of Assam. Here is carried on a very considerable trade with the Assamese, who bring coarse cloths, stick-lac, gold, ivory, wax, and tar, which they exchange for salt, silks, and fine muslins. The trade would be more considerable, were it not impeded by the disorderly state of the country, and the savage manners of the chiefs, who defraud and frequently murder the traders. A detachment of native infantry is stationed here to guard the frontier, and no European is allowed to proceed beyond it without a pass from the government. It is a hundred and seventy miles north by east from Dacca. Long. 90. 32. E. Lat. 26. 8. N.

GOAND, a mountainous district of Hindustan, in the province of Gundwana, intersected by the Mahanuddy river. The inhabitants are very uncivilized, and boast of never having been subdued, though they are rendered tributary by the rajah of Nagpoor. The country is poor, and there are no good roads.

GOAT ISLAND, the southernmost of the Bashee islands, in the Eastern Seas. It is the smallest of the group, flat and level, and has a number of goats in it, from which it derives its name. Long. 120. 13. E. Lat. 13. 52. N.

GOBAN, a small island, with a town, at the mouth of the Euphrates, where it empties itself into the Persian Gulf, fifty miles east-south-east of Bassora.

GOBELIN, GILES, a celebrated French dyer, in the reign of Francis I., who, having discovered a method of dyeing a beautiful scarlet, had his name given to the finest French scarlets. His house, in the suburb of St Marcel at Paris, and the rivulet which he made use of, are still called the Gobelins. An academy for drawing, and a manufactory of fine tapestries, were erected in this quarter in 1666; for which reason the tapestries are called *Gobelin.*

GOBINGUNGE, a town of Bengal, in the district of Ghoraghaut, situated on the eastern bank of the Currattya river. It carries on a considerable trade in grain and cotton. Long. 89. 3. E. Lat. 25. 6. N.

GOBLET, or GOBELET, a kind of drinking cup, or bowl, commonly of a round figure, and without either foot or handle. The word is French, *gobelet,* which Salmasius and others derive from the barbarous Latin *cupa.* Budæus deduces it from the Greek κυπελλον, *a sort of cup.*

GOCAUK, a town of Hindustan, in the province of Bejapoor. It is a place of considerable extent and importance, situated on a hill, and watered and defended on the south side by the Gutpurba river, whilst on the other three sides it is surrounded by a brick wall and a wet ditch. Here is an extensive manufacture of cotton and silk goods. The silk is procured from Bengal by way of Goa. It was taken from the king of Bejapoor by Sultan Muazim, son of Aurungzebe, in 1685, but does not now contain any buildings or ruins of consequence. About two miles from this place is a very fine cataract, 169 yards broad, and 174 feet in perpendicular height. It is formed by the river Gutpurba, which is precipitated from the hills to the low country. Long. 75. 6. E. Lat. 16. 20. N.

GOD, one of the many names of the Supreme Being. God is also used in speaking of any false deity of the heathens. The Greeks and Latins, it is observable, did not mean by the name of god, an all-perfect being, of whose nature, eternity, infinity, omnipresence, and omnipotence, were essential attributes; amongst them, the word only implied an excellent and superior nature, and, accordingly, they gave the appellation of gods to all beings of a rank or class higher and more perfect than men, espeally to those who were inferior agents in the divine administration. Thus men themselves, according to their system, might become gods after death; inasmuch as their souls might attain to a degree of excellence superior to that which they were capable of while in life.

GODALMING, a market-town of the hundred of its own name, in the county of Surrey, on the great road to Portsmouth, thirty-four miles from London. It is very pleasantly situated in a valley, watered by the river Wye, which is navigable to the Thames, and by the latter to the metropolis. There is a corporation consisting of a warden and eight assistants, but it returns no member to parliament. There is a well-attended market on Saturdays, at which much corn, especially barley, is sold; and making it into malt is one branch of the trade carried on, and by the river much is transmitted to London. The population amounted in 1801 to 3405, in 1811 to 3543, in 1821 to 4098, and in 1831 to 4529.

GODAVERY, a large river of India, which has its rise in the Western Ghauts, seventy miles to the north-east of Bombay, and which, with a circuitous curve, flows nearly over the whole breadth of the peninsula in a south-east direction. After traversing the province of Aurungabad and the country of Tellingana from west to east, it turns to the south-eastward, and, receiving the Bain Gonga about ninety miles above the sea, besides many smaller rivers, separates into two principal channels at Rajamundry, one of which falls into the Bay of Bengal a few miles south of the town of Coringa, and the other a little below Narsipore, forming between them the island of Nagur, comprehending 500 square miles, and which, being intersected by various ramifications from these rivers, includes several tide-harbours for vessels of moderate burden, and is highly fertile and productive. Ingeram, Coringa, Yanam, Bandarmalanka, and Narsipore, are among the places situated at the mouth of this river, which appears to be the most considerable stream that rises between the Ganges and Cape Comorin. Its whole course may be estimated at nearly 800 miles, having, owing to the peculiar configuration of the Indian peninsula, which rises to its height much nearer the western than the eastern shore, nearly traversed the country from sea to sea. During the rainy season the Godavery rolls a prodigious volume of water to the ocean; in many places it is more than a mile in breadth. During the dry season its bed consists in many places of an expanse of sand, the river being divided into numerous shallow streams. Extensive forests of teak trees line the shores of the river until it emerges from the Ghaut Mountains.

GODDARD, Jonathan, an eminent physician and chemist, and one of the first promoters of the Royal Society, was born about the year 1617. He was elected a fellow of the College of Physicians in 1646, and appointed reader of the anatomical lecture in that college in 1647. As he took part against Charles I., accepted the wardenship of Merton College, Oxford, from Oliver Cromwell then chancellor, and sat as sole representative of that university in Cromwell's parliament, he was removed from his wardenship by Charles II. He was then, however, professor of physic at Gresham College, to which he retired, and continued to attend those meetings which gave birth to the Royal Society, upon the first establishment of which he was nominated one of the council. Being fully persuaded that the preparation of medicines was not less the physician's duty than prescribing them, he constantly prepared his own; and in 1668 he published a treatise recommending his example to general practice. He died of an apoplectic attack in 1674; and his memory has been preserved by the drops which bear his name, otherwise called *Guttæ Anglicanæ*, the secret of which he sold to Charles II. for L.5000.

GODDESS, a heathen deity of the female sex. It was the peculiar privilege of the goddesses to be represented naked on medals; for it was supposed that the imagination must be awed and restrained by the consideration of the divine character.

GODFATHERS and Godmothers, persons who, at the baptism of infants, answer for their future conduct, and solemnly promise that they will renounce the devil and all his works, and follow a life of piety and virtue; and by this means lay themselves under an indispensable obligation to instruct them, and watch over their conduct. This custom, which is of great antiquity in the Christian church, was probably instituted to prevent children being brought up in idolatry, in case their parents died before they arrived at years of discretion. The number of godfathers and godmothers is reduced to two in the church of Rome, and three in the church of England; but formerly there was no limit to the number.

GODFREY of Bouillon, prince of Lorraine, a celebrated crusader, and victorious commander. He was chosen general of the expedition which the Christians undertook for the recovery of the Holy Land, and sold his dukedom to prepare for the war. He took Jerusalem from the Turks in 1099; but his piety would not permit him to wear a diadem of gold in the city where his Saviour had been crowned with thorns. The sultan of Egypt afterwards sent against him a powerful army, which he defeated with terrible slaughter. Godfrey died in 1160.

GODMANCHESTER, a town of the county of Huntingdon, in the hundred of Toesland, fifty-eight miles from London. It stands in a damp situation on the river Ouse, and is said to have been once a very large city. It is now only remarkable for the excellence of its soil and agriculture. It is a corporate town, but sends no members to parliament, and is so near to Huntingdon as to need no market. The inhabitants amounted in 1801 to 1573, in 1811 to 1779, in 1821 to 1953, and in 1831 to 2146.

GODSTONE, a town of the county of Surrey, in the hundred of Tandridge, twenty miles from London. It stands at the foot of the range of chalk hills, in a healthy soil and mild climate. The inhabitants, who are chiefly occupied in agriculture, amounted in 1801 to 1081, in 1811 to 1156, in 1821 to 1210, and in 1831 to 1397.

GODWIN, Francis, son of Dr Godwin, bishop of Bath and Wells, was born at Havington, Northamptonshire, in 1561. After passing through the usual course of grammar-school instruction, he was sent to Christ Church College, Oxford, where he was elected a student in 1578, and took his degree of bachelor in 1580, and that of master of arts in 1583. About this time he wrote an amusing piece on a philosophical subject, which, as it contradicted certain received notions, he never published, but which appeared about five years after his death, under the title of the Man in the Moon, or a discourse of a Voyage thither, by Domingo Gonzalez, 1638, in 8vo. This satirical production, which displays considerable fancy and even genius, seems to have afforded to Dr Swift several hints of which he availed himself in his voyage to Laputa; and, what is still more remarkable, it shows the author to have been acquainted with the Copernican system. He also suppressed another piece, entitled *Nuncius Inanimatus*, or the Inanimate Messenger, intended to communicate various methods for conveying intelligence secretly, speedily, and safely; a production which appears to have been the prototype of Bishop Wilkins' *Mercury, or secret and swift Messenger.* It was published, however, in 1657, and afterwards translated by Dr Thomas Smith. Some time after he had taken his degree, Godwin entered into holy orders, and soon became rector of Samford-Orcais in Somersetshire, a prebendary in the church of Wilts, and canon-residentiary, also vicar of Weston-in-Zoyland in the same county. Having turned his attention to the subject of British antiquities, he became acquainted with Camden, whom he accompanied in a journey through Wales in 1590, in search of curiosities; but, although he took great pleasure in these inquiries, he at length confined himself entirely to ecclesiastical history and antiquities. He was created bachelor of divinity in 1593, and doctor in 1595, when, having resigned the vicarage of Weston, he was appointed rector of Bishop's Lidiard in the same county. In 1601 he published his Catalogue of the Bishops of England, since the first planting of the Christian religion in this island; a work in which he embodied his collections in ecclesiastical biography, and which, through the intercession of Lord Buckhurst, to whom he acted as chaplain, procured him the bishopric of Llandaff. In 1615 he published another edition, with numerous alterations and additions; but this having been very erroneously printed, owing to the author's distance from the press, he recast the whole in an elegant Latin dress, and the year after sent it abroad to be printed. This last edition was dedicated to the king, who in return conferred upon him the bishopric of Hereford, to which he was translated in 1617. The work was afterwards reprinted, in the year 1743, with a continuation by Dr Richardson, the whole being in one volume folio, with a portrait of Godwin, and other embellishments. In 1616 he published, in Latin, *Rerum Anglicarum Henrico VIII., etc. regnantibus*, which was translated and published by his son under the title of Annals of England, containing the reigns of Henry VIII., Edward VI., and Queen Mary, in folio. His last publication was a Computation of the Value of the Roman Sesterce and Attic Talent, which appeared in the year 1630. After this he fell into a languishing disorder, which put a period to his existence in April 1633. (A.)

GODWIN, or *Goodwin Sands*. See KENT.

GOELWARAH, a district of Hindustān, in the province of Gujrat, situated within the 21st and 22d parallels of north latitude, and bounded on the east by the Gulf of Cambay. The greater part of this country, adjacent to the Gulf of Cambay, was ceded by the Mahratta chief the Guicowar, in 1805, in part payment of the subsidiary force supplied for his protection. It is famous for a breed of cattle, and its chief town is Gogo.

GOEST, a city of the Westphalian Prussian province, the capital of a circle of the same name. It is in a fertile district, is surrounded with walls, and contains 6745 inhabitants, who are employed in various kinds of manufactures, but mostly on a contracted scale. It was formerly one of the Hanse towns, and enjoyed the right of coining money. Long. 8. 1. E. Lat. 51. 54. 15. N.

GOETHE, JOHN WOLFGANG VON, a man of commanding influence in the literature of modern Germany throughout the latter half of his long life, and possessing two separate claims upon our notice; one in right of his own unquestionable talents; and another much stronger, though less direct, arising out of his position, and the extravagant partisanship put forward on his behalf for the last forty years. The literary body in all countries, and for reasons which rest upon a sounder basis than that of private jealousies, have always been disposed to a republican simplicity in all that regards the assumption of rank and personal pretensions. *Valeat quantum valere potest*, is the form of license to every man's ambition, coupled with its caution: let his influence and authority be commensurate with his attested value: and, because no man in the present infinity of human speculation, and the present multiformity of human power, can hope for more than a very limited superiority, there is an end at once to all *absolute* dictatorship. The dictatorship in any case could be only *relative*, and in relation to a single department of art or knowledge; and this for a reason stronger even than that already noticed, viz. the vast extent of the field on which the intellect is now summoned to employ itself. That objection, as it applies only to the *degree* of the difficulty, might be met by a corresponding degree of mental energy; such a thing may be supposed, at least. But another difficulty there is, of a profounder character, which cannot be so easily parried: those who have reflected at all upon the fine arts, know that power of one kind is often inconsistent, positively incompatible, with power of another kind. For example, the *dramatic* mind is incompatible with the *epic*. And though we should consent to suppose that some intellect might arise endowed upon a scale of such angelic comprehensiveness as to vibrate equally and indifferently towards either pole, still it is next to impossible, in the exercise and culture of the two powers, but some bias must arise which would give that advantage to the one over the other which the right arm has over the left. But the supposition, the very case put, is baseless, and countenanced by no precedent. Yet, under this previous difficulty, and with regard to a literature convulsed, if any ever was, by an almost total anarchy, it is a fact notorious to all who take an interest in Germany and its concerns, that Goethe did in one way or other, through the length and breadth of that vast country, establish a supremacy of influence wholly unexampled; a supremacy indeed perilous in a less honourable man, to those whom he might chance to hate, and with regard to himself thus far unfortunate, that it conferred upon every work proceeding from his pen a sort of papal indulgence, an immunity from criticism, or even from the appeals of good sense, such as it is not wholesome that any man should enjoy. Yet we repeat that German literature was and is in a condition of total anarchy: with this solitary exception, no name, even in the most narrow section of knowledge or of power, has ever been able in that country to challenge unconditional reverence; whereas, with us and in France, name the science, name the art, and we will name the dominant professor; a difference which partly arises out of the fact that England and France are governed in their opinions by two or three capital cities, whilst Germany looks for its leadership to as many cities as there are *residenzen* and universities: for instance, the little territory with which Goethe was connected presented no less than two such public lights; Weimar, the *residenz* or privileged abode of the Grand Duke, and Jena, the university founded by that house. Partly, however, this difference may be due to the greater restlessness, and to the greater energy as respects mere speculation, of the German mind. But no matter whence arising, or how interpreted, the fact is what we have described: absolute confusion, the "anarch old" of Milton, is the one deity whose sceptre is there paramount; and yet *there* it was, in that very realm of chaos, that Goethe built his throne. That he must have looked with trepidation and perplexity upon his wild empire and its "dark foundations," may be supposed. The tenure was uncertain to *him* as regarded its duration; to us it is equally uncertain, and in fact mysterious, as regards its origin. Meantime the mere fact, contrasted with the general tendencies of the German literary world, is sufficient to justify a notice, somewhat circumstantial, of the man in whose favour, whether naturally by force of genius, or by accident concurring with intrigue, so unexampled a result was effected.

Goethe was born at noonday on the 28th of August 1749, in his father's house at Frankfort on the Maine. The circumstances of his birth were thus far remarkable, that, unless Goethe's vanity deceived him, they led to a happy revolution hitherto retarded by female delicacy falsely directed. From some error of the midwife who attended his mother, the infant Goethe appeared to be still born. Sons there were as yet none from this marriage; everybody was therefore interested in the child's life; and the panic which arose in consequence, having sur-ved its immediate occasion, was improved into a public resolution (for which no doubt society stood ready at that moment) to found some course of public instruction from this time forward for those who undertook professionally the critical duties of accoucheur.

We have noticed the house in which Goethe was born, as well as the city. Both were remarkable, and fitted to leave lasting impressions upon a young person of sensibility. As to the city, its antiquity is not merely venerable, but almost mysterious; towers were at that time to be found in the mouldering lines of its earliest defences, which belonged to the age of Charlemagne, or one still earlier; battlements adapted to a mode of warfare anterior even to that of feudalism or romance. The customs, usages, and local privileges of Frankfort, and the rural districts adjacent, were of a corresponding character. Festivals were annually celebrated at a short distance from the walls, which had descended from a dateless antiquity. Every thing which met the eye spoke the language of elder ages; whilst the river on which the place was seated, its great fair, which still held the rank of the greatest in Christendom, and its connection with the throne of Cæsar and his inauguration, by giving to Frankfort an interest and a public character in the eyes of all Germany, had the effect of countersigning, as it were, by state authority, the importance which she otherwise challenged to her ancestral distinctions. Fit house for such a city, and in due keeping with the general scenery, was that of Goethe's father. It had in fact been composed out of two contiguous houses; that accident had made it spacious and rambling in its plan; whilst a further irregularity had grown out of the original difference in point of level between the corresponding stories of the two houses, making it necessary to connect the rooms of the same *suite* by short flights of steps. Some of these features were no doubt removed by the recast of the house under the name of "repairs" (to evade a city bye-law), afterwards executed by his father; but such was the house of Goethe's infancy, and in all other circumstances of style and furnishing equally antique.

The spirit of society in Frankfort, without a court, a university, or a learned body of any extent, or a resident nobility in its neighbourhood, could not be expected to display any very high standard of polish. Yet, on the other hand, as an independent city, governed by its own separate laws and tribunals (that privilege of *autonomy* so dearly valued by ancient Greece) and possessing besides a resident corps of jurisprudents and of agents in various ranks for managing the interests of the German emperor and other princes, Frankfort had the means within herself of giving a liberal tone to the pursuits of her superior citizens, and of co-operating in no inconsiderable degree with the general movement of the times, political or intellectual. The memoirs of Goethe himself, and in particular the picture there given of his own family, as well as other contemporary glimpses of German domestic society in those days, are sufficient to show that much knowledge, much true cultivation of mind, much sound refinement of taste, were then distributed through the middle classes of German society; meaning by that very indeterminate expression those classes which for Frankfort composed the aristocracy, viz. all who had daily leisure, and regular funds for employing it to advantage. It is not necessary to add, because that is a fact applicable to all stages of society, that Frankfort presented many and various specimens of original talent, moving upon all directions of human speculation.

Yet, with this general allowance made for the capacities of the place, it is too evident that, for the most part, they lay inert and undeveloped. In many respects Frankfort resembled an English cathedral city, according to the standard of such places seventy years ago, not, that is to say, like Carlisle in this day, where a considerable manufacture exists, but like Chester as it is yet. The chapter of a cathedral, the resident ecclesiastics attached to the duties of so large an establishment, men always well educated, and generally having families, compose the original *nucleus*, around which soon gathers all that part of the local gentry who, for any purpose, whether of education for their children, or of social enjoyment for themselves, seek the advantages of a town. Hither resort all the timid old ladies who wish for conversation, or other forms of social amusement; hither resort the valetudinarians, male or female, by way of commanding superior medical advice at a cost not absolutely ruinous to themselves; and multitudes besides, with narrow incomes, to whom these quiet retreats are so many cities of refuge.

Such, in one view, they really are; and yet in another they have a vicious constitution. Cathedral cities in England, imperial cities without manufactures in Germany, are all in an improgressive condition. The public employments of every class in such places continue the same from generation to generation. The amount of superior families oscillates rather than changes; that is, it fluctuates within fixed limits: and, for all inferior families, being composed either of shopkeepers or of menial servants, they are determined by the number, or, which, on a large average, is the same, by the pecuniary power, of their employers. Hence it arises, that room is made for one man, in whatever line of dependence, only by the death of another; and the constant increments of the population are carried off into other cities. Not less is the difference of such cities as regards the standard of manners: how striking is the soft and urbane tone of the lower orders in a cathedral city, or in a watering place dependent upon ladies, contrasted with the bold, often insolent, demeanour of a self-dependent artisan or mutinous mechanic of Manchester and Glasgow.

Children, however, are interested in the state of society around them, chiefly as it affects their parents. Those of Goethe were respectable, and perhaps tolerably representative of the general condition in their own rank. An English authoress of great talent, in her *Characteristics of Goethe*, has too much countenanced the notion that he owed his intellectual advantages exclusively to his mother. Of this there is no proof. His mother wins more esteem from the reader of this day, because she was a cheerful woman, of serene temper, brought into advantageous comparison with a husband much older than herself, whom circumstances had rendered moody, fitful, sometimes capricious, and confessedly obstinate in that degree which Pope has taught us to think connected with inveterate error:

> Stiff in opinion, always in the wrong,

unhappily presents an association too often actually occurring in nature, to leave much chance for error in presuming either quality from the other. And, in fact, Goethe's father was so uniformly obstinate in pressing his own views upon all who belonged to him, whenever he did come forward in an attitude of activity, that his family had much reason to be thankful for the rarity of such displays. Fortunately for them, his indolence neutralized his obstinacy. And the worst shape in which his troublesome temper showed itself, was in what concerned the religious reading of the family. Once begun, the worst book as well as the best, the longest no less than the shortest, was to be stedfastly read through to the last word of the last volume; no excess of yawning availed to obtain a reprieve, not, adds his son, though he were himself the leader of the yawners. As an illustration, he mentions Bowyer's *History of the Popes;* which awful series of records, the catacombs, as it were, in the palace of history, were actually traversed from one end to the other of the endless *suite* by the unfortunate house of Goethe. Allowing, however, for the father's unamiableness in this one point, upon all intellectual ground both parents seem to have met very much upon a level. Two illustrations may suffice, one of which occurred during the infancy of Goethe. The science of education was at that time making its first rude motions towards an ampler development; and, amongst other reforms then floating in the general mind, was one for eradicating the childish fear of ghosts, &c. The young Goethes, as it happened, slept not in separate beds only, but in separate rooms; and not unfrequently the poor children, under the stinging terrors of their lonely situation, stole away from their "forms," to speak in the hunter's phrase, and sought to rejoin each other. But in these attempts they were liable to surprises from the enemy; papa and mamma were both on the alert, and often intercepted the young deserter by a cross march or an ambuscade; in which cases each had a separate policy for enforcing obedience. The father, upon his general system of "perseverance," compelled the fugitive back to his quarters, and, in effect, exhorted him to persist in being frightened out of his wits. To his wife's gentle heart that course appeared cruel, and she reclaimed the delinquent by bribes; the peaches which her garden walls produced being the fund from which she chiefly drew her supplies for this branch of the secret service. What were her winter bribes, when the long nights would seem to lie heaviest on the exchequer, is not said. Speaking seriously, no man of sense can suppose that a course of suffering from terrors the most awful, under whatever influence supported, whether under the naked force of compulsion, or of *that* connected with bribes, could have any final effect in mitigating the passion of awe, connected, by our very dreams, with the shadowy and the invisible, or in tranquillizing the infantine imagination.

A second illustration involves a great moral event in the history of Goethe, as it was, in fact, the first occasion of his receiving impressions at war with his religious creed. Piety is so beautiful an ornament of the youthful mind, doubt or distrust so unnatural a growth from confiding innocence, that an infant freethinker is heard of not so much with disgust as with perplexity. A sense of the ludicrous is apt to intermingle; and we lose our natural horror of the result in wonder at its origin. Yet in this instance there is no room for doubt; the fact and the occasion are both on record; there can be no question about the date; and, finally, the accuser is no other than the accused. Goethe's own pen it is which proclaims, that already, in the early part of his seventh year, his reliance upon God as a moral governor had suffered a violent shock, was shaken, if not undermined. On the 1st of November 1755 occurred the great earthquake at Lisbon. Upon a double account, this event occupied the thoughts of all Europe for an unusual term of time; both as an expression upon a larger scale than usual of the mysterious physical agency concerned in earthquakes, and also for the awful human tragedy[1] which attended either the earthquake itself, or its immediate sequel in the sudden irruption of the Tagus. Sixty thousand persons, victims to the dark power in its first or its second *avatar*, attested the Titanic scale upon which it worked. Here it was that the shallow piety of the Germans found a stumbling-block. Those who have read any circumstantial history of the physical signs which preceded this earthquake, are aware that in England and Northern Germany many singular phenomena were observed, more or less manifestly connected with the same dark agency which terminated at Lisbon, and running before this final catastrophe at times so accurately varying with the distances, as to furnish something like a scale for measuring the velocity with which it moved. These German phenomena, circulated rapidly over all Germany by the journals of every class, had seemed to give to the Germans a nearer and more domestic interest in the great event, than belonged to them merely in their universal character of humanity. It is also well known to observers of national characteristics, that amongst the Germans the household charities, the *pieties of the hearth*, as they may be called, exist, if not really in greater strength, yet with much less of the usual balances or restraints. A German father, for example, is like the grandfather of other nations; and thus a piety, which in its own nature scarcely seems liable to excess, takes, in its external aspect, too often an air of effeminate imbecility. These two considerations are necessary to explain the intensity with which this Lisbon tragedy laid hold of the German mind, and chiefly under the one single aspect of its *undistinguishing* fury. Women, children, old men—these, doubtless, had been largely involved in the perishing sixty thousand; and that reflection, it would seem from Goethe's account, had so far embittered the sympathy of the Germans with their distant Portuguese brethren, that, in the Frankfort discussions, sullen murmurs had gradually ripened into bold impeachments of Providence. There can be no gloomier form of infidelity than that which questions the moral attributes of the Great Being in whose hands are the final destinies of us all. Such, however, was the form of Goethe's earliest scepticism, such its origin; caught up from the very echoes which rang through the streets of Frankfort when the subject occupied all men's minds: and such, for any thing that appears, continued to be its form thenceforwards to the close of his life, if speculations so crude could be said to have any form at all. Many are the analogies, some close ones, between England and Germany with regard to the circle of changes they have run through, political or social, for a century back. The challenges are frequent to a comparison; and sometimes the result would be to the advantage of Germany, more often to ours. But in religious philosophy, which in reality is the true *popular* philosophy, how vast is the superiority on the side of this country. Not a shopkeeper or mechanic, we may venture to say, but would have felt this obvious truth, that surely the Lisbon earthquake yielded no fresh lesson, no peculiar moral, beyond what belonged to every man's experience in every age. A passage in the New Testament about the fall of the tower of Siloam, and the just construction of that event, had already anticipated the difficulty, if such it could be thought. Not to mention, that calamities upon the same scale in the earliest age of Christianity, the fall of the amphitheatre at Fidenæ, or the destruction of Pompeii, had presented the same problem as the Lisbon earthquake. Nay, it is presented daily in the humblest individual case, where wrong is triumphant over right, or innocence confounded with guilt in one common disaster. And that the parents of Goethe should have authorized his error, if only by their silence, argues a degree of ignorance in them which could not have co-existed with much superior knowledge in the public mind.

Goethe, in his Memoirs (book vi.), commends his father for the zeal with which he superintended the education of

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[1] Of this no picture can ever hope to rival that hasty one sketched in the letter of the chaplain to the Lisbon factory. The plague of Athens as painted by Thucydides or Lucretius, nay even the fabulous plague of London by De Foe, contain no scenes or situations equal in effect to some in this plain historic statement. Nay, it would perhaps be difficult to produce a passage from Ezekiel, from Æschylus, or from Shakspeare, which would so profoundly startle the sense of sublimity as one or two of his incidents.

Goethe.

his children. But apparently it was a zeal without knowledge. Many things were taught imperfectly, but all casually, and as chance suggested them. Italian was studied a little, because the elder Goethe had made an Italian tour, and had collected some Italian books, and engravings by Italian masters. Hebrew was studied a little, because Goethe the son had a fancy for it, partly with a view to theology, and partly because there was a Jewish quarter, gloomy and sequestrated, in the city of Frankfort. French offered itself no doubt on many suggestions, but originally on occasion of a French theatre, supported by the staff of the French army when quartered in the same city. Latin was gathered in a random way from a daily sense of its necessity. English upon the temptation of a stranger's advertisement, promising upon moderate terms to teach that language in four weeks; a proof, by the way, that the system of bold innovations in the art of tuition had already commenced. Riding and fencing were also attempted under masters apparently not very highly qualified, and in the same desultory style of application. Dancing was taught to his family, strange as it may seem, by Mr Goethe himself. There is good reason to believe that not one of all these accomplishments was possessed by Goethe, when ready to visit the university, in a degree which made it practically of any use to him. Drawing and music were pursued confessedly as amusements; and it would be difficult to mention any attainment whatsoever which Goethe had carried to a point of excellence in the years which he spent under his father's care, unless it were his mastery over the common artifices of metre and the common topics of rhetoric, which fitted him for writing what are called occasional poems and *impromptus*. This talent he possessed in a remarkable degree, and at an early age; but he owed its cultivation entirely to himself.

In a city so orderly as Frankfort, and in a station privileged from all the common hardships of poverty, it can hardly be expected that many incidents should arise, of much separate importance in themselves, to break the monotony of life; and the mind of Goethe was not contemplative enough to create a value for common occurrences through any peculiar impressions which he had derived from them. In the years 1763 and 1764, when he must have been from fourteen to fifteen years old, Goethe witnessed the inauguration and coronation of a king of the Romans, a solemn spectacle connected by prescription with the city of Frankfort. He describes it circumstantially, but with very little feeling, in his Memoirs. Probably the prevailing sentiment, on looking back at least to this transitory splendour of dress, processions, and ceremonial forms, was one of cynical contempt. But this he could not express, as a person closely connected with a German court, without giving much and various offence. It is with some timidity even that he hazards a criticism upon single parts of the costume adopted by some of the actors in that gorgeous scene. White silk stockings, and pumps of the common form, he objects to as out of harmony with the antique and heraldic aspects of the general costume, and ventures to suggest either boots or sandals as an improvement. Had Goethe felt himself at liberty from all restraints of private consideration in composing these Memoirs, can it be doubted that he would have taken his retrospect of this Frankfort inauguration from a different station; from the station of that stern revolution which, within his own time, and partly under his own eyes, had shattered the whole imperial system of thrones, in whose equipage this gay pageant made so principal a figure, had humbled Cæsar himself to the dust, and left him an emperor without an empire. We at least, for our parts, could not read without some emotion one little incident of these gorgeous scenes recorded by Goethe, namely, that when the emperor, on rejoining his wife for a few moments, held up to her notice his own hands and arms arrayed in the antique habiliments of Charlemagne, Maria Theresa—she whose children were summoned to so sad a share in the coming changes—gave way to sudden bursts of loud laughter, audible to the whole populace below her. That laugh on surveying the departing pomps of Charlemagne, must, in any contemplative ear, have rung with a sound of deep significance, and with something of the same effect which belongs to a figure of death introduced by a painter, as mixing in the festal dances of a bridal assembly.

These pageants of 1763–64 occupy a considerable space in Goethe's Memoirs, and with some *logical* propriety at least, in consideration of their being exclusively attached to Frankfort, and connected by manifold links of person and office with the privileged character of the city. Perhaps he might feel a sort of narrow local patriotism in recalling these scenes to public notice by description, at a time when they had been irretrievably extinguished as realities. But, after making every allowance for their local value to a Frankfort family, and for their memorable splendour, we may venture to suppose that by far the most impressive remembrances which had gathered about the boyhood of Goethe, were those which pointed to Frederick of Prussia. This singular man, so imbecile as a pretender to philosophy and new lights, so truly heroic under misfortunes, was the first German who created a German interest, and gave a transient unity to the German name, under all its multiplied divisions. Were it only for this conquest of difficulties so peculiar. he would deserve his German designation of Fred. the Unique (*Fritz der einzige*). He had been partially tried and known previously; but it was the Seven Years' War which made him the popular idol. This began in 1756; and to Frankfort, in a very peculiar way, that war brought dissensions and heart-burnings in its train. The imperial connections of the city with many public and private interests, pledged it to the anti-Prussian cause. It happened also that the truly German character of the reigning imperial family, the domestic habits of the empress and her young daughters, and other circumstances, were of a nature to endear the ties of policy: self-interest and affection pointed in the same direction. And yet were all these considerations allowed to melt away before the brilliant qualities of one man, and the romantic enthusiasm kindled by his victories. Frankfort was divided within herself; the young and the generous were all dedicated to Frederick: a smaller party, more cautious and prudent, were for the imperialists. Families were divided upon this question against families, and often against themselves; feuds, begun in private, issued often into public violence; and, according to Goethe's own illustration, the streets were vexed by daily brawls, as hot and as personal as of old between the Capulets and Montagues.

These dissensions, however, were pursued with not much personal risk to any of the Goethes, until a French army passed the Rhine as allies of the imperialists. One corps of this force took up their quarters in Frankfort; and the Comte Thorane, who held a high appointment on the staff, settled himself for a long period of time in the spacious mansion of Goethe's father. This officer, whom his place made responsible for the discipline of the army in relation to the citizens, was naturally by temper disposed to moderation and forbearance. He was indeed a favourable specimen of French military officers under the old system; well bred, not arrogant, well informed, and a friend of the fine arts. For painting, in particular, he professed great regard and some knowledge. The Goethes were able to forward his views amongst German artists; whilst, on the other hand, they were pleased to have thus an opportunity of directing his patronage towards some of their own needy connections. In this exchange of good offices, the two parties were for some time able to maintain a fair appearance of reciprocal good will. This on the comte's side, if not particularly warm, was probably sincere; but in Goethe the father it was a masque for inveterate dislike. A natural ground of this existed in the original relations between them. Under whatever disguise or pretext, the Frenchman was in fact a military intruder: he occupied the best suit of rooms in the house, used the furniture as his own; and, though upon private motives he abstained from doing all the injury which his situation authorized (so as in particular to have spread his fine military maps upon the floor rather than disfigure the decorated walls by nails), still he claimed credit, if not services of requital, for all such instances of forbearance. Here were grievances enough; but, in addition to these, the comte's official appointments drew upon him a weight of daily business, which kept the house in a continual uproar. Farewell to the quiet of a literary amateur, and the orderliness of a German household. Finally, the comte was a Frenchman. These were too many assaults upon one man's patience. It will be readily understood, therefore, how it happened, that, whilst Goethe's gentle-minded mother, with her flock of children, continued to be on the best terms with Comte Thorane, the master of the house kept moodily aloof, and retreated from all intercourse.

Goethe, in his own Memoir, enters into large details upon this subject; and from him we shall borrow the *denouement* of the tale. A crisis had for some time been lowering over the French affairs in Frankfort; things seemed ripening for a battle; and at last it came. Flight, siege, bombardment, possibly a storm, all danced before the eyes of the terrified citizens. Fortunately, however, the battle took place at the distance of four or five miles from Frankfort. Monsieur le Comte was absent, of course, on the field of battle. His unwilling host thought that on such an occasion he also might go out in quality of spectator; and with this purpose he connected another, worthy of a Parson Adams. It is his son who tells the story, whose filial duty was not proof against his sense of the ludicrous. The old gentleman's hatred of the French had by this time brought him over to his son's admiration of the Prussian hero. Not doubting for an instant that victory would follow that standard, he resolved on this day to offer in person his congratulations to the Prussian army, whom he already viewed as his liberator from a domestic nuisance. So purposing, he made his way cautiously to the suburbs; from the suburbs, still listening at each advance, he went forward to the country; totally forgetting, as his son insists, that, however completely beaten, the French army must still occupy some situation or other between himself and his German deliverer. Coming, however, at length to a heath, he found some of those marauders usually to be met with in the rear of armies, prowling about, and at intervals amusing themselves with shooting at a mark. For want of a better, it seemed not improbable that a large German head might answer their purpose: certain signs admonished him of this, and the old gentleman crept back to Frankfort. Not many hours after came back also the comte, by no means creeping, however; on the contrary, crowing with all his might for a victory which he averred himself to have won. There had in fact been an affair, but on no very great scale, and with no distinguished results. Some prisoners, however, he brought, together with some wounded; and naturally he expected all well disposed persons to make their compliments of congratulation upon his triumph. Of this duty poor Mrs Goethe and her children cheerfully acquitted themselves that same night; and Monsieur le Comte was so well pleased with the sound opinions of the little Goethes, that he sent them in return a collection of sweetmeats and fruits. All promised to go well; intentions, after all, are not acts; and there certainly is not, nor ever was, any treason in taking a morning's walk. But, as ill luck would have it, just as Mr Goethe was passing the comte's door, out came the comte in person, purely by accident, as we are told; but we suspect that the surly old German, either under his morning hopes or his evening disappointments, had talked with more frankness than prudence. "Good evening to you, Herr Goethe," said the comte; "you are come, I see, to pay your tribute of congratulation. Somewhat of the latest, to be sure; but no matter." "By no means," replied the German; "by no means; *mit nichten*. Heartily I wished, the whole day long, that you and your cursed gang might all go to the devil together." Here was plain speaking, at least. The Comte Thorane could no longer complain of dissimulation. His first movement was to order an arrest; and the official interpreter of the French army took to himself the whole credit that he did not carry it into effect. Goethe takes the trouble to report a dialogue, of length and dulness absolutely incredible, between this interpreter and the comte. No such dialogue, we may be assured, ever took place. Goethe may, however, be right in supposing that, amongst a foreign soldiery, irritated by the pointed contrasts between the Frankfort treatment of their own wounded, and of their prisoners who happened to be in the same circumstances, and under a military council not held to any rigorous responsibility, his father might have found no very favourable consideration of his case. It is well, therefore, that after some struggle the comte's better nature triumphed. He suffered Mrs Goethe's merits to outweigh her husband's delinquency; countermanded the order for arrest, and, during the remainder of their connection, kept at such a distance from his moody host as was equally desirable for both. Fortunately that remainder was not very long. Comte Thorane was soon displaced; and the whole army was soon afterwards withdrawn from Frankfort.

In his fifteenth year Goethe was entangled in some connection with young people of inferior rank, amongst whom was Margaret, a young girl about two years older than himself, and the object of his first love. The whole affair, as told by Goethe, is somewhat mysterious. What might be the final views of the elder parties it is difficult to say; but Goethe assures us that they used his services only in writing an occasional epithalamium, the pecuniary acknowledgment for which was spent jovially in a general banquet. The magistrates, however, interfered, and endeavoured to extort a confession from Goethe: he, as the son of a respectable family, was to be pardoned; the others to be punished. No confession, however, could be extorted; and for his own part he declares that, beyond the offence of forming a clandestine connection, he had nothing to confess. The affair terminated, as regarded himself, in a severe illness. Of the others we hear no more.

The next event of importance in Goethe's life was his removal to college. His own wishes pointed to Göttingen, but his father preferred Leipsic. Thither accordingly he went, but he carried his obedience no farther. Declining the study of jurisprudence, he attached himself to general literature. Subsequently he removed to the university of Strasburg; but in neither place could it be said that he pursued any regular course of study. His health suffered at times during this period of his life; at first from an affection of the chest, caused by an accident on his first journey to Leipsic; the carriage had stuck fast in the muddy roads, and Goethe exerted himself too much in assisting to extricate the wheels. A second illness connected with the digestive organs brought him into considerable danger.

After his return to Frankfort, Goethe commenced his career as an author. In 1773, and the following year, he made his maiden essay in *Goetz of Berlichingen*, a drama (the translation of which, remarkably enough, was destined to be the literary *coup d'essai* of Sir Walter Scott), and in the far-famed *Werther*. The first of these was pirated; and in consequence the author found some difficulty in paying for the paper of the genuine edition, which part of the expense, by his contract with the publisher, fell upon himself. The general and early popularity of the second work is well known. Yet, except in so far as it might spread his name abroad, it cannot be supposed to have had much influence in attracting that potent patronage which now began to determine the course of his future life. So much we collect from the account which Goethe himself has left us of this affair in its earliest stages.

"I was sitting alone in my room," says he, "at my father's house in Frankfort, when a gentleman entered, whom at first I took for Frederick Jacobi, but soon discovered by the dubious light to be a stranger. He had a military air; and announcing himself by the name of Von Knebel, gave me to understand in a short explanation, that being in the Prussian service, he had connected himself, during a long residence at Berlin and Potsdam, with the literati of those places; but that at present he held the appointment from the court of Weimar of travelling tutor to the Prince Constantine. This I heard with pleasure; for many of our friends had brought us the most interesting accounts from Weimar, in particular that the Duchess Amelia, mother of the young grand duke and his brother, summoned to her assistance in educating her sons the most distinguished men in Germany; and that the university of Jena co-operated powerfully in all her liberal plans. I was aware also that Wieland was in high favour; and that the German Mercury (a literary journal of eminence) was itself highly creditable to the city of Jena, from which it issued. A beautiful and well-conducted theatre had besides, as I knew, been lately established at Weimar. This, it was true, had been destroyed; but that event, under common circumstances so likely to be fatal as respected the present, had served only to call forth the general expression of confidence in the young prince as a restorer and upholder of all great interests, and true to his purposes under any calamity." Thinking thus, and thus prepossessed in favour of Weimar, it was natural that Goethe should be eager to see the prince. Nothing was easier. It happened that he and his brother Constantine were at this moment in Frankfort, and Von Knebel willingly offered to present Goethe. No sooner said than done; they repaired to the hotel, where they found the illustrious travellers, with Count Goertz, the tutor of the elder.

Upon this occasion an accident, rather than any previous reputation of Goethe, was probably the determining occasion which led to his favour with the future sovereign of Weimar. A new book lay upon the table; that none of the strangers had read it, Goethe inferred from observing that the leaves were as yet uncut. It was a work of Moser (*Patriotische Phantasien*); and, being political rather than literary in its topics, it presented to Goethe, previously acquainted with its outline, an opportunity for conversing with the prince upon subjects nearest to his heart, and of showing that he was not himself a mere studious recluse. The opportunity was not lost; the prince and his tutor were much interested, and perhaps a little surprised. Such subjects have the further advantage, according to Goethe's own illustration, that, like the Arabian thousand and one nights, as conducted by the Sultana Scheherezade, "never ending, still beginning," they rarely come to any absolute close, but so interweave one into another, as still to leave behind a large arrear of interest. In order to pursue the conversation, Goethe was invited to meet them soon after at Mentz. He kept the appointment punctually; made himself even more agreeable; and finally received a formal invitation to enter the service of this excellent prince, who was now beginning to collect around him all those persons who have since made Weimar so distinguished a name in connection with the German literature. With some opposition from his father, who held up the rupture between Voltaire and Frederick of Prussia as a precedent applying to all possible connections of princes and literati, Goethe accepted the invitation; and henceforwards, for upwards of fifty-five years, his fortunes were bound up with those of the ducal house of Weimar.

The noble part which that house played in the great modern drama of German politics is well known, and would have been better known had its power been greater. But the moral value of its sacrifices and its risks is not the less. Had greater potentates shown equal firmness, Germany would not have been laid at the feet of Napoleon. In 1806 the grand duke was aware of the peril which awaited the allies of Prussia; but neither his heart nor his conscience would allow of his deserting a friend in whose army he held a principal command. The decisive battle took place in his own territory, and not far from his own palace and city of Weimar. Personally he was with the Prussian army; but his excellent consort stayed in the palace to encourage her subjects, and as far as possible to conciliate the enemy by her presence. The fortune of that great day, the 14th of October 1806, was decided early; and the awful event was announced by a hot retreat and a murderous pursuit through the streets of the town. In the evening Napoleon arrived in person; and now came the trying moment. "The duchess," says an Englishman well acquainted with Weimar and its court, "placed herself on the top of the staircase to greet him with the formality of a courtly reception. Napoleon started when he beheld her, *Qui êtes vous ?* he exclaimed with characteristic abruptness. *Je suis la Duchesse de Weimar. Je vous plains*, he retorted fiercely, *J'écraserai votre mari;* he then added, 'I shall dine in my apartment,' and rushed by her. The night was spent on the part of the soldiery in all the horrid excesses of rapine. In the morning the duchess sent to inquire concerning the health of his majesty the emperor, and to solicit an audience. He, who had now benefited by his dreams, or by his reflections, returned a gracious answer, and invited himself to breakfast with her in her apartment." In the conversation which ensued, Napoleon asked her if her husband were mad, upon which she justified the duke by appealing to his own magnanimity, asking in her turn if his majesty would have approved of his deserting the king of Prussia at the moment when he was attacked by so potent a monarch as himself. The rest of the conversation was in the same spirit, uniting with a sufficient concession to the circumstances of the moment a dignified vindication of a high-minded policy. Napoleon was deeply impressed with respect for her, and loudly expressed it. For her sake, indeed, he even affected to pardon her husband, thus making a merit with her of the necessity which he felt, from other motives, for showing forbearance towards a family so nearly allied to that of St Petersburg. In 1813 the grand duke was found at his post in that great gathering of the nations which took place on the stupendous fields of Leipsic, and was complimented by the allied sovereigns as one of the most faithful amongst the faithful to the great cause, yet undecided, of national independence.

With respect to Goethe, as a councillor so near the duke's person, it may be supposed that his presence was never wanting where it promised to be useful. In the earlier campaigns of the duke, Goethe was his companion; but in the final contest with Napoleon he was unequal to the fatigues of such a post. In all the functions of peace, however, he continued to be a useful servant to the last, though long released from all official duties. Each had indeed most honourably earned the gratitude of the other. Goethe had surrendered the flower of his years and the best energies of his mind to the service of his serene master. On the other hand, that master had to him been at once his Augustus and his Mæcenas; such is his own expression. Under him he had founded a family, raised an estate, obtained titles and decorations from various courts; and in the very vigour of his life he had been allowed to retire, with all the honours of long service, to the sanctuary of his own study, and to the cultivation of his leisure, as the very highest mode in which he could further the public interest.

The life of Goethe was so quiet and so uniform after the year 1775, when he may first be said to have entered into active life, by taking service with the Duke of Weimar, that a biographer will find hardly any event to notice, except two journeys to Italy, and one campaign in 1792, until he draws near the close of his long career. It cannot interest an English reader to see the dates of his successive appointments. It is enough to know that they soon raised him to as high a station as was consistent with literary leisure; and that he had from the beginning enjoyed the unlimited confidence of his sovereign. Nothing remained, in fact, for the subject to desire which the prince had not previously volunteered. In 1825, they were able to look back upon a course of uninterrupted friendship, maintained through good and evil fortunes unexampled in their agitation and interest for fifty years. The duke commemorated this remarkable event by a jubilee, and by a medal in honour of Goethe. Full of years and honour, this eminent man might now begin to think of his departure. However, his serenity continued unbroken nearly for two years more, when his illustrious patron died. That shock was the first which put his fortitude to trial. In 1830 others followed; the duchess, who had won so much admiration from Napoleon, died; then followed his own son; and there remained little now to connect his wishes with the earth. The family of his patron he had lived to see flourishing in his descendants to the fourth generation. His own grandchildren were prosperous and happy. His intellectual labours were now accomplished. All that remained to wish for was a gentle dismission. This he found in the spring of 1832. After a six days' illness, which caused him no apparent suffering, on the morning of the 22d of March he breathed away as if into a gentle sleep, surrounded by his daughter-in-law and her children. Never was a death more in harmony with the life it closed; both had the same character of deep and absolute serenity.

Such is the outline of Goethe's life, traced through its principal events. But as these events, after all, borrow their interest mainly from the consideration allowed to Goethe as an author, and as a model in the German literature,—*that* being the centre about which all secondary feelings of interest in the man must finally revolve,—it thus becomes a duty to throw a glance over his principal works. Dismissing his songs, to which has been ascribed by some critics a very high value for their variety and their lyrical enthusiasm; dismissing also a large body of short miscellaneous poems, suited to the occasional circumstances in which they arose; we may throw the capital works of Goethe into two classes, philosophic novels, and dramas. The novels, which we call *philosophic* by way of expressing their main characteristic in being written to serve a preconceived purpose, or to embody some peculiar views of life, or some aspects of philosophic truth, are three, viz. the *Werther's Leiden*; secondly, the *Wilhelm Meister*; and, lastly, the *Wahloer-wandschaften*. The first two exist in English translations; and though the *Werther* had the disadvantage of coming to us through a French version, already, perhaps, somewhat coloured and distorted to meet the Parisian standards of sentiment, yet, as respects Goethe and his reputation amongst us, this wrong has been redressed, or compensated at least, by the good fortune of his *Wilhelm Meister*, in falling into the hands of a translator whose original genius qualified him for sympathizing even to excess with any real merits in that work. This novel is in its own nature and purpose sufficiently obscure; and the commentaries which have been written upon it by the Humboldts, Schlegels, &c. make the enigma still more enigmatical. We shall not venture abroad upon an ocean of discussion so truly dark, and at the same time so illimitable. Whether it be qualified to excite any deep and *sincere* feeling of one kind or another in the German mind,—in a mind trained under German discipline,—this we will consent to waive as a question not immediately interesting to ourselves. Enough that it has not gained, and will not gain, any attention in this country; and this not only because it is thoroughly deficient in all points of attraction to readers formed upon our English literature, but because in some capital circumstances it is absolutely repulsive. We do not wish to offend the admirers of Goethe; but the simplicity of truth will not allow us to conceal, that in various points of description or illustration, and sometimes in the very outline of the story, the *Wilhelm Meister* is at open war, not with decorum and good taste merely, but with moral purity and the dignity of human nature. As a novelist, Goethe and his reputation are problems, and likely to continue such, to the countrymen of Mrs Inchbald, Miss Harriet Lee, Miss Edgeworth, and Sir Walter Scott. To the dramatic works of Goethe we are disposed to pay more homage; but neither in the absolute amount of our homage at all professing to approach his public admirers, nor to distribute the proportions of this homage amongst his several performances according to the graduations of *their* scale. The *Iphigenie* is built upon the old subject of Iphigenia in Tauris, as treated by Euripides and other Grecian dramatists; and, if we are to believe a Schlegel, it is in beauty and effect a mere echo or reverberation from the finest strains of the old Grecian music. That it is somewhat nearer to the Greek model than a play after the fashion of Racine, we grant. Setting aside such faithful transcripts from the antique as the Samson Agonistes, we might consent to view Goethe as that one amongst the moderns who had made the closest approximation to the Greek stage: *Proximus*, we might say, with Quintilian, but with him we must add, "*sed longo intervallo;* and if in the second rank, yet nearer to the third than to the first. Two other dramas, the *Clavigo* and the *Egmont*, fall below the *Iphigenie* by the very character of their pretensions; the first as too openly renouncing the grandeurs of the ideal; the second as confessedly violating the historic truth of character, without temptation to do so, and without any consequent indemnification. The *Tasso* has been supposed to realize an Italian beauty of genial warmth and of sunny repose; but from the common defect of German criticism—the absence of all sufficient illustrations—it is as difficult to understand the true nature and constituents of the supposed Italian standard set up for the regulation of our judgments, as it is to measure the degree of approach made to that standard in this particular work. *Eugenie* is celebrated for the artificial burnish of the style, but otherwise has been little relished. It has the beauty of marble sculpture, say the critics of Goethe, but also the coldness. We are not often disposed to quarrel with these critics as *below* the truth in their praises; in this instance we are. The *Eugenie* is a fragment, or (as Goethe himself called it in conversation) a *torso*, being only the first drama in a trilogy or series of three dramas, each having a separate plot, whilst all are parts of a more general and comprehensive plan. It may be charged with languor in the movement of the action, and with excess of illustration. Thus, *e. g.* the grief of the prince for the supposed death of his daughr, is the monotonous topic which occupies one entire act. But the situations, though not those of *scenical* distress, are so far from being unexciting, that, on the contrary, they are too powerfully afflicting.

The lustre of all these performances, however, is eclipsed by the unrivalled celebrity amongst German critics of the *Faust*. Upon this it is better to say nothing than too little. How trifling an advance has been made towards clearing the ground for any sane criticism, may be understood from this fact, that as yet no two people have agreed about the meaning of any separate scene, or about the drift of the whole. Neither is this explained by saying, that until lately the *Faust* was a fragment; for no additional light has dawned upon the main question since the publication of the latter part.

One work there is of Goethe's which falls into neither of the classes here noticed; we mean the *Hermann and Dorothea*, a narrative poem, in hexameter verse. This appears to have given more pleasure to readers not critical, than any other work of its author; and it is remarkable that it traverses humbler ground, as respects both its subject, its characters, and its scenery. From this, and other indications of the same kind, we are disposed to infer that Goethe mistook his destination; that his aspiring nature misled him; and that his success would have been greater had he confined himself to the *real* in domestic life, without raising his eyes to the *ideal*.

We must also mention, that Goethe threw out some novel speculations in physical science, and particularly in physiology, in the doctrine of colours, and in comparative anatomy, which have divided the opinions of critics even more than any of those questions which have arisen upon points more directly connected with his avowed character of poet.

It now remains to say a few words by way of summing up his pretensions as a man, and his intellectual power in the age to which he belonged. His rank and value as a moral being are so plain as to be legible to him who runs. Everybody must feel that his temperament and constitutional tendency was of that happy quality, the animal so nicely balanced with the intellectual, that with any ordinary measure of prosperity he could not be otherwise than a good man. He speaks himself of his own "virtue," *sans phrase*; and we tax him with no vanity in doing so. As a young man even at the universities, which at that time were barbarously sensual in Germany, he was (for so much we collect from his own Memoirs) eminently capable of self-restraint. He preserves a tone of gravity, of sincerity, of respect for female dignity, which we never find associated with the levity and recklessness of vice. We feel throughout, the presence of one who, in respecting others, respects himself; and the cheerfulness of the presiding tone persuades us at once that the narrator is in a healthy moral condition, fears no ill, and is conscious of having meditated none. Yet at the same time we cannot disguise from ourselves that the moral temperament of Goethe was one which demanded prosperity: had he been called to face great afflictions, singular temptations, or a billowy and agitated course of life, our belief is that his nature would have been found unequal to the strife; he would have repeated the mixed and moody character of his father. Sunny prosperity was essential to his nature; his virtues were adapted to that condition. And happily that was his fate. He had no personal misfortunes; his path was joyous in this life; and even the reflex sorrow from the calamities of his friends did not press too heavily on his sympathies; none of these were in excess either as to degree or duration.

In this estimate of Goethe as a moral being, few people will differ with us, unless it were the religious bigot. And to him we must concede thus much, that Goethe was not that religious creature which by nature he was intended to become. This is to be regretted: Goethe was naturally pious, and reverential towards higher natures; and it was in the mere levity or wantonness of youthful power, partly also through that early false bias growing out of the Lisbon earthquake, that he falsified his original destination. Do we mean, then, that a childish error could permanently master his understanding? Not so; *that* would have been corrected with his growing strength. But having once arisen, it must for a long time have moulded his feelings; *until* corrected, it must have impressed a corresponding false bias upon his practical way of viewing things; and that sort of false bias, once established, might long survive a mere error of the understanding. One thing is undeniable. Goethe had so far corrupted and clouded his natural mind, that he did not look up to God, or the system of things beyond the grave, with the interest of reverence and awe, but with the interest of curiosity.

Goethe, however, in a moral estimate, will be viewed pretty uniformly. But Goethe intellectually, Goethe as a power acting upon the age in which he lived, that is another question. Let us put a case; suppose that Goethe's death had occurred fifty years ago, that is, in the year 1785, what would have been the general impression? Would Europe have felt a shock? Would Europe have been sensible even of the event? Not at all: it would have been obscurely noticed in the newspapers of Germany, as the death of a novelist who had produced some effect about ten years before. In 1832, it was announced by the post-horns of all Europe as the death of him who had written the *Wilhelm Meister*, the *Iphigenie*, and the *Faust*, and who had been enthroned by some of his admirers on the same seat with Homer and Shakspeare, as composing what they termed the *trinity of men of genius*. And yet it is a fact, that, in the opinion of some amongst the acknowledged leaders of our own literature for the last twenty-five years, the *Werther* was superior to all which followed it, and for mere power was the paramount work of Goethe. For ourselves, we must acknowledge our assent upon the whole to this verdict; and at the same time we will avow our belief that the reputation of Goethe must decline for the next generation or two, until it reaches its just level. Three causes, we are persuaded, have concurred to push it so far beyond the proportion of real and genuine interest attached to his works, for in Germany his works are little read, and in this country not at all: *First*, his extraordinary age; for the last twenty years Goethe had been the patriarch of the German literature: *secondly*, the splendour of his official rank at the court of Weimar; he was the minister and private friend of the patriot sovereign amongst the princes of Germany: *thirdly*, the quantity of enigmatical and unintelligible writing which he has designedly thrown into his latter works, by way of keeping up a system of discussion and strife upon his own meaning amongst the critics of his country. These disputes, had his meaning been of any value in his own eyes, he would naturally have settled by a few authoritative words from himself; but it was his policy to keep alive the feud in a case where it was of importance that his name should continue to agitate the world, but of none at all that he should be rightly interpreted. (W. W. W.)

GOG and MAGOG, two names generally joined together in Scripture. Moses, however, speaks of Magog the son of Japhet, but says nothing of Gog. Gog was prince of Magog, according to Ezekiel, in whose writings Magog signifies the country or people, and Gog the king of that country. The generality of the ancients considered Magog as the father of the Scythians and Tartars; and several interpreters discovered many traces of their name in the provinces of Great Tartary. Others have been of opinion that the Persians were the descendants of Magog; and some have imagined that the Goths were descended from Gog and Magog, and that the wars described by Ezekiel,

Goggrah
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Goguet.

and undertaken by Gog against the saints, were no other than those which the Goths carried on in the fifth age against the Roman empire. Bochart has placed Gog in the neighbourhood of Caucasus. He derives the name of this celebrated mountain from the Hebrew *Gog Chasan*, the Fortress of Gog. He maintains that Prometheus, who is said to have been chained to Caucasus by Jupiter, is no other than Gog. In Iberia there was a province called the *Gogarene*. Lastly, the generality of writers believe that Gog and Magog, mentioned in Ezekiel and the Revelation, are to be taken in an allegorical acceptation, as signifying such princes as were enemies to the church and saints. Thus, by Gog in Ezekiel many understand Antiochus Epiphanes, the persecutor of the Jews who remained firm to their religion; and by the person of the same name in the Revelation they suppose to be meant Antichrist, the great enemy of the church and faithful. Some have endeavoured to prove that the Gog spoken of in Ezekiel, and Cambyses king of Persia, were one and the same person; and that Gog and Magog in the Revelation denote generally the enemies and persecutors of the church.

GOGGRAH, a river of Hindustan, which forces its way through the great Himalaya chain, though its exact source has never been ascertained. It afterwards falls into the Sareyn at Swarojadwara, the united streams afterwards being named indifferently the Goggrah, Sarfew, or Deva river. This river flows through the district of Kemaon and province of Oude, and at Manjee joins the Ganges, of which it is one of the largest tributary streams. It is navigable for large boats to the foot of the hills, and is held sacred by the Hindus. There are several large towns on its banks.

GOGO, a sea-port of Hindustan, in the province of Gujrat, and district of Goelwarah, situated on the west side of the Gulf of Cambay. It is considered as a safe roadstead during the south-west monsoon, where ships may be supplied with stores and provisions, and repair any damage they may have sustained. The inhabitants, who are principally Mahommedans, build vessels of from fifty to three hundred tons burden; and carry on a considerable trade with Bombay and other places, the chief export being cotton. The Lascars of this place are named Siddhees; they are descendants of the Abyssinians, and are held in much estimation for their nautical skill and bravery. It is an ancient town, and has fallen greatly into decay; but since it came into the possession of the British it has been gradually increasing in commerce and population. Long. 72. 21. E. Lat. 21. 41. N.

GOGUET, ANTOINE-YVES, a distinguished French writer, was born at Paris on the 18th January 1716. From his infancy he was connected by the ties of friendship with Alexander Conrad Fugère, the learned editor of the *Journal des Savants;* and there never perhaps existed between two friends such an entire conformity of tastes and character. They studied philosophy together at the college of Harcourt, and after having terminated their studies there, both felt the necessity of recommencing them. To this laudable object they accordingly applied themselves with an ardour which was at length crowned with success. The former laboured without any other object than that of instructing himself; but the latter had a plan to which all his studies were directed. When Goguet undertook the work which distinguishes his name, Fugère assisted him with criticisms and materials. The success of this work was well deserved; and of the two friends, Fugère was the one whom that success flattered the most. Robust health appeared to promise long life to Goguet; and he had applied himself to new labours, when he was seized by the small-pox, a disease which he had always dreaded, but without deciding to have recourse to inoculation. He died on the 2d of May 1758, at the age of forty-two years and three months. By his will, he bequeathed his library to Fugère, but the latter was so deeply affected by the death of his friend, that he only survived him three days. This affecting incident is perhaps without a parallel in the history of friendship. The work of Goguet is entitled *De l'Origine des Lois, des Arts, et des Sciences, et des leur Progrès chez les anciens peuples*, Paris, 1758, in three volumes 4to. Of this valuable work there have been several editions; but the first is the best. An excellent translation of it was published at Edinburgh in 1761, in three volumes octavo. It is stated in the *Edinburgh Review* (vol. xiv. p. 409) as a fact "not generally known, that this translation came from the pen of Dr Henry, the historian of Great Britain." The period embraced in the work extends from the establishment of civil society to the reign of Cyrus. It is divided into three parts, and each into six books, which treat separately of government, the arts and manufactures, the sciences, commerce and navigation, the military art, and, lastly, manners and usages. The state of each of these objects of inquiry at different epochs is examined continuously; and facts, investigated with equal erudition and good faith, always serve as the basis of the reasonings. The style is agreeable, without, however, being exempt from some indications of bad taste. At the end of each volume are discussed, in learned dissertations, those points the detailed examination of which could not easily enter into the body of the work. Goguet intended to write a History of the Progress of Laws, Arts, and Sciences in France, since the establishment of the Monarchy; and it is much to be regretted that he did not live to carry into execution an undertaking which, proceeding from his pen, would have been invaluable. An *Eloge* of Goguet was printed in the *Année Littéraire*, 1758, tome iv., and in the supplement to the *Journal des Savants* for the month of July in the same year. (A.)

Gohud
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Golconda.

GOHUD, a fortified town of Hindustan, in the province of Agra, and capital of an extensive district of the same name. The district is situated on the south side of the river Chumbul, and between the 26th and 27th degrees of north latitude. It is a mountainous territory, but is fertile in the valleys, and abounds with strong positions, particularly the celebrated fortress of Gualior. About the middle of the last century Gohud was a small village attached to the district of Gualior, and the rannah's ancestors were zemindars of this village. Bheem Singh, the rannah, prior to the battle of Paniput, in 1761 acquired possession of Gualior, but it was taken from him by the Mahrattas. When this nation lost the battle of Paniput, the rannah of Gohud attempted to shake off their yoke, but was conquered by Ragoonauth Row in 1766, and compelled to continue tributary. On a subsequent rupture Gohud was taken by Scindia in 1784. On the 17th of January 1804 a treaty was concluded by the British government with the rannah of Gohud, by which he was to be established in the sovereignty of Gohud, Gualior, and a considerable number of adjacent districts. This treaty, however, was never carried into effect, and a new treaty was concluded, by which the rajah agreed to relinquish the country and fort of Gohud, and the adjoining districts. Gohud is sixty-five miles south-west from the city of Agra. Long. 78. 21. E. Lat. 26. 21. N.

GOLCONDA, a strong fortress of Hindustan, situated on a hill about six miles west-north-west from Hyderabad, strongly defended both by nature and art, but being situated on a rock, is excessively hot and unhealthy. The principal inhabitants and bankers of Hyderabad are permitted to reside in this fort, to which they retire with their property on any alarm. It was once the capital of an extensive kingdom of native Hindu princes, and afterwards a principal division of the Bhamenee sovereignty, on the fall of which it again became the seat of a monarchy under the Cutub Shahee dynasty. It was taken by Aurungzebe by treachery in 1687, after a siege of seven months. In its vicinity are numerous handsome tombs.

GOLD, the most valuable of all the metals, is of a bright yellow colour when pure, but becomes more or less white in proportion as it is alloyed with other metals. It is the heaviest of all the metals, platina only excepted.

Native gold is found in veins, but these are seldom or never very large. It is generally very minutely disseminated, and can only be detected by washing the pulverized mineral strata in which it exists, such as the sand of rivers, and the mould of valleys and plains, whither it had been transported by running water. Gold is obtained from the alluvial soils of several islands in the Indian Ocean; from several parts of Africa, a part of which is called the Gold Coast, on account of the quantities of this metal formerly found there; from the sands of several European rivers, and also those of the United States: but by far the greatest quantity of gold is found in the South American mines. Humboldt estimates the average product of gold per annum, of South America and New Spain, at nearly 11,000,000 dollars. In Russia and the United States there are also mines of gold. Adding the produce of the American to that of the Russian mines, their total produce during each of the four decennial periods ending with the year 1829, has been estimated as follows by Macculloch, in his *Dictionary of Commerce* (p. 943):

Ten years ending	1799	L.3,295,000
....	1809	4,180,000
....	1819	3,955,000
....	1829	5,752,000

The gold produced in the United States in 1832 was in value above L.135,000. It is chiefly obtained by washing the soil in the valleys. The produce of the European mines of Hungary, Saxony, and other places, has been somewhat variously estimated; but it must be trifling compared with the quantities derived from the new world. With regard to the quantity of gold annually consumed, no correct idea can be formed, because it is utterly impossible to estimate how much of old gold is wrought up in the fabrication of new materials. As to the future supply of this precious metal, it seems probable that it will increase when the anarchy in which the South American states have been so long involved shall terminate.

Gold *Coast.* See Guinea.

Gold *Wire*, a cylindrical ingot of silver, superficially gilt or covered with gold at the fire, and afterwards drawn successively through a great number of little round holes, of a wire-drawing iron, each less than the other, until it attain the fineness required.

Gold *Wire flattened*, is the former wire flattened between two rollers of polished steel, to fit it to be spun on a stick, or to be used flat, without spinning, in certain stuffs, such as laces, embroideries, and the like.

Gold *Thread*, or *Spun Gold*, is flattened gold, wrapped or laid over a thread of silk, by twisting it with wheel and iron bobbins.

Gold *Leaf*, or *Beaten Gold*, is gold beaten with a hammer into exceedingly thin leaves, so that an ounce may be extended into one thousand six hundred leaves, each three inches square, in which state it covers more than 159,052 times its former surface.

Gold *Plates for Enamelling* are generally made of ducat gold, the fineness of which is from 23½ to 23¾ carats; and the finest gold is the best for this purpose, unless where some parts of the gold are left bare and unpolished, as in watch-cases, snuff-boxes, and the like, for which purpose a mixture of alloy is necessary, and silver is preferred to copper, because the latter disposes the plates to become tarnished and to turn green.

Shell Gold is that used by those employed in gilding and illuminating, and with which gold letters are written. It is made by grinding gold leaves, or gold-beaters' fragments, with a little honey, and afterwards separating the honey from the powdered gold by means of water. When the honey is washed away, the gold may be put on paper or kept in shells. When it is used it is commonly diluted with gum-water or soap-suds. The German gold powder, prepared in this manner from the Dutch gold leaf, is generally used; and when it is well scoured with varnish, it answers the end in japanners' gilding as well as the genuine.

Gold *Size*, for burnished gilding, is prepared of one pound and a half of tobacco-pipe clay, half an ounce of red chalk, a quarter of an ounce of black lead, forty drops of sweet oil, and three drams of pure tallow. Grind the clay, chalk, and black lead, separately, very fine, in water; then mix them together, add the oil and tallow, and then grind the mixture to a due consistence.

GOLDAP, a circle in the Prussian government of Gumbinnen, extending over 260 square miles, and containing 23,370 inhabitants. The capital is a city of the same name, which stands at the issue of a river out of a lake. It contains two Lutheran churches, and 3120 inhabitants. Long. 22. 12. 25. E. Lat. 54. 17. 35. N.

GOLDBERG, a circle of the Prussian government of Leignitz, in Silesia, extending over 220 square miles, and including two cities and eighty villages, with 38,900 inhabitants. The capital is a city of the same name, which stands on an elevation of 830 feet, at the foot of which is the river Katsbach. Near to it are mines of iron and manganese, and gold was formerly found. It is now a flourishing manufacturing place, with 6000 inhabitants, who produce cloths and flannels.

GOLDEN, something which has a relation to gold, or consists of gold.

Golden *Calf* was a figure of a calf, which the Israelites cast in gold, or some preparation of that metal, and set up in the wilderness to worship during Moses' absence in the mount; and which that legislator at his return burned, ground to powder, and mixed with the water the people were to drink.

Golden *Fleece*, in the ancient mythology, was the skin or fleece of the ram upon which Phryxus and Hella are supposed to have swum across the sea to Colchis, and which being sacrificed to Jupiter, was hung upon a tree in the grove of Mars, guarded by two brazen-hoofed bulls, and a monstrous dragon that never slept. The fleece was taken and carried off by Jason and the Argonauts.

Many authors have endeavoured to show that this fable is an allegorical representation of some real history, particularly of the philosopher's stone; whilst others have explained it by the profit of the wool trade to Colchis, or the gold which they commonly gathered there with fleeces in the rivers.

Order of the Golden *Fleece* is a military order instituted by Philip the Good, duke of Burgundy, in 1429. It took its denomination from a representation of the golden fleece, borne by the knights on their collars, which consisted of flints and steels.

Golden *Number*, in *Chronology*, a number showing what year of the moon's cycle any given year is. See Chronology.

Golden *Rule*, in *Arithmetic*, a rule or praxis, of great use and extent in the art of numbers, by which we find a fourth proportional to three quantities given. The golden rule is also called the *Rule of Three* and *Rule of Proportion.* See Arithmetic.

GOLDONI, Charles, the most celebrated comic writer of Italy in the eighteenth century, and in his own country styled the Italian Molière, was born at Venice in the year 1707, in which city his father acted in the capacity of

Goldoni.

physician. His attachment to the drama became conspicuous even in childhood, and this his father countenanced and cherished, by erecting a theatre in his own house, where young Goldoni and some of his companions were the actors. It is said that he even drew the outline of a comedy of his own invention when he was not more than eight years of age; a most extraordinary, though not very credible, indication of future eminence. He was taught rhetoric at Perugia, in the college of the Jesuits, and prosecuted his philosophical studies at Rimini. The stage, however, had too many attractions for him, to admit of his paying much attention to Aristotle or Quintilian, and he eloped from Rimini with a company of comedians, when they removed to Chiozza. His father attempted in vain to induce him to study either physic or the law; yet his ardent imagination was so forcibly struck with a particular ceremony of the church, that he conceived the intention of turning capuchin; but the dissipation of Venice soon extinguished this fancy. After the demise of his father he was prevailed upon by his surviving parent to engage in the profession of the law for immediate support; but some unknown causes induced him to leave the bar, after which he proceeded to Milan, and was there appointed secretary to the Venetian resident.

At Milan he brought out his first performance, under the title of *Il Gondoliere Veneziano*, which had all the success that could be expected from such a composition. He afterwards removed to Verona, where he joined himself to a company of players, and also entered into the state of wedlock. He composed a number of pieces for the company to which he attached himself, and amongst these his tragedy of Belisarius, which was performed for the first time at Venice on the 24th of November 1734, with the greatest success. Whilst as Venice he formed the laudable resolution of reforming the Italian stage, which at that time was disgraced by contemptible farce and low buffoonery. With this view, having made himself acquainted with the true nature of comedy, ne kept within the limits of nature and decorum; and such was the fertility of his genius, such his indefatigable industry, that he produced no fewer than sixteen comedies and forty-two other theatrical pieces in the course of about twelve months. Nor is it a less remarkable circumstance that some of these hasty performances are considered as his masterpieces. His works, in ten volumes 8vo, were first printed in 1753, and in 1761 his new pieces amounted to fifty-nine. And here ends the literary life of Goldoni in Italy; for about this time he accepted an engagement of two years in Paris, where he found a numerous company of excellent performers in the Italian theatre. His first attempt was unsuccessful, because he had to contend with the pantomimic drollery which was most agreeable to the depraved taste of the times. When about to leave Paris on the expiration of his engagement, he was introduced to the court, and appointed teacher of the Italian languages to the princesses. He had lodgings assigned him in Versailles, but his allowance was not sufficient to enable him to dispense with writing for the stage. Meanwhile, being anxious to show the French nation that he merited a high place among their dramatic writers, he neglected no means calculated to render him master of the French language; and, at the age of sixty-two, he ventured to write a comedy in French, which was brought out under the title of *Le Bourru Bienfaisant*, and received great applause in the court theatre. His next production was *L'Avare Fastueux*, also a comedy; and this was succeeded by *Volponi*, which he wrote after he had retired from court. The last work which he undertook was the *Mémoires pour servir à l'Histoire de sa Vie et à celle de son Théâtre*, which, after having been about three years occupied with the composition, appeared in 1787, when he entered into the eightieth year of his age. These Memoirs, written with unaffected simplicity and sincerity, display the real character both of the author and the man, and supply the most ample information respecting the history of his life. Deprived of his pension soon after the commencement of the revolution, Goldoni was reduced to absolute indigence, and passed the evening of his life in extreme distress. At length he fell sick; and it was only in his last moments, on the 7th of January 1793, that the Convention, apprised of his situation, decreed, on the report of Chenier, that his pension should in future be paid out of the national treasury, and that the arrears due to him should be immediately discharged. But it was too late. Goldoni died on the day after this decree was passed. But, on the recommendation of Chenier, a pension of 1200 francs was granted to his widow, aged seventy-six, and the arrears due to her husband were also paid to her. If the rapidity with which Goldoni composed prevented him from attaining the first rank as a comic writer, it will easily be conceded that he stands foremost in the second. His fertility is prodigious, and if his works betray marks of haste or of carelessness, they at least show ready invention, and, considering the diversity of his subjects, extraordinary resources as a comic writer. The greatest fault with which he is reproached is having contributed to corrupt the language of his country, which he seems to have been unable to write with purity, elegance, and propriety; and, in fact, we find ease, originality, and, if we may so express it, purity of style only in his comedies written in the Venetian dialect, which was his vernacular idiom. His merits are, having contributed to reform the Italian stage, supplanted farce and low buffoonery, naturalised genuine comedy in his native country, and replaced the extravagances which had so long corrupted the public taste, by pieces in which a regular plot and natural characters supply the place of nonsensical ribaldry and ridiculous exaggeration. His comic opera entitled *Buona Figliuola*, with music by Piccini, was the first production which introduced both the poet and the composer to the knowledge of our countrymen. The only complete edition of Goldoni's works is that printed at Leghorn, 1788, 1791, in thirty-one vols. 8vo.

GOLDSMITH, or, as some choose to express it, *silversmith*, an artist who makes vessels, utensils, and ornaments, in gold and silver.

The goldsmith's work is either performed in the mould, or beat out with the hammer or other instrument. All works which have raised figures are cast in a mould, and afterwards polished and finished; plates or dishes of silver or gold are beaten out from thin flat plates; and tankards, and other vessels of the kind, are formed of plates soldered together, their mouldings being beaten out, not cast. The business of the goldsmiths formerly required much more labour than it does at present; for they were then obliged to hammer the metal from the ingot to the thinness they wanted; but the flattening mills which have been latterly invented reduce metals to the thinness required, at a very moderate expense. The goldsmith makes his own moulds, and, for that reason, should be a good designer, and have a taste in sculpture; he ought also to know enough of metallurgy to be able to assay mixed metals, and to mix the alloy.

Goldsmith, *Oliver*, an eminent English poet and general writer, was born on the 29th of November 1728, at a place called Pallas, in the parish of Forney and county of Longford, in Ireland. His father, the Reverend Charles Goldsmith, was a clergyman of the established church, who had been educated at Dublin, and afterwards held the living of Kilkenny West, in the county of Westmeath. By his wife, Anne, daughter of the Reverend Mr Jones, master of the diocesan school of Elphin, he had five sons and two daughters. His eldest son Henry entered the church, and to him the Traveller is dedicated; the second was Oli-

Goldsmith.

very who is supposed to have faithfully represented his father in the character of the village preacher in the poem of the Deserted Village. Oliver was originally intended for some mercantile employment, and with this view he was instructed in reading, writing, and arithmetic, at a common school; but as he had shown an early predilection for poetry, and betrayed some inequalities of temper and conduct which seemed to indicate a disposition more favourable to the pursuits of genius than the regularity of business, he was put to a school of reputation to qualify him for entering the university with the advantage of suitable preparation. In June 1744, being then in his fifteenth year, he was entered as a sizer at Trinity College, Dublin; and in this seminary he continued a few years, when he took a bachelor's degree; but his brother not being able to obtain any preferment after he left the college, Oliver, by the advice of a relation, turned his thoughts to the study of physic; and after attending some courses of anatomy in Dublin, proceeded, in the year 1752, to Edinburgh, where he studied the several branches of medicine under the different professors in that university. But his thoughtless disposition soon involved him in difficulties; and he was obliged to leave Scotland precipitately, in consequence of engaging to pay a considerable sum of money for a fellow student. A few days afterwards, about the beginning of the year 1754, he arrived at Sunderland, near Newcastle, where he was arrested at the suit of a tailor in Edinburgh, to whom he had given security for his friend. But by the good offices of Mr Laughlan Maelane and Dr Sleigh, he was soon delivered out of the hands of the bailiff, and took his passage on board a Dutch ship to Rotterdam, where, after a short stay he proceeded to Brussels. He then visited the greater part of Flanders; and, after passing some time at Strasburg and Louvain, where he obtained the degree of bachelor of physic, he accompanied an English gentleman to Berne and Geneva, in Switzerland.

It is undoubted that this ingenious but unfortunate person travelled on foot during the greater part of his tour. He had left England with very little money; and being of a philosophical turn, and at that time possessing a body capable of sustaining every fatigue, and a heart not easily appalled at danger, he became an enthusiast in the design he had formed of seeing the manners of different countries. He had some knowledge of the French language and of music, and he played tolerably well on the German flute; which, from an amusement, became at some times his only means of subsistence. His learning produced him a hospitable reception at most of the religious houses; and his music made him welcome to the peasants of Flanders and other parts of Germany. "Whenever I approached a peasant's house towards night-fall," said he, "I played one of my most merry tunes, and that procured me not only a lodging, but subsistence for the next day; but in truth I must own, whenever I attempted to entertain persons of a higher rank, they always thought my performance odious, and never made me any return for my endeavours to please them."

On Goldsmith's arrival at Geneva, he was recommended as a proper person for a travelling tutor to a young man who had been unexpectedly left a considerable sum of money by his uncle, formerly an eminent pawnbroker near Holborn. This youth, who had been articled to an attorney, determined, on receipt of his fortune, to see the world; and, on his engaging with his preceptor, made a provision that he should be permitted to govern himself; but Goldsmith soon found his pupil understood extremely well the art of managing his money concerns, avarice being, in fact, his ruling passion. His questions were usually how money might be saved, which was the least expensive course of travelling, and whether any thing could be bought that would turn to account when disposed of again in London. Such curiosities on the way as could be seen for nothing he was ready enough to look at; but if the sight of them required to be paid for, he usually asserted that he had been told they were not worth seeing. A companion of this turn could not be much to Goldsmith's taste, and in truth must have been intolerable to any one. During his continuance in Switzerland he assiduously cultivated his poetical talent, of which he had given some proofs even whilst at Edinburgh. It was from this country that he sent the first sketch of his poem called the Traveller to his brother the clergyman in Ireland, who, giving up fame and fortune, had retired with an amiable wife, to happiness and obscurity, on an income of only L.40 a year. From Geneva Mr Goldsmith and his pupil visited the south of France, where the young man, upon some disagreement with his preceptor, paid him the small part of his salary which was due, and embarked at Marseilles for England. Our wanderer was thus left once more at large in the wide world, and passed through a variety of difficulties in traversing the greater part of France. At length his curiosity being satiated, he bent his course towards England, and arrived at Dover in the year 1756.

When he reached London, his stock of cash did not amount to a couple of shillings; and being an entire stranger in the metropolis, his mind was filled with the most gloomy reflections on his embarrassed situation. With some difficulty he discovered the part of the town in which his old acquaintance Dr Sleigh resided. This gentleman received him with the warmest affection, and liberally invited him to share his purse until some establishment could be procured for him. Unwilling, however, to be a burden to his friend, Goldsmith, a short time afterwards, embraced an offer which was made him to assist Dr Milner in instructing young gentlemen at an academy at Peckham; and for a short time he acquitted himself greatly to the doctor's satisfaction. But having obtained some reputation by some criticisms he had written in the Monthly Review, Mr Griffith, the proprietor, engaged him in the compilation of that work; and, resolving to pursue the profession of writing, he returned to London, as the mart where abilities of every kind were sure to meet distinction and reward. As his finances were by no means in a good state, he determined to adopt a plan of the strictest economy, and took lodgings in an obscure court in the Old Bailey, where he wrote several ingenious little pieces. Mr Newberry, who was at that time a great encourager of men of literary abilities, became a patron of our author, and introduced him as a writer in the Public Ledger, in which his Citizen of the World originally appeared, under the title of Chinese Letters.

Fortune now seemed to bestow some notice on a man whom she had long neglected. The simplicity of his character, the integrity of his heart, and the merit of his productions, made his company acceptable to a number of respectable families; and he emerged from his shabby apartments in the Old Bailey to the politer air of the Temple, where he took handsome chambers, and lived in a genteel style. The publication of his Traveller, and his Vicar of Wakefield, was followed by the performance of his comedy of the Good-Natured Man at Covent Garden Theatre; a production which placed him in the first rank of the poets of the age.

Amongst many persons of distinction who were desirous to know him was the Duke of Northumberland; and the circumstance which attended his introduction to that nobleman is worthy of being related, as showing a striking trait of his character. "I was invited," said the doctor, as he was then universally called, "by my friend Mr Percy, to wait upon the duke, in consequence of the satisfaction he had received from the perusal of one of my

Goldsmith.

productions. I dressed myself in the best manner I could, and, after studying some compliments I thought necessary on such an occasion, proceeded to Northumberland House, and acquainted the servants that I had particular business with his grace. They showed me into an antichamber; where, after waiting some time, a gentleman very genteelly dressed made his appearance. Taking him for the duke, I delivered all the fine things I had composed in order to compliment him on the honour he had done me; when, to my great astonishment, he told me I had mistaken him for his master, who would see me immediately. At that instant the duke came into the apartment, and I was so confused on the occasion, that I wanted words barely sufficient to express the sense I entertained of the duke's politeness, and went away extremely chagrined at the blunder I had committed." Absence, simplicity, credulity, and entire ignorance of the world, appear to have formed the principal elements in the character of this amiable but somewhat eccentric man of genius. He was indeed "in wit a man, simplicity a child."

Previously to the publication of his Deserted Village, the bookseller had given him a note for a hundred guineas for the copyright, which the doctor mentioned a few hours afterwards to one of his friends, who observed, it was a very great sum for so short a performance. "In truth," replied Goldsmith, "I think so too; I have not been easy since I received it, therefore I will go back and return him his note." This he absolutely did, and left it entirely to the bookseller to pay him according to the profits produced by the sale of the piece, which, however, proved to be very considerable.

During the last rehearsal of his comedy entitled She Stoops to Conquer, which Coleman had no opinion would succeed, on the doctor's objecting to the repetition of one of Tony Lumpkin's speeches, being apprehensive it might injure the play, the manager with great keenness replied, "Psha, my dear doctor, do not be fearful of squibs, when we have been sitting almost these two hours upon a barrel of gunpowder." The piece, however, contrary to Coleman's expectation, was received with uncommon applause by the audience; and Goldsmith's pride was so much hurt by the severity of this observation, that it entirely put an end to his friendship for Coleman.

Notwithstanding the great success of his pieces, by some of which, it has been asserted on good authority, he cleared L.1800 in one year, his circumstances were by no means in a prosperous condition. This was partly owing to the liberality of his disposition, and partly to an unfortunate habit he had contracted of gaming, the arts of which he knew very little of, and consequently became the prey of those who were unprincipled enough to take advantage of his simplicity.

Just before his death he had formed a design of executing an Universal Dictionary of Arts and Sciences, the prospectus of which he actually published. In this work several of his literary friends, particularly Sir Joshua Reynolds, Dr Johnson, Mr Beauclerc, and Mr Garrick, had undertaken to furnish him with articles upon different subjects; and he entertained the most sanguine expectations of its success. The undertaking, however, did not meet with that encouragement from the booksellers which he had imagined it would undoubtedly receive; and he used to lament this circumstance almost to the last hour of his existence.

He had been for some years afflicted, at different times, with a violent strangury, which contributed not a little to embitter the latter part of his life; and which, united with the vexations he suffered on other accounts, brought on a kind of habitual despondency. In this unhappy condition he was attacked by a nervous fever, which, being improperly treated, terminated his existence on the 4th of April 1774, at the age of forty-five.

Golf
Golius.

The learned leisure which he loved to enjoy was too often interrupted by distresses which arose from the liberality of his temper, and which sometimes threw him into loud fits of passion. But this impetuosity was corrected upon a moment's reflection; and his servants have been known upon these occasions purposely to throw themselves in his way, that they might profit by it immediately afterwards; for he who had the good fortune to be reproved was certain of being rewarded for it. The universal esteem in which his poems were held, and the neverfailing pleasure which they afford in the perusal, are striking proofs of their merit. He was a studious and correct observer of nature; happy in the selection of his images, the choice of his subjects, and the harmony of his versification; and though his embarrassed situation prevented him from putting the last hand to many of his productions, his Hermit, his Traveller, and his Deserted Village, bid fair to retain their place amongst the most finished pieces in the English language.

Besides the works already mentioned, he wrote, 1. History of the Earth and Animated Nature, in 6 vols. 8vo; 2. History of England, in 4 vols. 8vo; 3. History of Rome, in 2 vols.; and, 4. Abridgments of the two last, for the use of schools. Goldsmith's Miscellaneous Works were collected and published by Bishop Percy, who prefixed to his edition a valuable and interesting life of the author.

GOLF, the name of a certain game amongst the Scotch, and said to be peculiar to their country. Amongst this people it has been very ancient; for there are statutes prohibiting it as early as the year 1457, lest it should interfere with the sport of archery. It is commonly played on rugged or broken ground, covered with short grass, in the neighbourhood of the sea shore. A field of this sort is in Scotland called *links*. The game is generally played in parties of one or two on each side. Each party has an exceedingly hard ball, somewhat larger than a pullet's egg; and this they strike with a slender and elastic club, of about four feet in length, crooked in the head, and having lead run into it to make it heavy. The ball being struck with this club, flies sometimes to the distance of two hundred yards, and the game is gained by the party who puts his ball into the hole with the fewest strokes. But the game does not depend solely upon striking the longest ball, but also upon measuring the strength of the stroke, and applying it in such direction as to lay the ball in smooth ground, whence it may easily be moved at the next stroke. To encourage this amusement, the city of Edinburgh, in the year 1744, gave to the company of golfers a silver club, to be played for annually by the company, the victor to append a gold or silver piece to the prize. For their better accommodation, twenty-two members of the company, in the year 1768, subscribed L.30 each to build a house where their meetings might be held. The spot chosen for this purpose was the southwest corner of Leith Links, where an area was taken in feu from the magistrates of Edinburgh, and a house and tavern built upon it. St Andrews has long been celebrated for the game of golf.

GOLIUS, James, a professor of Arabic and mathematics at Leyden, was descended from a considerable family of the same name, and born at the Hague in the year 1596. He was early sent to the university of Leyden, where he studied under Erpenius; and having made himself master of the learned languages, applied himself to the study of mathematics, physic, and divinity. He afterwards travelled into Africa and Asia; and was greatly esteemed both by the king of Morocco and the sultan of Turkey. He at length returned to Leyden loaded with manuscripts; and in 1624 succeeded Erpenius in the Arabic chair. As he had been an eye-witness of the wretched state of Christianity in the Mahommedan countries, he was filled with the compassion of a fellow Christian; and none ever solicited for a place of honour and profit with greater eagerness than he did for procuring a new edition of the New Testament, in the original language, with a translation into the modern Greek by an archimandrite; and as there are some of these Christians who use the Arabic tongue in divine service, he also caused to be dispersed amongst them an Arabic translation of the confession of the Protestants, together with the Catechism and Liturgy. In 1626 he was chosen professor of mathematics, and discharged the functions of both professorships with the greatest applause during forty years. He was likewise appointed interpreter in ordinary to the states for the Arabic, Turkish, Persian, and other eastern languages, and had an annual pension conferred upon him, together with a present of a gold chain and a beautiful medal, which he wore as a badge of his office. Although entitled to be considered as an universal scholar, Golius excelled chiefly in philology and languages, in the acquisition of which he evinced equal ability and application. At the age of fifty-four he made himself master of Persian, in which he wrote a dictionary, afterwards printed in Castell's *Lexicon Heptaglotton;* he was intimately acquainted with the Turkish; and he had made such progress in the Chinese that, though he applied late in life to the study of it, he was able to read and understand books written in that language. Besides the works which he had printed and published, he left several unfinished manuscripts, which, if he had lived to complete them, would have done credit to his talents and learning. His published works are, 1. *Chadzrat-aladab min kelam alarab*, hoc est, Proverbia quædam Alis Imperatoris Muslemici, et Carmen Tograï poëtæ doctissimi, necnon Dissertatio quædam Aben-Synæ, Leyden, 1629, in 8vo; 2. Lexicon Arabico-Latinum, contextum ex probatioribus Orientis lexicographis: accedit index copiosissimus, qui Lexici Latino-Arabici vicem explere possit, Leyden, 1653, in folio; 3. Muhamedis filii Ketiri Ferganensis, qui vulgo Alfraganus dicitur, elementa Astronomica Arabice et Latine, cum notis ad res exoticas sive Orientales, quæ in iis occurrunt, Amsterdam, 1669, in 4to; 4. Ahmedis Arabsiadæ vitæ, et rerum gestarum Timuri qui vulgo Tamerlanes dicitur, Historia, Leyden, 1636, in 4to; 5. An edition of the Arabian Grammar of Erpenius, to which Golius added, Adagiorum Arab. centuriæ iii. Poetarum sententiæ lix. Consessus i. Haririi, Carmen Abu-Olæ, and Patriarchæ Antioch. Eliæ iii. qui floruit circa annum Christi 1180, homilia de nativ. Christi; 6. Dictionarium Persico-Latinum, left in manuscript at his death, and published, as already mentioned, in Castell's *Lexicon Heptaglotton*. Golius died on the 28th of September 1667.

GOLTZIUS, Henry, a celebrated engraver and painter, was born in 1558, at Mulbreck, in the duchy of Juliers. He was taught engraving by Theodore Cuerenhert, and succeeded well in the practice of the art, notwithstanding the disadvantage of a lame hand, which was occasioned by his falling into the fire whilst young. He was first employed by his master, and afterwards he worked for Philip Galle. Domestic troubles and ill health having induced him to travel, he went through Germany into Italy; and passed under a feigned name, that his studies might not be interrupted. He visited Bologna, Florence, Naples and Venice, constantly applying himself to drawing from the antique statues, and studying the works of the great masters. At Rome he resided longest; and in that city he produced several excellent engravings from Polidore, Raphael, and other eminent painters. On his return to his native country he established himself at Haerlem, where he engraved many of the drawings which he had made during his abode in Italy. He died at Haerlem in 1617, aged fifty-nine.

GOMBROON, a celebrated sea-port of Persia, in the province of Laristan, situated in a barren country on a bay of the Gulf of Ormus. This was at one time the first sea-port in the kingdom of Persia, being the port of Shiraz, and of all the southern provinces; and it was at that time strongly fortified. The houses were large and handsome, but the place was considered very unhealthy. Gombroon is still a place of considerable trade. The customs amount to about 20,000 rupees a year, for which the imaum of Muskat, to whom the town is subject, accounts to the kings of Persia. The town is large, and the houses are built in a much more commodious manner than is usual in the towns of Persia. The fort of Minab, by which the town is defended, is divided into the upper, centre, and lower forts. Close to the fort a small river breaks through the hills, and forms a pass from the eastward. This river, together with the canals made to diffuse its waters, serve as ditches to the fort. The country for forty-five miles around Minab is covered with villages, abounds in dates, and supplies all the neighbouring country with grain. Forage is so plentiful that the cattle of the adjoining districts are sent in great numbers to feed there during the hot season. The English obtained permission to settle a factory here in 1613. About 1620 the Dutch obtained the same privilege; and when Ormus was captured in 1622, by the English and Persians, merchants resorted thither in great numbers, and commerce greatly increased The English remained here till 1759, when the factory, defenceless and totally neglected, was attacked by the French under Count d'Estaing, to whom it surrendered. The factory was afterwards re-established, but has long since been withdrawn, in consequence of the unhealthiness of the climate. Long. 56. 12. E. Lat. 27. 18. N.

GOMERSALL, a township of Yorkshire, within the parish of Birstall, in the wapentake of Morley, in the west riding of Yorkshire. The woollen manufactory employs the greater part of the inhabitants, who in 1801 amounted to 4309, in 1811 to 5902, in 1821 to 5952, and in 1831 to 6189.

GOMOR, a circle of the Hungarian province of the Hither Theiss, extending over 1596 square miles, and comprehending a city, twelve market-towns, and two hundred and sixty villages, with 164,000 inhabitants. It is the most mountainous portion of Hungary, and includes part of the Carpathian range. It contains many mines, and the metals obtained from these give occupation to the people, who apply them to making hardware. The climate is cold and raw, but the soil produces flax, tobacco, and some corn, abundance of cattle, and some butter and cheese. Linen goods are manufactured to some extent. The capital is a small town of the same name, where the Lutherans have a college with a good library.

GOMORRAH, one of the cities of the plain or of the vale of Siddim, in Judæa, destroyed together with Sodom by fire from heaven, on account of the wickedness of the inhabitants.

GONDAR, the capital of Abyssinia, situated, according to Mr Bruce's observations, in latitude 12. 30. north, and longitude 57. 40. east from Greenwich. See Abyssinia.

GONDI. See Retz, Cardinal de.

GONDOLA, a flat boat, very long and narrow, and chiefly used at Venice for rowing on the canals. The word is Italian, *gondola*. Du Cange derives it from the modern Greek κουντελας, a *bark* or *little ship;* but Lancelot deduces it from γονδυ, a term in Athenæus for a sort of vase.

GONIEH, a fortified town on the coast of the Black Sea, on the south of the Phasis, and which, though properly forming part of Georgia, is almost entirely dependent on the Turkish government. It was formerly a considerable place, but is now sunk into a miserable village. It is 80 miles east-north-east of Trebisond.

GONONG APEE, one of the smaller Banda Islands, at the north-east end of the harbour of Beema, in the island of Sumbawa, and forming the west side of the north entrance of Sapy Straits. It derives its name from a large volcano about 1500 feet in height, and which terminates in two high peaks, and constantly emits smoke and ashes. It is separated from Neira by a narrow strait, and at a distance has the appearance of a heap of cinders. On the south side of the island are two forts, originally intended to defend the west channel of Lantore harbour; but owing to the eruption of the volcano in 1778, the lava flowed down in such quantities as to render them in a great degree useless.

GONONG TELLOO, a town in the island of Celebes, situated on a river of the same name, two miles from the sea, on the north side of the great bay of Tominie or Gonong Telloo, which stretches inland nearly to the west side of Celebes. It was subject to the Dutch, who had a considerable fort on the river, with two small ones at its entrance, but it was reduced when the island of Celebes was taken possession of by the British in 1812. Ships can anchor at the entrance of the river in deep water; and just within the entrance are two small coves, either of which a ship may haul into, and be sheltered from the strong freshes that come down the river. The inhabitants are Malays and Mahommedans. A considerable trade is carried on, and the rajah is the principal merchant. The articles chiefly imported are opium, iron, gunpowder, piece-goods of a common kind, and coarse cutlery. Gold is one of the principal exports, and also tortoise-shell; the gold is procured from a mine to the westward of Gonong Telloo. Long. 123. E. Lat. 0. 30. S.

GONIOMETRY, a method of measuring angles, so called by M. de Lagny, who published several papers on this method in the Memoirs of the Academy of Sciences in the years 1724, 1725, 1729. M. de Lagny's method of goniometry consists in measuring the angles with a pair of compasses, and that without any scale whatsoever, except an undivided semicircle. Thus, having any angle drawn upon paper to be measured, produce one of the sides of the angle backwards behind the angular point; then with a pair of fine compasses describe a pretty large semicircle from the angular point as a centre, cutting the sides of the proposed angle, which will intercept a part of the semicircle. Take this intercepted part exactly between the points of the compasses, and turn them successively over upon the arc of the semicircle, to find how often it is contained in it; and as after this there is commonly some remainder, take such remainder in the compasses, and in like manner find how often it is contained in the last of the integral parts of the first arc; and if there be again some remainder, find in like manner how often this last is contained in the former; and so on continually, till the remainder become too small to be taken and applied as a measure. By this means may be obtained a series of quotients, or fractional parts, one of another, which being properly reduced into one fraction, give the ratio of the first arc to the semicircle, or of the proposed angle to two right angles, or a hundred and eighty degrees, and consequently that angle itself in degrees and minutes.

GONORRHŒA, an efflux of matter from the urethra, most commonly owing to venereal infection.

GOOCHNAUTH, a village of Hindustan, in the province of Gujrat and district of Werrear, situated on the south bank of the Bunass river about three miles south-east from Rahdunpoor. The neighbouring country is in a state of high cultivation, and most of the fields are enclosed. It belongs to a Mahommedan chief.

GOOD, in general, whatever is apt to increase pleasure, to diminish pain; or, which amounts to the same thing, whatever is calculated to procure or preserve to us the possession of agreeable sensations, and remove those of an opposite nature. See MORAL PHILOSOPHY.

GOOD'S *Island*, an island on the north coast of New Holland, in Torres Strait, about two miles in length. It has a rocky soil, and is hilly and covered with wood. It abounds in a species of silk cotton plant. Long. 142. 10. E. Lat. 10. 32. S.

GOOD *Fortune*, or *Poro*, an island in the Eastern Seas, near the west coast of Sumatra, about thirty-six miles in length and six in breadth. Long. 98. 30. E. Lat. 1. 5. S.

GOOD *Friday*, a fast of the Christian church, in memory of the sufferings and death of Jesus Christ. It is observed on the Friday in holy or passion week; and it is called, by way of eminence, *good*, because of the blessed effects of our Saviour's sufferings, which were a propitiatory or expiating sacrifice for the sins of the world. The commemoration of our Saviour's sufferings has been observed from the very first ages of Christianity, and was always kept as a day of the strictest fasting and humiliation. Amongst the Saxons it was called *Long Friday*, but for what reason, except perhaps the long fastings and offices then used, is uncertain.

GOOD HOPE, CAPE OF, a district of country in the southern portion of Africa, in the possession of Great Britain. In the distribution of land and water, this cape occupies a conspicuous place on the map of the globe. It separates the Indian Ocean from the Atlantic, and divides the voyage to Hindustan into two nearly equal portions. To double this Cape, and bear across the ocean to the golden shores of India, was an object of ambition to the early Portuguese navigators. It was first descried, in 1493, by Diaz, who commanded a Portuguese squadron. (See GAMA.) The tempestuous nature of the sea, however, caused by the conflict of contending oceans running in opposite directions, compelled the navigator to return. By him the newly discovered land was called the Cape of Tempests; but the king of Portugal gave it the more auspicious name which it still bears. The formidable barrier, however, was not passed until 1497, when the celebrated Vasco de Gama, with his characteristic boldness, surmounted every difficulty, and carried the Portuguese flag into the Indian Sea. The Portuguese, however, found a richer spoil in the kingdoms of the East; and although they frequently touched at the Cape, they did not make any permanent settlement there. But the Dutch early saw the importance of forming a station at the Cape, and fixed upon it as a place where their vessels might take in water and provisions. But they did not, properly speaking, colonize it, until the middle of the seventeenth century, when they founded Cape Town. This led to further improvements, and the colony gradually assumed its present dimensions. The natives were either compelled to fly beyond the mountains, or they were reduced to a state of abject slavery. During the war with revolutionary France, the Cape was reduced by the British in 1797, but was ceded to Holland by the peace of Amiens. When the war recommenced, it again yielded to Britain, and the permanent possession of it was confirmed by the congress of Vienna in 1815.

This colony is bounded on the north and east by the Orange and Fish Rivers, and on the west and south by the Atlantic and Southern Oceans. The country extends from latitude 26. to 33. 55. 40. south. It includes the country inhabited by the Hottentot race and the Boshuanas. The country upon the map presents a very irregular figure; but Mr Barrow, reducing it to a parallelogram, computed that the Cape Colony comprehended an area of at least 120,000 square miles. Of this great tract of territory, a very considerable proportion is a sterile waste.

Chains of vast and barren mountains enclose level plains composed of a hard surface of clay, thinly sprinkled over with sand, and producing straggling tufts of stunted shrubs. The mountains generally extend in the direction of east and west, but there are exceptions to this rule.

The first great chain of mountains, which runs east and west, is called Lange Kloof or Long Pass. Between it and the southern coast there lies an irregular belt of land from twenty to sixty miles in width. It is indented by several bays, and, possessing a good soil and a more mild and equable temperature than the interior parts of the colony, it is well clothed with vegetation, and is in many parts wooded with forest trees. The next great chain is the Swartebergen, or Black Mountains. It is more lofty and rugged than the first, and in many places consists of double, and sometimes treble ranges of hills. Between it and the first chain there lies a belt which is about the mean width of that between the first and the sea. Its surface is very various, being composed in some parts of barren hills; in others of arid tracts of clay land called karroo; and in some places of fertile land. This belt lies higher than the first; but the temperature is less uniform, and altogether it is not so valuable as the other. The third great range is the Nieuweveld Mountains, which, with the second, encloses the Great Karroo,[1] an arid plain 309 miles in length, and eighty in breadth. This desert, which forms the third step or terrace of Southern Africa, is greatly elevated above the second. It is destitute of inhabitants, and almost of vegetation. What there is of the latter is parched and shrivelled by the heat of the sun, and from the want of moisture. On the western coast are also elevated chains of mountains. To the northward the country is more barren and sandy than towards the eastward. Sandstone resting upon a base of granite composes all the continuous chains of mountains in Southern Africa. These are the most prevailing rocks; the next in frequency are clay-slate, and there are also greywacke, quartz rock, and dolerite. In some parts the sandstone is traversed by veins of red iron ore. Dr Clarke Abel mentions a vein six feet wide, and extending for upwards of a hundred feet.

On the western coast there are two principal rivers, the Berg or Mountain River, which falls into St Helena Bay, and the Olifant or Elephant's River, which falls into the Southern Atlantic in south latitude 31. 30. Both these rivers have obstructions at their mouths, which prevent their being navigable. On the south coast are several considerable rivers, one of which is the Great Fish River. All these streams are well stocked with various kinds of fish. Breede or Braad River is navigable by ships of 200 tons burden, and its mouth has been called Port Beaufort. Here the exports of the district are made. The Grautz is the next great river of the coast. It is a collection of waters from the Great Karroo, the Black Mountains, and the maritime chain. The other streams it is unnecessary to mention. Southern Africa possesses but few lakes, and of these some are salt. There is also a paucity of springs; and although much rain falls in Cape District, it affords comparatively few, on account of the peculiar nature and relative position of the strata.

Cape Colony is divided into two provinces, the eastern and western, which are again subdivided into districts, arranged as under:

Western Province.—Cape District, Stellenbosch, Caledon, Zwellendam, Worcester (formerly Julbach), Clanwilliam.

Eastern Province.—Graaff Reynet, Beaufort, Somerset, Albany, Uitenhage, George, Fredericksburg.

It is to be observed that some of these districts have been united into one, since the commissioners of inquiry into the state of the colony suggested the propriety of dividing Cape Colony into two provinces. Although they are of nearly equal superficial extent, in their physical character and productions they are very unlike. The western districts produce chiefly corn and wine, and the eastern are principally adapted for pasturage.

Cape District is the most populous and prosperous of the whole. It consists of two parts; the peninsula on which the town stands, and the slip of land extending from the shore of Table Bay to the mouth of Berg River, and separated from Stellenbosch and Drakenstein by the Little Salt River, Deep River, and Mossel Bank River. This is about eighty miles from north to south, and twenty-five from east to west; whilst the Cape Peninsula is about thirty miles in length and eight in breadth. Both comprehend a surface of about 2240 square miles, and contain a population of 7462 souls, exclusively of the capital.

Cape Peninsula is distinguished for the richness and variety of its vegetable productions. Some of the finest botanical specimens which now adorn the gardens of Europe have been derived from this quarter of the world. In no other place do the bulbous plants in particular exhibit so many beautiful varieties. Others of the vegetable tribes, which are rather for ornament than use, are likewise numerous and beautiful; but there is a deficiency of building timber and fire wood, although forests of oak are said to exist to the east of False Bay, in that part called Hottentot Land. Many European plants have been introduced, as the vines of France, and the fruits of the north of Europe; and it is believed that the tea of China, the coffee of Java, the cotton of India, and the tobacco of America, as well as other valuable vegetable productions, might be successfully cultivated at the Cape. Of metals, copper, native iron, silver, and lead, are known to exist, and coal is said to have been discovered. This would no doubt be an invaluable acquisition to the natural wealth of the Cape; but at present the staple commodities upon which the colony depends are the produce of the wine districts; grain, hides, and skins; horses, argol, aloes, and wool. Perhaps silk might be made a source of colonial revenue, for here the mulberry grows to perfection, and the climate is precisely adapted to the worm. With regard to the zoology of the Cape of Good Hope, as there is little peculiar to this part of Southern Africa, and as under the head of Africa sufficient details are given, it is unnecessary to recapitulate what will be found in that article. We shall commence our topographical descriptions with the seat of government, Cape Town.

Cape Town, the capital of the colony, lies at the bottom of Table Bay, about thirty-two miles north from the Cape of Good Hope, and on the western side of the territory to which it gives its name, in longitude 18. 21. E. and latitude 33. 55. 56. S. The town, as we have already mentioned, was founded by the Dutch in 1650, after which it shared in the various vicissitudes which were experienced by the colony. The streets are regularly laid out in straight lines, crossing each other at right angles. Though unpaved, they are kept in excellent order, many of them being watered by canals, and planted on each side with oaks. The houses are built of brick, and faced with a stucco of lime, and they are decorated with cornices and architectural devices. Each house has in front a paved platform, called the stoep or step, usually eight or ten feet wide, and raised from two to four feet above the level of the street. It is here that the inhabitants retire to enjoy the air, or the converse of friends. The roofs have only an inclination sufficient to allow the rain to run down. Although the houses do not display the luxury and splendour of European man-

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[1] The word *karroo* belongs to the Hottentot language, and signifies dry or arid.

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sions, they are nevertheless commodious and comfortable. There are three churches here, one for the Reformed or Calvinistic congregation, the established church of the Dutch government; one for the performance of the English service, built in 1820; and a third belonging to the Lutherans, who are a numerous body. Besides these, there is a meeting-house open to preachers of various denominations; and the Malays have a place of worship, in which the Mahommedan service is performed. The public buildings of Cape Town are, the government-house, which stands in a garden surrounded with plantations; the burgher senate-house, a large handsome building, where civic business is transacted, and which stands on one side of a square, where a market for vegetables is held; the commercial exchange, a building which contains the court of justice, the secretary's office, and most of the principal public offices; the custom-house, and other public buildings, such as are necessary in conducting the affairs of a large town. It is defended by a castle of considerable strength, which commands the jetty or landing place, and part of Table Bay, and completely controls the only road between the town and country. Table Bay is capable of containing any number of ships; but it is exposed to the westerly winds during the months of June, July, and August, during which there is thrown in a heavy swell, which often proves very destructive. This is the great drawback upon Cape Town, otherwise so admirably adapted for a commercial station. During the prevalence of the easterly monsoon, however, Table Bay is perfectly safe; whilst the cheapness of provisions, the healthiness of the climate, and, above all, its position, render it an excellent resting place for vessels bound to or returning from India, China, Australia, and other places.

Large quantities of corn of a very good description are produced in the immediate neighbourhood of Cape Town; but its free exportation is restrained, none being allowed to be sent abroad, except a specified quantity decided upon by government after an investigation into the state of the crops. Large quantities of wine, and of what is called brandy, are produced at the Cape; but, with the exception of Constantia, they are very inferior. Considerable quantities of hides, skins, and horns, are exported. They are principally brought from Algoa Bay, on the eastern side of the colony; and the trade has increased very fast during the last six or seven years. Horses, butter, beef, ivory, whale oil, aloes, argol, and various other articles, are among the exports. The imports at the Cape consist of woollens, cottons, hardware, earthen ware, furniture, haberdashery, soap, paper, books, and portions of most articles used in this country. Piece-goods and teak timber are imported from India, tea from China, sugar from India and the Mauritius, &c. The total revenue of the Cape Colony for the year 1832 amounted to L.130,808. 7s. 3½d.; the expenditure for the same year was L.126,889. 0s. 9¾d; leaving a balance or surplus of L.3919. 6s. 10¾d. The trade between the colonists and the independent natives is subjected to restraints, which do not work advantageously. According to the accounts published by the board of trade, the values of the products imported into and exported from the Cape of Good Hope in 1831 were as under.

Countries.	Imports.	Exports.
Great Britain	L.281,445	L.127,468
British colonies	37,751	70,957
Foreign states	25,855	14,700
	L.345,051	L.213,125

During the same year, the ships and tonnage entering inwards from, and clearing outwards to, the under-mentioned countries, were—

Countries.	Inwards.		Outwards.	
	Ships.	Tons.	Ships.	Tons.
Britain	79	20,737	104	33,393
British colonies	88	29,960	75	19,097
Foreign states	38	14,769	52	9,915
	205	65,466	231	62,405

According to the Cape Almanac, the population in 1829–30 amounted to 13,103 free persons, and 5838 slaves, making in all 18,491.

Articles, the Produce and Manufacture of the Cape Colony, exported in 1829.

Articles.	Amount.		
	L.	*s.*	*d.*
Aloes, 375,736 lbs. and 61 casks and cases, estimated value	2,794	0	0
Argol, 22,422 lbs.	535	0	0
Butter, 105,519 lbs. and 152 casks and jars	5,570	16	4½
Beef, pork, and tongues, salted, 1780 casks and kegs	4,353	7	1½
Beer, 3306 gallons	240	0	0
Biscuits and rusks, 20,000 lbs.	228	0	0
Corn, grain, meal, &c. viz.			
Barley and oats, 13,553 muids	4,163	6	0
Beans and peas, 60 muids	87	0	0
Bran, 36,332 lbs.	121	0	0
Flour, 78,224 lbs	866	0	0
Wheat, 24,236 muids	23,449	0	0
Cheese	31	10	0
Curiosities	467	12	6
Confectionery,	29	0	0
Candles, 11,584 lbs	383	0	0
Carriages	38	0	0
Feathers, ostrich, 539 lbs. and 31 boxes	1,917	0	0
Fish	1,589	10	5
Fruits, dried, 133,333 lbs.	4,236	0	0
green	49	0	0
Garden seeds and bulbs	413	2	0
Gum, 16,943 lbs. and 2 cases	96	0	0
Hides, horse and ox, 79,035 pieces	33,722	18	5¼
Horns, 244,610 in number	5,989	6	0
Hay, 29,160 lbs.	79	0	0
Horses, 314 in number	8,753	0	0
Ivory, 25,497 lbs. and 227 tusks, bundles and casks	3,759	0	0
Lime, 72 half-aams	10	0	0
Leather, 2 cases	10	0	0
Mules, 48 head	688	0	0
Oil, whale, 34,662 gallons and 90 casks	4,023	6	0
Oxen, cows, and calves, 444 head	1,782	0	0
Polonies	63	0	0
Potatoes and onions, 367 muids	169	0	0
Poultry	138	0	0
Salt, 288 muids	28	16	0
Sheep, 3282 in number; pigs, 33; goats, 2	1,506	10	0
Spirits, viz.			
Brandy, 1408½ gallons	85	0	0
Liqueurs, 24 gallons	20	0	0
Soap, 1218 lbs.	24	0	0
Carry forward	112,508	0	10¼

Articles.	Amount.		
	L.	s.	d.
Brought forward......	112,508	0	10¼
Saddlery and harness........................	23	0	0
Skins, viz.			
Goat, 91,781 pieces and 55 bundles	514	15	0
Seal, 3928 pieces..........................	834	0	0
Sheep, 77,343 pieces......................	3,795	0	0
Calf, 1414 pieces and 2 bundles...	169	0	0
Rabbit and mole, 490 pieces.......	14	0	0
Karosses, 1 case..........................	7	10	0
Tallow, 13,333 lbs.............................	408	0	0
Vinegar, 428 gallons..........................	13	0	0
Wine, ordinary, 1,548,977½ gallons......	146,936	0	0
Constantia, 2874 gallons............	2,137	0	0
Wool, 33,280 lbs. and 11 bags............	1,220	0	0
Wood...	73	10	0
Whalebone, 13,038 lbs. and 229 bundles	1,392	0	0
Wax, bees', 910 lbs...........................	22	0	0
Zebras, 4 head................................	148	0	0
Supplies to his Majesty's Navy.			
Beef, fresh, 137,662 lbs..........................	717	0	0
Biscuit, 259,616 lbs............................	2,859	0	0
Bread, soft, 118,480 lbs........................	740	0	0
Flour, 57,422 lbs.................................	632	0	0
Hay 5630 lbs................	26	0	0
Raisins, 10,722 lbs.............................	191	0	0
Sheep, 34 in number, and oxen 23......	83	0	0
Vegetables, 30,013 lbs..........................	306	0	0
Wine, ordinary, 18,091 imperial quarts	1,432	0	0
Total estimated value of colonial produce and manufactures exported during the year 1829....	277,200	15	10¼

The whites are composed of individuals from various uropean nations. The most numerous of the inhabitants e the Dutch, who still occupy places of importance. The ves are for the most part Malays, or natives of Madagasr and the eastern coast. The Hottentots prefer a couny life, and are generally averse to residing in towns. In gard to the society of Cape Town, Mr Thomson observes, Of the habits and customs of the Cape Dutch in Cape own and its vicinity, I need only say, that they are beming every day more decidedly English. It will be a atter of regret, if they ever so entirely change as to lose me of their present character. They are a frank and spitable, and at the same time a prudent and thrifty ce."[1] The old Dutch court of justice, which till within ew years administered the law, has been superseded by court more on the English model, consisting of a chief stice and three puisne judges, with an attorney general, . instead of the old fiscal. Landrosts and humraden have en supplanted by civil commissioners, resident magistes, and justices of peace. A council has been appoint- to assist the governor with its advice, and consists of e chief justice, the government secretary, the military icer next in command to the governor for the time beg, the accountant general, and the chief commissioner of e eastern province. But the most important of all is, order in council, by which the Hottentots and other e coloured population are placed under the equal proction of the laws, and declared to be, as subjects of the itish government, in every respect upon the same footg as the white colonists, whether Dutch or English.

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A minute topographical description of the extended and thinly-peopled territory comprehended within the Cape Colony is unnecessary. A few particular places, however, may be described. In the vicinity of the capital there is a very conspicuous mountain called Table Mountain, which rises to the height of 3582 feet above the level of the sea. It commands a view of vast extent, and its sides afford a rich treat to the botanist and geologist. In the same peninsula on which the above mountain stands, are two others nearly as conspicuous and interesting. One of them is termed the Lion's Head, and has an elevation of 2160 feet above the level of the sea; the other is denominated the Lion's Rump, and its height is 1142 feet. About seventy-five miles from Cape Town, in the direction of south-east by east, are the warm baths of Swarteberg. To the north of these is the Guadenthal, or Bavian's Mountain, where the Moravian missionaries have their principal settlement. The members of this religious colony have been highly useful to the poor proscribed Hottentots. Near Algoa Bay, and 450 miles eastward of Cape Town, is situated Bethelsdorp, the principal establishment of the London Missionary Society. Those who have visited this place describe its outward appearance as being far from prepossessing. The country around is bleak and barren, and wants water for irrigation. However, many of the Hottentot families occupy substantial and commodious houses, whilst some have reached a degree of comfort and convenience far above the average of the frontier boors. The manufactures of England are used as clothing; many native artificers are to be met with; and, altogether, from the aspect of intelligence which the inhabitants exhibit, as described by the most recent travellers, there is no room to doubt that they are rapidly rising in the scale of society. There are a number of other missionary stations scattered throughout Cape Colony, and they all appear to have done, and to be still doing some good.

In 1820 a company of Scottish emigrants to the number of 5000, under the patronage of the British government, planted a colony in the district of Albany, on the frontiers of Caffreland, and conferred on it the name of Glen-Lynden. The late Mr Pringle, who headed the party, thus speaks of the settlement in 1834: "A few words in conclusion about our settlement of Glen-Lynden. Under the blessing of Providence its prosperity has been steadily progressive.........Without having any pretensions to wealth, and with very little *money* among them, the Glen-Lynden settlers, with some few exceptions, may be said to be in a thriving, and, on the whole, in a very enviable condition." This puts down at once the assertions which have been made in various publications, that the attempt had proved unsuccessful. It is impossible to calculate the benefits which may result from the enterprise of the intrepid Scottish emigrants. Keeping out of view entirely the moral effects which must result from their intercourse with the rude tribes around them, science seems likely to be greatly benefited by this colony. The number of the settlers has very much increased, and by their gradual diffusion over this vast continent, they may yet be the first to convey to us information respecting the interior of Africa, all attempts to explore which have hitherto proved equally fruitless and fatal.

The past history of the native races of Cape Colony, since the latter became known to Europeans, presents nothing but a dark picture of fierce tyranny on the one side, and gloomy submission on the other. Their domestic feuds also have tended greatly to enhance their miseries. The condition of the Hottentot is still very abject,

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[1] Thomson's *Travels in South Africa*, vol. ii. p. 423.

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on account of the oppression of the district authorities, although the missionaries have done much to alleviate it. But we cannot enter into details relative to the conflict which was carried on between interested rapacity on the one hand, and Christian philanthropy on the other. Ample information upon this subject will be found in Dr Phillips' *Researches in South Africa.* A late writer thus describes the personal appearance and general character of the Hottentots.

"This unfortunate tribe has become noted and almost proverbial for presenting man in his lowest estate, and under the closest alliance with the inferior orders of creation. It must, indeed, be admitted, that they take particular pains to render their external appearance the most hideous that the human body can possibly present. Grease is poured over their persons in copious streams, which, being exposed to the perpetual action of smoke, forms on their skin a black and shining cake, through which the native colour, a yellowish brown, is scarcely ever perceptible. Grease in Africa forms the chief distinction of rank,—the rich besmearing themselves with fresh butter, while the poorer classes are obliged to tear the fat from the bowels of slaughtered animals. They assign as a reason for this singular practice an effect which has been readily admitted by judicious travellers, namely, that such a coating has in this climate a most salutary influence in defending them from the rays of the sun, and in averting many cutaneous disorders. Nature seems to have aided the task of disfiguring them, by covering the head with irregular tufts of hard and coarse hair, and causing singular prominences, composed of fat, to jut out in parts where they are least ornamental. Nor do their habits of life present any thing to redeem this outward deformity. Their kraals consist of a confused crowd of little conical hovels, composed of twigs and earth, in which large families sit and sleep, without having room to stand upright. The fire in the middle fills these mansions with thick smoke, the floors of which are deeply covered with every species of filth. At festivals, when an ox or a sheep is killed, the Hottentots rip open the belly, tear out the entrails, which they throw on the coals, and feast on them before the animal is completely dead. Yet they are a friendly, merry, hospitable race, living together in the greatest affection and harmony. The sluggish and senseless stupidity with which they have been so generally taxed, seems to have been in a great measure produced by their degrading subjection to the Dutch boors. In their free state they had a republican form of polity, and *konquers* or captains of the kraal, who led them to war, which they carried on with extreme fury. This commander usually sounded a pipe or flageolet, during which his men fought without intermission; but as soon as the music ceased they began to retreat. The Hottentots direct their darts and throwing-sticks with a sure aim, surround and attack wild animals with skill and vigour, and evade their springs with a dexterity which no European can equal. They tan, dress, and shape skins; make mats of flags and bulrushes; also twist strings for their bows out of the sinews of animals; and even mould iron into cutting instruments with considerable expertness. In their free and happy state they displayed the same passion for the dance and song which is general throughout Africa."

With respect to his religion, the unenlightened Hottentot, although he believed in a good God and a malignant power, had neither temples nor priests; but with superstitious veneration he hailed the new and full moon with dances and rejoicings, prolonged throughout the night. Certain localities were held sacred as the abodes of departed spirits. Lastly, the Hottentot had a little shining beetle, which he exalted almost to the dignity of a deity. From the cruel treatment which this unfortunate tribe has received from its provincial oppressors, their number at present in the colony does not surpass 15,000. The few kraals of independent Hottentots which still remain on its outer border are supposed to amount to about 10,000.

Good Hope || Goonee.

For a further account of the Hottentots, see the article Africa, vol. i. part ii. p. 226. Under the heads Boshuanas, and Bosjesmans or Bushmen, the tribes which bear these names will be found described.

According to the official returns, the population of the Cape Colony, in 1831, consisted of, whites and free coloured, males 48,672, females 44,043; slaves, males 18,812, females 15,321; total, 126,848. But it seems probable that this is a statement in defect rather than in excess, and that the population may be taken at 140,000.

Good Hope, or *Hope Island*, an island in the South Pacific Ocean, discovered by Le Maire and Schouten in 1616. The land is mountainous, and covered with cocoa-nut trees. Long. 174. 50. E. Lat. 16. S.

GOODOUR, a town of Hindustan, in the Balaghaut ceded territory, ten miles west by south from the town of Carnaul. Long. 77. 51. E. Lat. 15. 46. N.

GOOHAUT, a town in the Afghan territories, in the province of Cabul, twelve miles west of the Indus. Long. 76. 40. E. Lat. 32. 51. N.

GOOLE, a hamlet in the parish of Snaith and the wapentake of Osgoldcross, in the west riding of Yorkshire. As it stands on the river Ouse, which is navigable to that point, it has appeared advisable to establish a custom-house there, by which the trade of the whole surrounding country has been considerably facilitated and increased. The population amounted in 1801 to 294, in 1811 to 320, in 1821 to 450, and in 1831 to 1671.

GOOLGUNGE, a town of Hindustan, in the province of Allahabad and district of Bundelcund, twenty-six miles south-south-east from Patna. It is situated in long. 85. 38. E. and lat. 24. 26. N.

GOOLPUSSRA, a town or village in the Nepaul dominions. It stands on the skirts of the great forest; and although it is the thoroughfare for most of the merchandise which passes between Nepaul, Benares, Oude, and Patna, over the Cheesapany Mountains, it is but a mean village. The road thence to Bechiacori through the great forest is practicable for wheel-carriages, and there are two or three stations on the way. In the vicinity of this place is an extensive forest of fine timber, especially of that kind called saul, next in value to teak, some of the trees of which measure a hundred feet between the branches, and from eight to nine feet in the girth. Long. 85. 10. E. Lat. 27. 1. N.

GOOMSUR, a town of Hindustan, at the north-west extremity of the Northern Circars, forty-three miles north-west from Ganjam. The neighbouring country is covered with impervious forests of bamboo, on which the inhabitants were wont to rely for their defence, and did not think it necessary to erect redoubts. The whole district is considered as one of the hottest regions in India. Long. 84. 55. E. Lat. 19. 53. N.

GOOMTY, a river of Hindustan, so named from its winding course, and which has its source in the mountains of Kemaon, whence it flows in a south-east direction through the province of Oude, and, after passing the cities of Lucknow, Sultanpore, and Joanpore, falls into the Ganges about fourteen miles below Benares. It is navigable for boats as high as Lucknow at all times of the year.

GOONDIPOORAM, a town of Hindustan, in the Northern Circars, forty-six miles north by west from Cicacole. It is in long. 83. 51. E. and lat. 18. 59. N.

GOONEE, a river of Hindustan, in the province of Sinde, which rises in the hills of Poollejar, and flowing a westerly direction, afterwards falls into the Indus, ith which it forms a very large island called Majur. uring the rainy season it is navigable for boats from andavie, a port of Cutch, to Hyderabad, the capital of inde.

GOORACKPOOR, a district of Hindustan, in the pro- nce of Oude, situated to the north of the Goggrah or ewah river, and between the 26th and 28th degrees of orth latitude. To the north it is separated by hills and rests from the Nepaulese territories, to the south it is ounded by the Dewah or Goggrah river, and on the ist by the Gunduck. In 1801 this district was ceded the British, in virtue of a treaty concluded between ie nabob of Oude and the Marquis Wellesley. The ountry abounds with forests of fine timber; and since it ame into the possession of the British, periodical fairs ave been established, in order to promote a free inter- ourse with the Nepaulese, and the other inhabitants of the ountains to the north, and with Gooracckpoor. These irs are numerously attended by traders from the neigh- ouring provinces, and to them also was sent part of the ompany's investment of woollens. The principal towns e Gooracckpoor, Buckrah, and Mutgur. If this district ere properly cleared and cultivated, it is thought that it ould be one of the finest parts of the British dominions India, being situated to the north of Bengal, and wa- red by three rivers, and various streams from the hills.

GOORACKPOOR, the capital of the above-mentioned strict, situated on the eastern bank of the Boora Rapty ver, which is navigable for boats at all seasons of the ear. It had formerly a brick wall, which is now in ruins. is the residence of the civil establishment of the dis- ict. The travelling distance east from Lucknow is 170 iles. Long. 83. 22. E. Lat. 26. 45. N.

GOOSE. See ORNITHOLOGY.

Goose-Neck, in a ship, a piece of iron fixed on the one d of the tiller, to which the lanyard of the whip-staff or ie wheel-rope comes, for steering the ship.

Goose-Wing, in nautical language. When a ship sails efore or with a quarter-wind on a fresh gale, to make the ore way, a boom and sail are launched out on the lee- de, and the sail so fitted is called a *goose-wing*.

GOOTY, a hilly district of Hindustan, in the Balag- aut ceded territories, situated chiefly between the 15th d 16th degrees of north latitude. Gooty formed a dis- ict in the empire of Aurungzebe. Between the years 776 and 1779 it was conquered by Hyder, and the ra- h was carried off, and never more heard of. With the st of the Balaghaut, it was ceded by the nizam to the ompany in 1804, and now forms part of the collectorship Bellary. The fortress of Gooty is the capital, and was rmerly the seat of an independent Mahratta govern- ent. It is 228 miles travelling distance from Seringa- atam, and 269 from Madras. Long. 77. 35. E. Lat. 15. N.

GOPPINGEN, a bailiwick of the kingdom of Wurtem- erg, in the circle of the Black Forest. It extends over 14 square miles, comprehending one city, three market- owns, and sixty-nine villages, occupied by 28,106 per- ons. It is mountainous and woody, with little corn land; ut produces large quantities of flax, and breeds much ack cattle. The capital is a city of the same name, si- tated on the river Fils, and was burnt down in 1782; but has been rebuilt, and now contains 620 houses, with 040 inhabitants, who are employed in spinning and weav- g cotton, and in making paper, hats, porcelain, woollen oth, and other articles. Long. 9. 30. 10. E. Lat. 48. 41. . N.

GORAGAUT, a town and zemindary of Hindustan, in ie province of Bengal, ninety miles north-east from oorshedabad. Long. 89. 10. E. Lat. 25. 13. N.

GORAM ISLE, a small island in the Eastern Seas, about twenty miles in circumference, and about one day's sail east by north from Banda. It is inhabited by Mahommedans, and is said to contain twelve mosques. In 1774 the Dutch attacked it with an armed force of Buggesses, but they were repulsed by the inhabitants.

GORCAH, or GHOORCAH, a district of Hindustan, in the province of Nepaul. It is situated between the 28th and 29th degrees of north latitude, and between the 84th and 85th degrees of east longitude. The country is mountainous and barren, and is intersected by a branch of the Kaly Gunduk river. The territory is principally occupied by the Brahminical and Khebric tribes, though it contains several Rajpoot families. It was formerly ruled by an aristocracy, consisting of thirty heads of families; but about fifty years ago one of their chiefs having gained the ascendency, conquered Nepaul, and became the sovereign of the whole country; since which period the history of this district is merged in that of Nepaul.

GORCAH, or GHOORCA, is the capital of the above-mentioned district. After the conquest of Nepaul in 1768, the seat of government was transferred to Catmandoo; and this place having been neglected, is now gone to decay. Near the city is a considerable mass of rock crystal.

GORCUM, a city of the province of Holland, in the Netherlands. It is situated on the right bank of the river Merwe, is strongly fortified, and contains 1390 houses, with 5169 inhabitants, who carry on extensive fisheries, and much trade in corn. Long. 4. 53. 10. E. Lat. 51. 49. 50. N. It is the capital of a circle of the same name, containing 32,680 inhabitants.

GORDIAN KNOT, in *Antiquity*, a knot made in the leathers or harness of the chariot of Gordius king of Phrygia, so very intricate that there was no finding where it began or ended. The inhabitants had a tradition, that the oracle had declared that he who untied this knot should be master of Asia. Alexander having undertaken it, was unable to accomplish it; when, fearing lest his not untying it should be deemed an ill augury, and prove a check in the way of his conquests, he cut it asunder with his sword, and thus either accomplished or eluded the oracle.

GORDIANUS, an illustrious Roman senator, who claimed his descent on the father's side from the Gracchi, and on the mother's from the Emperor Trajan. He seems to have been one of the richest senators of Rome, but his unambitious spirit, and his devotion to the study of literature, probably saved him from a violent death and the loss of his property. He was raised to the dignity of ædile in the reign of Caracalla, and the magnificence of the public shows he exhibited far surpassed any thing which Rome had ever witnessed. He was twice raised to the dignity of consul, by Caracalla A. D. 213, and by Alexander A. D. 229. His long life was spent in the study of letters; nor does he seem to have taken an active part in public affairs till he was named proconsul of Africa by the senate, an appointment which was highly approved of by Alexander, whose original letter on the subject to the senate is still preserved. (*Hist. Aug.* p. 152.) When the tyrant Maximin succeeded to the throne, he appointed a procurator of Africa worthy of himself, who exacted with the utmost severity the taxes he himself had imposed; but being murdered by the people, they proclaimed Gordian and his son emperors, A. D. 237. At first unwilling to accept the honour, he at length yielded to the pressing invitation of the people. The Gordians erected their court at Carthage, and no sooner did the deputation sent by the emperors to the senate make its appearance, than that body joyfully confirmed their election. Meanwhile Capelianus, governor of Mauritania, marched against Carthage with such rapidity, that they were unable to collect troops in sufficient numbers to oppose him. The younger Gordian fell at the head of a few guards; and his father, whose reign had not exceeded thirty-six days, put an end to his life on the first news of the defeat. Gordian was the author of a poem, in thirty books, on the actions of Antoninus Pius and Marcus Aurelius. (*Herodian*, vii.; *Hist. Aug.*)

Gordianus, surnamed the Pius, was grandson of the elder Gordian. When the news of his grandfather's death reached Rome, the senators elected Maximus and Balbinus emperors, as best fitted to oppose the threatened attack of Maximin; but the people insisted that one of the family of Gordian should also be raised to the empire. This boy was only thirteen years of age; and when Maximus and Balbinus fell in an insurrection of the soldiers, Gordian was left as sole emperor. Having married Fabia Sabina Tranquillina, the daughter of his master of rhetoric, he appointed his father-in law Misitheus prefect of the prætorian guards, and through his assistance emancipated himself from the hands of his mother's eunuchs. Misitheus proved himself an able minister, and discharged the military duties of his office with vigour and ability. He induced the young emperor to proceed against the Persians, who had invaded Mesopotamia, and during the whole of the expedition Misitheus watched over the safety and discipline of the army. Misitheus, however, died, with strong suspicions of having been poisoned by Philip, his successor in the prefecture. A short time afterwards a sedition broke out among the soldiers, which was fomented by Philip, and Gordian was killed, A. D. 244, near the conflux of the Euphrates with the little river Aboras. (See *L'Histoire des quatre Gordiens*, par Abbé Dubos; also Caspar, *Historia trium Gordianorum*, Deventer, 1697.)

GORDON, Alexander, a distinguished draughtsman, scholar, and antiquary, who resided many years in Italy, and also travelled in France, Germany, and other countries. The date of his birth has not been ascertained. In 1736 he was appointed secretary to the society for encouraging learning; and the same year he succeeded Dr Stukeley as secretary to the Society of Antiquaries, an office which he resigned in 1741 in favour of Mr Joseph Ames. He was for a short time secretary to the Egyptian Club, composed of Lord Sandwich, Dr Shaw, Dr Pococke, and other distinguished persons who had visited Egypt. In 1741 he accompanied Governor Glen to Carolina, where, besides a grant of land which he received, he held several offices, and died a justice of the peace, leaving a handsome estate to his family. He published, 1. *Itinerarium Septentrionale*, or a Journey through most parts of the Counties of Scotland, in two parts, with sixty-six copperplates, 1726, folio; 2. Supplement to the *Itinerarium*, 1732, folio; 3. The Lives of Pope Alexander VI. and his son Cæsar Borgia, comprehending the wars in the reign of Charles VIII. and Louis XII., and the chief transactions and revolutions in Italy from 1492 to 1516, with an appendix of original pieces; 4. A complete History of the Ancient Amphitheatres, more especially regarding the architecture of these buildings, and in particular that of Verona, by the Marquis Scipio Maffei, translated from the Italian, 1730, 8vo, afterwards enlarged in a second edition; 5. An Essay towards explaining the Hieroglyphical Figures on the Coffin of the ancient Mummy belonging to Captain William Lethieullier, 1737, folio, with cuts; 6. Twenty-five Plates of all the Egyptian Mummies and other Egyptian Antiquities in England, 1739, folio.

Gordon, *Thomas*, noted for his translations and political writings, was born at Kirkcudbright, in Galloway, about the end of the seventeenth century. When a young man he repaired to London, where he supported himself by teaching languages, until he procured employment under the Earl of Oxford, in Queen Anne's time, but in what capacity is not known. He first distinguished himself by two pamphlets in defence of Hoadly, in the Bangorian controversy; and these recommended him to Mr Trenchard, an author of the same stamp, in conjunction with whom he wrote letters under the name of "Cato," upon a variety of important public subjects. About the same time they published another periodical paper, under the title of the "Independent Whig," which was continued some years after Trenchard's death by Gordon alone, and directed against the hierarchy of the church, but with more acrimony than had been evinced in Cato's Letters. On the death of his associate, Sir Robert Walpole retained him to defend his administration, which he did in several pamphlets; and at the time of his death, which happened on the 28th of July 1750, he was first commissioner of the wine licenses, an office which he had enjoyed many years. Gordon published English translations of Sallust and Tacitus, with additional discourses, containing much good matter. Two collections of his tracts have also been preserved; the one entitled A Cordial for Low Spirits, in three volumes; and the other, The Pillars of Priestcraft and Orthodoxy Shaken, in two volumes. But these, like many other posthumous productions, might have been suppressed without detriment to his reputation.

GORE, in *Heraldry*, one of the abatements, which, according to Guillim, denotes a coward. It is a figure consisting of two arch lines, drawn one from the sinister chief and the other from the sinister base, and both meeting in an acute angle in the middle of the fess point. See Heraldry.

GORGE, in *Architecture*, the narrowest part of the Tuscan and Doric capitals, between the astragal, above the shaft of the pillar and the annulets.

Gorge, in *Fortification*, the entrance into any piece of fortification, consisting of the distance or space between the extremities of the two faces; as between the faces of a half-moon, redoubt, or bastion.

GORGED, in *Heraldry*, the bearing of a crown, coronet, or the like, about the neck of a lion, a swan, or other animal; in which case it is said the lion or cygnet is gorged with a ducal or other coronet.

Gorged is also used when the gorge or neck of a peacock, swan, or the like bird, is of a different colour or metal from the rest.

GORGET, a kind of breastplate, like a half-moon, with some device thereon.

GORGONS, in *Antiquity* and *Mythology*. Authors are not agreed in the accounts which they give of the Gorgons. The poets represent them as three sisters, whose names were Stheno, Euryale, and Medusa, the last of whom was mortal; and having been deflowered by Neptune, was killed by Perseus; but the two former were subject neither to age nor to death. They are described as having wings on their shoulders, and serpents round their heads; their hands were of brass, and their teeth of a prodigious size, so that they were objects of terror to mankind. After the death of Medusa, her sisters, according to Virgil, were appointed to keep the gate of the palace of Pluto.

> Multaque præterea variarum monstra ferarum,
> Gorgones, Harpyiæque.

Diodorus Siculus represents the Gorgons and Amazons as having been two warlike nations of women, who inhabited that part of Libya situated on the lake Tritonidis. The extermination of these female nations was not effected till Hercules undertook and performed the task.

Pausanias says that the Gorgons were the daughters of Phorbus, after whose death Medusa his daughter reigned over the people dwelling near the lake Tritonidis. The queen was so passionately fond of hunting and war, that she laid waste the neighbouring countries. At last Perseus made war on them, and killed the queen herself;

but when he came to view the field of battle, he found the queen's corpse so extremely beautiful, that he ordered her head to be cut off, and carried it with him to show it to his countrymen the Greeks, who could not behold it without being struck with astonishment.

Others represent them as a kind of monstrous women, covered with hair, who lived in woods and forests; and others, again, make them animals resembling wild sheep, whose eyes had a poisonous and fatal influence.

GORLESTON, a village, or rather town, of the county of Suffolk, in the hundred of Mutford and Lothingland, 123 miles from London. It may be viewed as a suburb to the town of Yarmouth in Norfolk, from which it is separated only by a bridge over the river Yare. The population amounted in 1801 to 1728, in 1811 to 1814, in 1821 to 1928, and in 1831 to 2116.

GORLÆUS, Abraham, an eminent antiquary, born at Antwerp, who gained a great reputation by collecting medals and other antique remains. He was chiefly fond of the rings and seals of the ancients, of which he published a prodigious number in 1601, under the title of *Dactyliotheca; sive Annulorum Sigillarium, quorum apud priscos tam Græcos quam Romanos usus ex ferro, ære, argento, et auro, Promptuarium.* This was the first part of the work; the second, entitled *Variarum Gemmarum, quibus antiquitas in signando uti solita sculpturæ*, appeared afterwards. This work has undergone several editions, the best of which is that of Leyden, 1695, containing a great number of cuts, and also a short explanation of these by Gronovius. In 1680 he published a collection of medals, which, however, if we may believe the Scaligerana, it is not safe always to trust. Gorlæus selected Delft as the place of his residence, and died there in 1609.

GORLITZ, a city of Prussian Silesia, the capital of a circle of the same name. It stands on the river Neisse, upon an elevated spot, and is a well-built town, with walls around it. It contains several public institutions for education and for benevolence, and eight churches, a public library, and cabinet of natural history. The houses are 1099, and the population 9900 inhabitants, who are industriously employed in various trades and manufactures.

GORZ, a fortified city of the Austrian province of Trieste, on the river Isonzo, containing, besides a cathedral and four other churches, 707 houses, with 9050 inhabitants, who are engaged in silk manufactories, in making leather, and bleaching wax. Near to it is Monte Santo, celebrated for the goodness of its wine. Long. 13. 23. E. Lat. 45. 57. N.

GOSBERTON, a parish of the county of Lincoln, in the parts of Holland and hundred of Kirton, 102 miles from London and eight from Boston. It is in a rich agricultural district. The inhabitants amounted in 1801 to 1139, in 1811 to 1301, in 1821 to 1618, and in 1831 to 1951.

GOSHEN, a canton of Egypt, which Joseph procured for his father and his brethren when they came to dwell in that country. It was the most fruitful part of the country; and its name seems to be derived from the Hebrew, *Geshem*, which signifies "rain;" because this province lying very near the Mediterranean, was exposed to rains, which were very rare in other cantons, and more especially in Upper Egypt.

GOSLAR, a city of the province of Hildesheim, in the kingdom of Hanover. It stands in the Hartz Mountains, at the foot of the Rammelsberg, on the river Gosse. It is an ancient town, with narrow streets and large antiquely-fashioned houses. It contains four churches and two religious houses, and is the seat of some provincial courts of law. Much of the ore extracted from the mines in the neighbourhood is here purified, and a great part of it converted into appropriate utensils in some large manufactories. It has considerable breweries and distilleries, and two vitriol works, and it contains 6700 inhabitants. Long. 10. 14. 1. E. Lat. 54. 27. N.

GOSPEL, the history of the life, actions, death, resurrection, and ascension, and also of the doctrine, of Jesus Christ. The word is Saxon, and of the same import with the Latin term *evangelium*, which signifies glad tidings or good news. This history is contained in the writings of St Matthew, St Mark, St Luke, and St John, who are hence called Evangelists. The Christian church never acknowledged as canonical any more than these four gospels; notwithstanding which several apocryphal gospels are handed down to us, and others are entirely lost.

GOSPORT, a market-town of Hampshire, in the parish of Alverstoke, in the Portsdown division of the hundred of Christchurch, seventy-eight miles from London. It may be considered as one of the suburbs of Portsmouth, from which it is separated by the mouth of the harbours, over which boats of all descriptions are constantly passing from one side to the other. As a part of our greatest naval arsenal, the town is fortified on the land side by a chain of redoubts, and some of the most important fortifications which command the entrance of the harbour; and the anchoring places of Stokes Bay are in this town. The royal brewery and cooperage, the storehouses for various kinds of provisions, and the grand powder magazines of Priddyshard, are all here. To the south is the magnificent hospital for sick and wounded sailors, which is capable of accommodating more than two thousand patients. There is also an extensive establishment for the manufacture of anchors. Besides the trade which Gosport derives from the royal navy, it enjoys considerable foreign commerce. There are markets on Tuesdays, Thursdays, and Saturdays, which are amply supplied. The population depends on the state of peace or of war. It amounted in 1801 to 11,295, in 1811 to 11,279, in 1821 to 10,972, and in 1831 to 12,637.

GOSSAMER is the name of a fine filmy substance, like cobwebs, which is observed floating in the air, in clear days in autumn, and is more discernible in stubble-fields, and upon furze and other low bushes, than elsewhere.

GOTEBORG, or Gottenburg, a province in the southern part of Sweden. It is bounded on the north by Norway, on the east by Elfsborg, on the south by Halland, and on the west by the German Ocean. It extends over 1894 square miles, is divided into five bailiwicks, comprehends five cities or towns, and 2891 rural establishments; and has a population of 119,504 individuals. The surface is generally mountainous, but has some plains in the southern parts; but even in these, the soil is so thin as to be scantily productive. The chief food of the inhabitants, as well as the chief exports, consists of fish, which abound on the coasts and in the rivers.

GOTHA, a principality forming a part of the dominions of the grand duchy of Saxe Coburg Gotha, in Germany. It is an elevated district of the Thuringian Mountains, where, though the climate is cold, the soil is fertile. Some of the portions are separated from the main body, and from each other, by the intervening territory of other states. The extent of the whole is 649 square miles. It is divided into fourteen bailiwicks, and contains five cities, six market-towns, a hundred and sixty-four villages, with 88,639 inhabitants. The capital, the city of Gotha, in longitude 10. 37. 33. east, and latitude 50. 57. 4. north, is 1220 feet above the level of the sea, one of the most beautiful of the Saxon cities. It contains 1256 houses, and 12,500 inhabitants. The ducal palace or castle rises above the city, and has a magnificent appearance from the whole surrounding country. There are in it some fine pictures, a library of 60,000 volumes, and a museum of coins and medals, both ancient and modern, surpassing any other in Europe. Near the city, on a lake, is an astronomical observatory, long occupied by Baron Zach, the celebrated astronomer. It is a town of considerable trade, having manufactories of cotton, woollen, and linen goods, and other articles.

GOTHARD, one of the highest mountains of Switzerland, and from the top of which there is one of the finest prospects in the world. It is eight miles from Aldorf.

GOTHEBORG, Gothenburg, or Gottenburg. See Goteborg and Gottenburg.

GOTHIC, in general, whatever has any relation to the Goths. Thus we say, Gothic customs, Gothic architecture, &c. See Architecture.

GOTHOFRED, or Godefroy, Denis or Dionysius, a celebrated jurisconsult, born at Paris in 1549, was allied by birth to the highest families connected with the profession of law, and himself one of its most distinguished ornaments. After having completed his classical studies, he applied himself to that of law, and received the instructions of the famous professors who then taught in the universities of Louvain, Cologne, and Heidelberg. On his return to France, the civil disorders which broke out in all parts having forced him to seek an asylum in foreign countries, he retired to Geneva, where he hoped to find the tranquillity necessary for his pursuits. He was received with distinction, and nominated to a chair of law in 1580. Henry IV. appointed him magistrate of Gex in 1589; but this city having the year after been taken by the Duke of Savoy, his house was pillaged, and no resource remained for him but to pass into Germany. He, however, proceeded no farther than Strasburg, where he taught the Pandects from 1591 till 1600, when the elector palatine called him to Heidelberg. But the proceedings of his colleagues forced him six months afterwards to return to Strasburg, where he remained three years more, at the end of which time he consented to resume his functions at Heidelberg, upon an assurance which was given him that he should have nothing to apprehend from the jealousy of the other professors. It was only then that his countrymen became sensible of the fault which had been committed in not endeavouring to retain in France a man of such distinguished merit, and he was offered the chair which Cujas had just left vacant at Bourges; but he declined the offer upon the ground of his age, which did not admit of his attempting to form a new establishment; and he alleged the same excuse in opposition to all the instances which were made to draw him to Angers, to Valence, and to other universities of France and Germany. In 1618 he was sent as deputy by the elector palatine to Louis XIII., who received him well, and solicited him to remain in Paris; but Godefroy had become attached to Heidelberg, where he enjoyed all the consideration due to his talents, and where he desired to end his days. In this expectation, however, he was disappointed. The war, which extended to the palatinate, forced him to return a third time to Strasburg, where, oppressed with grief and infirmities, he expired on the 7th of September 1622, in the seventy-third year of his age. His friend Bernegger pronounced his funeral oration, which is printed in the *Opuscula* of Loisel. Of all the works of Godefroy, that which does him the greatest honour, and ensures him a permanent rank amongst jurisconsults, is his edition of the *Corpus Juris Civilis*, the publication of which forms an epoch in the history of the science. His text is that which had been adopted for ordinary reading in the universities and at the bar, and his notes are much esteemed. The *Corpus* of Godefroy has passed through a number of editions, but the most valuable are those of Paris, Vitré, 1628, in two vols. folio, and Amsterdam, Elzevir, 1363, also in two vols. folio. Among the other works of Godefroy may be mentioned, 1. Notæ in Ciceronem, Lyons, 1588 and 1591, in 4to; 2. Antiquæ Historiæ ex xxvii. auctoribus contextæ libri sex, Basil, 1590, in 8vo; 3. Conjecturæ, variæ lectiones, et loci communes in Seneca, printed at the end of the works of Seneca; 4. Autores Latinæ linguæ in unum redacti corpus, adjectis notis, Geneva, 1595 and 1602, in 4to; 5. Maintenue et Défense des Princes souverains et Eglises Chrétiennes contre les attentats et excommunications des Papes de Rome, 1594, in 8vo: 6. Dissertatio de Nobilitate, Spires, 1611, in 4to; 7. Statuta Galliæ juxta Francorum, Burgundiorum, Gothorum et Anglorum in ea dominantium Consuetudines, Frankfort, 1611, in folio. (A.)

GOTHS (in Latin Gothi, Goti, and Gothones), a secondary denomination of that great, powerful, and victorious race which, after a protracted struggle, at length overturned the Roman empire, and diffused itself throughout the whole of Europe, excepting Russia, Poland, and Hungary. The Scythians or Goths were distinguished from the Celts, with whom they have often been confounded, by characteristics equally obvious and remarkable. This we shall have occasion to establish in the sequel of the present article. Many learned authors, however, have contended for the identity of these races; all antiquity has been ransacked for proofs and authorities by the writers on the opposite sides of the question; and in a discussion which might surely have been carried on with moderation and good manners, the utmost heat and exacerbation of feeling have unaccountably been evinced. Amongst those who have contended for the identity of the Goths and Celts, the first place is due to Cluverius and Pelloutier, who have asserted this proposition in its most unqualified form; and likewise to Sir William Jones, though he contends for nothing more than an identity of origin, leaving the question of subsequent divergence and secondary distinction untouched. On the other hand, of all the champions for the diversity of these races, Mr Pinkerton is by far the most formidable, and, seconded as his views have been by an able writer in the *Edinburgh Review*, and also by Dr Jamieson in his *Hermes Sythicus*, they must be allowed to have great weight by all who attentively consider and examine the question at issue. Conceiving that the arguments and reasonings of Cluverius and Pelloutier have been entirely overthrown, and that the diversity contended for has been established by a mass of evidence and authority which cannot be shaken, what we propose in this article, therefore, is to lay before our readers the substance of Mr Pinkerton's very learned argument, modified however by the views of succeeding writers.

Of the *Scythians* an ample account is given by Herodotus in his fourth book, where he also mentions the *Getæ*, whom Darius subdued whilst advancing against the wandering Scythians who lived on the other side of the Ister or Danube. From the earliest periods of history, therefore, mention is made of the *Scythæ* and *Getæ* as only separated by a river. But the name of *Goths* is not nearly so ancient. The first mention of it occurs in the time of the Emperor Decius, in the year of Christ 250, when part of them invaded the empire from Getia, and Decius, in attempting to expel them from Thrace, was vanquished and slain. After this they are as frequently mentioned in the Latin authors by the names of *Getæ* and *Gothi*, as the *Scythæ* formerly were in the Greek; and, subsequently to this period, all the Greek writers uniformly call those *Scythæ* whom the Latin authors denominate *Gothi*. This being the case, Mr Pinkerton shows, first, that the *Getæ* and *Gothi* were the same people; and, secondly, that the *Getæ* or *Gothi* were the same with the *Scythæ*.

1. That the *Getæ* and *Gothi* were the same, is proved by a multitude of authorities, which our limits prevent us from enumerating in detail. It may suffice to mention, that Dio, who wrote under Alexander Severus, about the year 230, entitles his history of the Goths Γετικον, or the *Getic*

istory; that Spartian, who wrote about the year 300, ays, in his Life of Antoninus Caracallus, *Gotti Getæ diceren-ur*, "the Goths were then called Getæ," and, again, in his ife of Antoninus Geta, *Getticus quasi Gotticus*, "Getic ; we would now say Gothic;" that Claudian always calls ie Goths *Getæ*, and entitles his poem on the Gothic war *)e bello Getico;* that Sidonius Apollinaris frequently calls ie Goths *Getæ*, and denominates the Ostrogoths *Massa-etæ;* that Orosius says, *Getæ qui et nunc Gothi*, "the etæ, who are now also called Goths;" that St Jerome ates that the Goths were anciently called Getæ; that in ie panegyric of Ennodius, on Theodoric, king of the oths, it is said, "Nam illud quo ore celebrandum est quod *etici* instrumenta roboris, dum provides ne interpellentur ia nostra, custodis;" that, according to Procopius, "the oths are a Getic race;" that Jornandes entitles his history *)e Getarum sive Gothorum origine et rebus Gestis*, and onstantly uses the names *Getæ* and *Gothi* as synony-ous; and, finally, that Isidorus says the Getæ and Gothi e the same. This identity, therefore, seems to be com-etely established; especially as there is not even a sha-ow of authority on the opposite side.

2. It appears equally certain that the *Getæ* or Goths ere the same with the Scythians. Strabo, Pliny, and Pto-my, all rank the Getæ as Scythians. Trebellius Pollio, *in alieno*, says, "*Scythæ* autem, id est, *pars Gothorum*, Asiam istabant." Dexippus, who is supposed to have written in ie reign of Gallienus, entitled his history of the wars be-veen the Romans and Goths ΣΚΥΘΙΚΑ, or Scythic histo-es, and called the Goths Σκυθαι, *Scythæ*. Priscus em-oys the words *Scythians* and *Goths* synonymously. Eu-ipius denominates the *Scythians*, whom Valens planted Mœsia, *Goths*. Procopius speaks of "all the other othic nations, who were also called *Scythians* in ancient nes." Theophanes, writing in the year 370, states "that e Scythians are in their tongue called Goths," according the relation of Trajanus Patricius, "in the history of his vn time." Syncellus states that "the Scythians are also lled Goths in their own language;" and the same author kewise says, "when a great many Scythians, called Goths, id passed the river Ister in the time of Decius, they ra-ged the Roman empire." Jornandes always speaks of the oths, Getæ, and Scythæ, as one people, and uses these imes synonymously. Isidorus commences his chronicle the Goths in Spain with these words: "Gothorum anti-iissimum esse regnum certum est, quod ex regno *Scytha-m* est exortum." Procopius frequently calls the Fede-ti, so well known in the Lower Empire, *Goths;* and Sui-s, *in voce*, denominates them *Scythians*. Lastly, Ammi-us Marcellinus, mentioning the death of Decius, who fell battle against the Goths or Getæ, denominates the latter *cythicæ gentes*. "That the *Scythians* and *Getæ* were the me people," says Dr Jamieson, "is attested by incontro-rtible evidence."[1]

Having thus established that the Scythians, Getæ, and oths, are all one people, Pinkerton next proceeds to con-ler the question whether the Scythians or Goths went om Scandinavia into Asia, or whether, on the contrary, ey came from Asia into Europe. And, in prosecution of is curious and important inquiry, he endeavours, in the st place, to show that the common notion of the Scy-ians having originated from Scandinavia is groundless. iis opinion, which has been somewhat hastily adopted by ontesquieu, Gibbon, and other writers of the first name, s been built on a single sentence in the fourth chapter Jornandes, namely, "Ex hac igitur Scania insula, quasi *icina gentium*, aut certe velut *vagina nationum*, cum rege o nomine Berig Gothi quondam memorantur egressi." But no weight can reasonably be attached to this single authority, however direct and explicit; first, because the work of Jornandes being, as is commonly supposed, only an abridgment of a large history of the Goths by his contemporary Cassiodorus, it is possible that in this as well as in other particulars, the abridgment may be inaccurate, more especially as it would seem to have been written solely from memory, after a perusal of three days; secondly, because though he generally followed Cassiodorus, he added many things from the Greek and Roman writers; thirdly, because Scandinavia having been, down to a late period, almost overrun with impenetrable forests, there was neither room nor subsistence in that country for so vast a population as that which so often invaded, and at last overturned, the Roman empire; fourthly, because we learn from Adam of Bremen, who wrote in the eleventh century, that, even in Denmark, the sea coasts alone were then peopled, whilst the interior parts of the country were one immense forest; and, lastly, because it can be proved from many authorities, in opposition to the single one of Jornandes, which is moreover highly improbable in itself, that the Scythians originated from Asia. On this last point some of Pinkerton's authorities have been disputed both by the author of the *Vindication of the Celts*, and also by the able writer in the *Edinburgh Review* already referred to, who have each convicted him of sundry errors and inaccuracies of detail; but such is the redundancy of evidence which he has produced in support of his views, that, after every reasonable deduction has been made, enough remains to establish the position, that at a period probably as early as the year 1400 before Christ, the Scythians had advanced from the vicinity of the river Araxes, entered the Cimmerian Bosphorus, whence they afterwards spread themselves westward and northward over a considerable part of Europe. He shows that Herodotus, Diodorus, and indeed all the writers who have occasion to mention the subject, down to the sixth century, when Jornandes wrote, are in opposition to this monastic historian, and uniformly represent the Scythians as having passed, from the south of Asia, in a north-westerly direction, until, in process of time, they spread themselves all over Europe.

We pass over the chapter upon the real origin and first progress of the Scythians or Goths, whom Pinkerton traces from the banks of the Indus, through Persia, to the shores of the Caspian, and proceed to state the results at which he has arrived in the succeeding one, which treats of the western settlements of this people. From their intermediate position on the Euxine, the Scythians gradually extended themselves over the most part of Europe; and, according to Pinkerton, the Greeks and Romans, though refined by adventitious circumstances, certainly belonged to the same great family of mankind. We may also mention here, that, both on historical and on philological grounds, Dr Jamieson, in his Dissertation and in his *Hermes Scythicus*, contends strenuously for the Scythian origin of the Greeks, and, by many new and ingenious arguments, supports this, which forms one of the principal points of Pinkerton's hypothesis. According to the latter, the Scythians successively invaded and settled in Thrace, Illyricum, Greece, Italy, Germany, and Scandinavia; in other words, he endeavours to show that the Thracians, Illyrians, Greeks, Italians, Germans, and Scandinavians, were all Scythians or Goths. And all this seems to us to be proved, as far at least as such a subject can be established by ancient authorities. The Scythian origin of the Thracians and Illyrians is indisputable. But there is more difficulty respecting the ancient inhabitants of Greece, taking that denomination in the large sense given to *Hellas*, as including Macedon, and extending from Thrace and Illyricum to the Cretan, Ionian, and Sicilian Seas. From the concurrent testimony of the Greek writers, it appears, first, that the ancient inhabitants of Hellas were the *Pelasgi;* and, secondly, that the *Hellenes* were the same people who had formerly been called the Pelasgi, being, in fact, a small tribe of the Pelasgi who, having last settled in the country, had the good fortune to give their name to the whole. Pinkerton next considers, first, who the Pelasgi were not, and, secondly, who they were. They were not Egyptians, because the two small colonies of Egyptians who settled in Athens and Argos from the earliest times, were specially distinguished as a different people from the Pelasgi; because the Greek mythology has little or no affinity to the Egyptian; and because the Greek language differs entirely from the Coptic, in which are embodied the remains of the old Egyptian. They were not Phœnicians, because of all the reasons urged respecting the Egyptians. They were not Celts, because the latter were confined to the farthest west, whereas Greece was surrounded by Scythians; because the form and structure of the Celtic tongue are as remote as possible from that of the Greek; and because the manners, customs, and usages of the Celts, as described by the Greek and Roman authors, are entirely dissimilar to those of the earliest Greeks. They were not Sarmatæ, because there is reason to doubt whether the latter entered Europe more than a thousand years before our era, whereas the progressive advancement of the Scythians dates from a much earlier period; because the manners of the earliest Greeks had nothing in common with those of the Sarmatic or Tartar tribes; and because the Slavonic language, which was spoken by the Sarmatians, differs from the Greek in grammatical structure as well as in nomenclature. But the Pelasgi, or Hellenes, were Scythians of Thrace; a position which, besides being established by authority, is rendered highly probable from the circumstance that ancient Hellas was everywhere surrounded either by the Scythians or the sea. For the full illustration of this branch of the subject, however, we must refer the reader to the fourth chapter of Mr Pinkerton's Dissertation, to Dr Doig's paper on the Ancient Hellenes,[1] and to the *Hermes Scythicus* of Dr Jamieson, *passim.* A similar mode of reasoning leads to the conclusion that the Italians, as well as the Greeks, were Scythians.

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[1] *Hermes Scythicus*, Dissert. on the Origin of the Greeks, sec. 2.

In the second part of his Dissertation, where he contemplates the extended settlements of the Scythians or Goths over all Germany, and in Scandinavia, Mr Pinkerton endeavours, in the first place, to show, negatively, that the Germans were not of Sarmatic nor of Celtic origin; and, secondly, he attempts to prove, positively, that they were Scythians, from identity of language, from the testimonies of the ancient authors, and from similarity of manners and institutions. The details required for the illustration of both branches of his argument are necessarily complicated, and do not admit of abridgment. But the reasoning is throughout strictly logical, and the conclusion can only be affected by impeaching the accuracy or validity of the premises. This, we are aware, has, to a considerable extent, been done in the *Vindication of the Celts*, in the *Edinburgh Review*, and in other works; and it must be confessed that the most unsparing severity of criticism is provoked, and in some measure justified, by the tone of insolent dogmatism which Pinkerton thought proper to assume, no less than by the contemptuous language in which he is pleased to characterise almost every writer whose opinions happened to differ from his own. But notwithstanding all his errors, aggravated as they unfortunately are by some misrepresentations, the stability of his argument remains as yet unshaken; and even those who have been most successful in detecting his blunders, will, if impartial, be the first to admit the great learning which he has brought to bear on his subject, and the ability with which he has throughout conducted his reasoning. In tracing the distinctive characteristics of the Goths and the Celts, he has, in fact, established his case, independently altogether of the positive evidence derived from authorities, which is afterwards supplied in profusion. Races of men which are found to differ in person, in manners, in laws, in religion, and in language, cannot, upon any known principle of reason, be admitted to have had a common origin, whatever we may be led to believe upon the paramount authority of revelation.

Upon the whole, in reference to the subject of the Goths and Celts, the following points may be considered as established by the best evidence which the case admits of, viz. 1. At a period so early as the age of Sesostris, that is, at least 1400 years before Christ, the Scythians, previously established on the western shores of the Caspian and the eastern shores of the Euxine, had extended their conquests into Europe, and advanced at least as far as Thrace and the surrounding countries. 2. About 640 years before Christ, the Scythians drove the Cimmerians (believed to be the same people with the Cimbri and the Cymry) out of Europe, or forced them to take refuge in wild, mountainous, and inaccessible regions. 3. The Scythæ were afterwards known in history by the names of *Getæ*, *Gothi*, and *Germani;* but whether distinguished by these names, or by the more comprehensive appellation of *Scythians*, they are to be regarded as one and the same people. 4. The principal part of the population of every country in Europe, excepting Russia, Poland, and Hungary, where the Slavonic race predominates, is of Gothic origin and descent, though variously modified by the force of adventitious circumstances. 5. With regard to the Celts, the testimony of the earliest writers authorizes us to place their principal settlement, in the fifth century before our era, in the south-west of Gaul, or neighbourhood of the Pyrenees, whence they appear to have been driven by the Germans or Goths on the east, and the Aquitani (probably an Iberian race) on the south, to that part of Gaul where they were found in the time of Cæsar. 6. The Slavi, who invaded the north-west of Europe after the destruction of the Roman empire, were an Asiatic tribe; and the present inhabitants and languages of Russia, Bohemia, Hungary, Poland, and Dalmatia, are derived from them.

Dr Jamieson, in the Dissertation prefixed to his *Hermes Scythicus*, adopts the same views, and follows nearly the same line of argument, as Mr Pinkerton, in considering the historical proofs of the Scythian origin of the Greeks. He shows that the Scythians and Getæ were one people, that the Goths were identical with the Getæ, and that the Thracians were of Scythian origin. He then treats of the diffusion of the Pelasgi throughout Greece; the identity of the Hellenes with the Pelasgi; the erroneous opinions which have been entertained respecting the origin of this people; the origin of their name; the proofs from testimony of the Scythian origin of the Pelasgi; the progress of this people as illustrative of their origin; the language of the Pelasgi; and, lastly, the resemblance of the Greek language to that of the Scythians. He next adverts to the origin of the religion of the Greeks, and of those called Hyperboreans, and, by an elaborate analytical examination, endeavours to show that the mythology of the Greeks, or at least their theocracy, was of Scythian descent, and merely an improved or polished form of the ruder system of superstition which the Goths imported into Europe from their original settlements, and of which the principal features are still preserved in the Scandinavian mythology. These topics exhaust the historical disquisition, which, however, is in no small degree purely philological. But, in the second part of his work entitled *Hermes Scythicus*, the learned and estimable author applies himself to demonstrate the affinity of the Scythian and Greek language by a critical and etymological examination of the purely elementary parts of the one, with cognate or corresponding forms of expression in the other; and, in prosecuting this refined and delicate analysis, he displays equal erudition and ingenuity, accompanied, however, it must be admitted, with a little occasional straining. Whatever may be thought of the hypothesis, therefore, the learning brought to bear upon the subject is worthy of all acceptation; and every philosophical inquirer into the origin and structure of languages must feel grateful to Dr Jamieson for the curious and interesting information which he has so laboriously accumulated.

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[1] *Transactions of the Royal Society of Edinburgh*, vol. iii. part 2, p. 131.

The most ancient proofs of the affinity of Scythian and Greek, which the doctor has referred to in his inquiry, are derived from the celebrated version of Ulphilas, bishop of the Mœso-Goths, which appears to have been executed about the year 360 of our era, though some learned writers have affirmed that it was executed in the reign of Constantine the Great. It is much to be regretted, that of the labours of Ulphilas, all that remains is his version of the four gospels, nearly one half of which has been lost; and some fragments of his translation of the Epistle to the Romans. The proofs derivable from the Mœso-Gothic are thus extremely limited. But recourse may be had to the Anglo-Saxon, a derivative dialect of the ancient Gothic, introduced into England about the year 450, or nearly a century after the date of the version of Ulphilas. There is not, indeed, extant any Anglo-Saxon writer older than Caedmon, who flourished about three centuries later than the Bishop of Mœsia; but so close is the affinity of these two languages, that Hickes, the learned author of the *Thesaurus Linguarum Septentrionalium* has included both in the same grammar. The form of speech which has the next claim in point of antiquity is the Alemanic or Franco-Theotiscan; but of this there exist no memorials of an earlier date than the reign of Charlemagne. The Islandic is the oldest and purest dialect of the Gothic which still exists as a living language. This language, in its more ancient form, has been called the Runic, from the character in which it was written; and in it Sæmund the Wise wrote the Edda which bears his name, towards the close of the eleventh century. The Suio-Gothic, including the ancient language of Sweden, is nearly allied to the Islandic, and constitutes one of the sources from which the proofs of affinity are principally derived. Finally, without attempting to pronounce any opinion as to the result of Dr Jamieson's analytical investigation, we may however be permitted to observe, that, if there exist such an affinity as that contended for between the Gothic and Greek, and if an argument be thence deduced as to the Scythian origin of the people by whom the latter was spoken, the well-known fact of the striking affinity, amounting almost to identity, which is found to subsist between the Greek and the sacred language of India, the Sanscrit, must give an entirely new direction to the inquiry into the origin and descent of nations, and lead us to extend our views on this subject far beyond the range to which Dr Jamieson, and those who have followed in his footsteps, have confined their researches.

Pinkerton's *History of Scotland*, vol. ii. Dissertation on the Origin and Progress of the Scythians and Goths, Edinburgh, 1814, in 8vo. Vindication of the Celts, from Ancient Authorities; with observations on Mr Pinkerton's Hypothesis concerning the Origin of the European Nations, London, 1803. Edinburgh Review, vol. ii. p. 355 et seqq. Jamieson's *Hermes Scythicus*, or the Radical Affinities of the Greek and Latin Languages to the Gothic, &c. Edinburgh, 1814. Doig on the Ancient Hellenes, *Edinburgh Transactions*, vol. iii.) (A.)

GOTTENBURG, a city, the capital of the province of that name, in Sweden. It is built on the south side of the Goetaelf, about two miles from its mouth. The harbour is good, and capable of admitting ships of war. It contains 1500 houses, and 21,540 inhabitants. The trade is very considerable, as well for the export of native productions, wood, iron, and copper, as for the import of East and West India goods and articles from the south of Europe. It is situated in longitude 11. 33. E. and latitude 57. 42. N.

GOTTINGEN, one of the provinces, called a principality, into which the kingdom of Hanover is divided. It was formerly a part of the duchy of Brunswick, but was afterwards united with Calenburg. Of late some parts of Hesse, and the bailiwick of Hunnersruck in Hildesheim, have been united with it, and the whole extends over 811 square miles, or 519,040 English acres. The province is bounded on the north by the duchy of Brunswick and the province of Grubenhagen, on the east by Grubenhagen, on the south by the Prussian provinces and by Hesse Cassel, and on the west by Hesse and the Prussian Westphalian dominions. In 1812 it contained 96,593 inhabitants, of whom 2374 were Catholics, 5680 Reformed, 1166 Jews, and the remainder Lutherans. There has been a rapid increase in the population since that period.

The face of the country is hilly, almost mountainous; but between the elevations are valleys, through which the various rivers run, of greater or less extent, and of very high fertility. The Weser, formed by the junction of the Werra and the Fulda, is the principal river, into which the Line falls, and is navigable to Münden. The soil is good, and the cultivation well conducted, so that the province yields much more both of corn and cattle than it consumes. Besides food, the soil produces flax, hemp, and tobacco. The products of mines are some iron and rock salt, coals, and alum. The manufacture of linen is of the domestic kind, carried on by spinning in the long nights of the winter. The chief foreign trade consists in the exportation of linen, yarn, wax, and honey. The chief place is the city of the name of the province, celebrated for its university, founded in 1734. The professors in it are numerous and learned, and the students vary from 1200 to 2000. It possesses a most valuable library of 300,000 volumes, a botanic garden, several museums, and philosophical apparatus. The collection of models, and the observatory, are valuable establishments. The city contains 923 houses, and about 11,000 inhabitants, exclusively of the members of the university who carry on manufactures of linen, woollen, and other goods. Besides, there are many printing presses.

GOTTLAND, a province in the south of Sweden, including the island of that name, with the others near it on the Baltic Sea, about forty-five miles from the east of Sweden. The province has a surface of 528 square miles, comprehends one city, with 1088 insulated settlements, and contains 32,988 inhabitants. The chief occupation is the fishing and agriculture, the latter of which supplies the scanty demands of the province for food; but potatoes make a great portion of the products. The only trade is at Wisby, the capital of the province.

GOUDA, a city of the Netherlands, in the province of Holland and circle of Rotterdam. It is situated on the river Gauwe, which flows out of the Yssel. It is well built, and has a considerable trade in making serges and baize; but the chief manufacture is that of pottery ware, and especially of tobacco pipes, which affords occupation to more than 5000 persons. It contains five churches: that of St

John is distinguished for one of the most powerful organs in Holland. The inhabitants are 12,000. Long. 4. 35. 50. E. Lat. 51. 50. 51. N.

GOUDHURST, a town of the county of Kent, in the hundred of Marden, within the lake of Scray, forty-four miles from London. It was once a place of some consequence in the woollen manufacture, but that has decayed. The inhabitants amounted in 1801 to 1782, in 1811 to 2082, in 1821 to 2579, and in 1831 to 2758.

GOULART, SIMON, a minister of Geneva, was born at Senlis in 1543, and was one of the most indefatigable writers of his time. He made considerable additions to the Catalogue of Witnesses of the Truth, composed by Illyricus; and acquired a great reputation by his works, the principal of which are, 1. A translation of Seneca; 2. A collection of memorable histories; 3. A translation of St Cyprian *De Lapsis*; 4. Several devotional and moral treatises. He died at Geneva in 1628.

GOVERNMENT.

I.—*The End of Government, viz. the Good or Benefit for the sake of which it exists.*

THE question with respect to Government is a question about the adaptation of means to an end. Notwithstanding the portion of discourse which has been bestowed upon this subject, it is surprising to find, on a close inspection, how few of its principles are settled. The reason is, that the ends and means have not been analysed; and it is only a general and undistinguishing conception of them which is found in the minds of the greatest number of men. Things, in this situation, give rise to interminable disputes; more especially when the deliberation is subject, as here, to the strongest action of personal interest.

In a discourse limited as the present, it would be obviously vain to attempt the accomplishment of such a task as that of the analysis we have mentioned. The mode, however, in which the operation should be conducted, may perhaps be described, and evidence enough exhibited to show in what road we must travel, to approach the goal at which so many have vainly endeavoured to arrive.

The end of Government has been described in a great variety of expressions. By Locke it was said to be "the public good;" by others it has been described as being "the greatest happiness of the greatest number." These, and equivalent expressions, are just; but they are defective, inasmuch as the particular ideas which they embrace are indistinctly announced; and different conceptions are by means of them raised in different minds, and even in the same mind on different occasions.

It is immediately obvious, that a wide and difficult field is presented, and that the whole science of human nature must be explored, to lay a foundation for the science of Government.

To understand what is included in the happiness of the greatest number, we must understand what is included in the happiness of the individuals of whom it is composed.

That dissection of human nature which would be necessary for exhibiting, on proper evidence, the primary elements into which human happiness may be resolved, it is not compatible with the present design to undertake. We must content ourselves with assuming certain results.

We may allow, for example, in general terms, that the lot of every human being is determined by his pains and pleasures; and that his happiness corresponds with the degree in which his pleasures are great, and his pains are small.

Human pains and pleasures are derived from two sources: they are produced either by our fellow-men, or by causes independent of other men.

We may assume it as another principle, that the concern of Government is with the former of these two sources; that its business is to increase to the utmost the pleasures, and diminish to the utmost the pains, which men derive from one another.

Of the laws of nature, on which the condition of man depends, that which is attended with the greatest number of consequences, is the necessity of labour for obtaining the means of subsistence, as well as the means of the greatest part of our pleasures. This is, no doubt, the primary cause of Government; for if nature had produced spontaneously all the objects which we desire, and in sufficient abundance for the desires of all, there would have been no source of dispute or of injury among men; nor would any man have possessed the means of ever acquiring authority over another.

The results are exceedingly different, when nature produces the objects of desire not in sufficient abundance for all. The source of dispute is then exhaustless; and every man has the means of acquiring authority over others, in proportion to the quantity of those objects which he is able to possess.

In this case, the end to be obtained, through Government as the means, is, to make that distribution of the scanty materials of happiness which would ensure the greatest sum of it in the members of the community, taken altogether; preventing every individual, or combination of individuals, from interfering with that distribution, or making any man to have less than his share.

When it is considered that most of the objects of desire, and even the means of subsistence, are the product of labour, it is evident that the means of ensuring labour must be provided for as the foundation of all.

The means for the ensuring of labour are of two sorts; the one made out of the matter of evil, the other made out of the matter of good.

The first sort is commonly denominated force; and under its application the labourers are slaves. This mode of procuring labour we need not consider; for if the end of Government be to produce the greatest happiness of the greatest number, that end cannot be attained by making the greatest number slaves.

The other mode of obtaining labour is by allurement, or the advantage which it brings. To obtain all the objects of desire in the greatest possible quantity, we must obtain labour in the greatest possible quantity; and, to obtain labour in the greatest possible quantity, we must raise to the greatest possible height the advantage attached to labour. It is impossible to attach to labour a greater degree of advantage than the whole of the product of labour. Why so? Because, if you give more to one man than the produce of his labour, you can do so only by taking it away from the produce of some other man's labour. The greatest possible happiness of society is, therefore, attained by ensuring to every man the greatest possible quantity of the produce of his labour.

How is this to be accomplished? for it is obvious that every man who has not all the objects of his desire, has inducement to take them from any other man who is weaker than himself: and how is he to be prevented?

One mode is sufficiently obvious; and it does not appear that there is any other: The union of a certain number of men, to protect one another. The object, it is plain, can best be attained when a great number of men com-ne, and delegate to a small number the power necessary for protecting them all. This is Government.

With respect to the end of Government, or that for the sake of which it exists, it is not conceived to be necessary, on the present occasion, that the analysis should be carried any further. What follows is an attempt to analyze the means.

II.—*The Means of attaining the End of Government, viz. Power, and Securities against the Abuse of that Power.*

Two things are here to be considered; the power with which the small number are intrusted; and the use which they are to make of it.

With respect to the first, there is no difficulty. The elements out of which the power of coercing others is fabricated, are obvious to all. Of these we shall, therefore, not lengthen this article by any explanation.

All the difficult questions of Government relate to the means of restraining those in whose hands are lodged the powers necessary for the protection of all, from making a bad use of it.

Whatever would be the temptations under which individuals would lie, if there was no Government, to take the objects of desire from others weaker than themselves, under the same temptations the members of Government lie to take the objects of desire from the members of the community, if they are not prevented from doing so. Whatever, then, are the reasons for establishing Government, the very same exactly are the reasons for establishing securities, that those intrusted with the powers necessary for protecting others make use of them for that purpose solely, and not for the purpose of taking from the members of the community the objects of desire.

I.—*That the requisite Securities against the Abuse of Power are not found in any of the simple Forms of Government.*

There are three modes in which it may be supposed that the powers for the protection of the community are capable of being exercised. The community may undertake the protection of itself, and of its members. The powers of protection may be placed in the hands of a few. And, lastly, they may be placed in the hands of an individual. The Many, the Few, the One; these varieties appear to exhaust the subject. It is not possible to conceive any hands, or combination of hands, in which the powers of protection can be lodged, which will not fall under one or other of these descriptions. And these varieties correspond to the three forms of Government, the Democratical, the Aristocratical, and the Monarchical.

It will be necessary to look somewhat closely at each of these forms in their order.

1. The Democratical. It is obviously impossible that the community in a body can be present to afford protection to each of its members. It must employ individuals for that purpose. Employing individuals, it must choose them; it must lay down the rules under which they are to act; and it must punish them, if they act in disconformity to those rules. In these functions are included the three great operations of Government; Administration, Legislation, and Judicature. The community, to perform any of these operations, must be assembled. This circumstance alone seems to form a conclusive objection against the democratical form. To assemble the whole of a community as often as the business of Government requires performance, would almost preclude the existence of labour; hence that of property; and hence the existence of the community itself.

There is another objection, not less conclusive. A whole community would form a numerous assembly. But all numerous assemblies are essentially incapable of business. It is unnecessary to be tedious in the proof of this proposition. In an assembly, every thing must be done by speaking and assenting. But where the assembly is numerous, so many persons desire to speak, and feelings, by mutual inflammation, become so violent, that calm and effectual deliberation is impossible.

It may be taken, therefore, as a position, from which there will be no dissent, that a community in mass is ill adapted for the business of Government. There is no principle more in conformity with the sentiments and the practice of the people than this. The management of the joint affairs of any considerable body of the people they never undertake for themselves. What they uniformly do is, to choose a certain number of themselves to be the actors in their stead. Even in the case of a common benefit club, the members choose a committee of management, and content themselves with a general control.

2. The Aristocratical. This term applies to all those cases in which the powers of Government are held by any number of persons intermediate between a single person and the majority. When the number is small, it is common to call the Government an Oligarchy; when it is considerable, to call it an Aristocracy. The cases are essentially the same, because the motives which operate in both are the same. This is a proposition which carries, we think, its own evidence along with it. We, therefore, assume it as a point which will not be disputed.

The source of evil is radically different in the case of aristocracy, from what it is in that of democracy.

The community cannot have an interest opposite to its interest. To affirm this would be a contradiction in terms. The community within itself, and with respect to itself, can have no sinister interest. One community may intend the evil of another; never its own. This is an indubitable proposition, and one of great importance. The community may act wrong from mistake. To suppose that it could from design, would be to suppose that human beings can wish their own misery.

The circumstances from which the inaptitude of the community, as a body, for the business of Government, arises, namely, the inconvenience of assembling them, and the inconvenience of their numbers when assembled, do not necessarily exist in the case of aristocracy. If the number of those who hold among them the powers of Government is so great as to make it inconvenient to assemble them, or impossible for them to deliberate calmly when assembled, this is only an objection to so extended an aristocracy, and has no application to an aristocracy not too numerous, when assembled, for the best exercise of deliberation.

The question is, whether such an aristocracy may be trusted to make that use of the powers of Government which is most conducive to the end for which Government exists?

There may be a strong presumption that any aristocracy, monopolizing the powers of Government, would not possess intellectual powers in any very high perfection. Intellectual powers are the offspring of labour. But an hereditary aristocracy are deprived of the strongest motives to labour. The greater part of them will, therefore, be defective in those mental powers. This is one objection, and an important one, though not the greatest.

We have already observed, that the reason for which Government exists is, that one man, if stronger than another, will take from him whatever that other possesses and he desires. But if one man will do this, so will several. And if powers are put into the hands of a comparatively small number, called an aristocracy, powers which make them stronger than the rest of the community, they will take from the rest of the community as much as they please of the objects of desire. They will thus defeat the very end for which Government was instituted. The unfitness, therefore, of an aristocracy to be intrusted with the powers of Government, rests on demonstration.

3. The Monarchical. It will be seen, and therefore words to make it manifest are unnecessary, that, in most respects, the monarchical form of Government agrees with the aristocratical, and is liable to the same objections.

If Government is founded upon this, as a law of human nature, that a man, if able, will take from others any thing which they have and he desires, it is sufficiently evident that when a man is called a king, it does not change his nature; so that when he has got power to enable him to take from every man what be pleases, he will take whatever he pleases. To suppose that he will not, is to affirm that Government is unnecessary; and that human beings will abstain from injuring one another of their own accord.

It is very evident that this reasoning extends to every modification of the smaller number. Whenever the powers of Government are placed in any hands other than those of the community, whether those of one man, of a few, or of several, those principles of human nature which imply that Government is at all necessary, imply that those persons will make use of them to defeat the very end for which Government exists.

IV.—*An Objection stated, and answered.*

One observation, however, suggests itself. Allowing, it may be said, that this deduction is perfect, and the inference founded upon it indisputable, it is yet true, that if there were no Government, every man would be exposed to depredation from every man; but, under an aristocracy, he is exposed to it only from a few; under a monarchy, only from one.

This is a highly-important objection, and deserves to be minutely investigated.

It is sufficiently obvious, that, if every man is liable to be deprived of what he possesses at the will of every man stronger than himself, the existence of property is impossible; and, if the existence of property is impossible, so also is that of labour, of the means of subsistence for an enlarged community, and hence of the community itself. If the members of such a community are liable to deprivation by only a few hundred men, the members of an aristocracy, it may not be impossible to satiate that limited number with a limited portion of the objects belonging to all. Allowing this view of the subject to be correct, it follows, that the smaller the number of hands into which the powers of Government are permitted to pass, the happier it will be for the community: that an oligarchy, therefore, is better than an aristocracy, and a monarchy better than either.

This view of the subject deserves to be the more carefully considered, because the conclusion to which it leads is the same with that which has been adopted and promulgated by some of the most profound and most benevolent investigators of human affairs. That Government by one man, altogether unlimited and uncontrolled, is better than Government by any modification of aristocracy, is the celebrated opinion of Mr Hobbes, and of the French *Economists*, supported on reasonings which it is not easy to controvert. Government by the many they with reason considered an impossibility. They inferred, therefore, that, of all the possible forms of Government, absolute monarchy is the best.

Experience, if we look only at the outside of the facts, appears to be divided on this subject. Absolute monarchy, under Neros and Caligulas, under such men as emperors of Morocco and sultans of Turkey, is the scourge of human nature. On the other side, the people of Denmark, tired out with the oppression of an aristocracy, resolved that their king should be absolute; and, under their absolute monarch, are as well governed as any people in Europe. In Greece, notwithstanding the defects of democracy, human nature ran a more brilliant career than it has ever done in any other age or country.

As the surface of history affords, therefore, no certain principle of decision, we must go beyond the surface, and penetrate to the springs within.

When it is said that one man, or a limited number of men, will soon be satiated with the objects of desire, and, when they have taken from the community what suffices to satiate them, will protect its members in the enjoyment of the remainder, an important element of the calculation is left out. Human beings are not a passive substance. If human beings, in respect to their rulers, were the same as sheep in respect to their shepherd; and if the king or the aristocracy were as totally exempt from all fear of resistance from the people, and all chance of obtaining more obedience from severity, as the shepherd in the case of the sheep, it does appear that there would be a limit to the motive for taking to one's self the objects of desire. The case will be found to be very much altered when the idea is taken into the account, first, of the resistance to his will which one human being may expect from another; and, secondly, of that perfection in obedience which fear alone can produce.

That one human being will desire to render the person and property of another subservient to his pleasures, notwithstanding the pain or loss of pleasure which it may occasion to that other individual, is the foundation of Government. The desire of the object implies the desire of the power necessary to accomplish the object. The desire, therefore, of that power which is necessary to render the persons and properties of human beings subservient to our pleasures, is a grand governing law of human nature.

What is implied in that desire of power, and, what is the extent to which it carries the actions of men, are the questions which it is necessary to resolve, in order to discover the limit which nature has set to the desire on the part of a king, or an aristocracy, to inflict evil upon the community for their own advantage.

Power is a means to an end. The end is every thing, without exception, which the human being calls pleasure and the removal of pain. The grand instrument for attaining what a man likes is the actions of other men. Power, in its most appropriate signification, therefore, means security for the conformity between the will of one man and the acts of other men. This, we presume, is not a proposition which will be disputed. The master has power over his servant, because when he wills him to do so and so, or, in other words, expresses a desire that he would do so and so, he possesses a kind of security that the actions of the man will correspond to his desire. The general commands his soldiers to perform certain operations, the king commands his subjects to act in a certain manner; and their power is complete or not complete, in proportion as the conformity is complete or not complete between the actions willed and the actions performed. The actions of other men, considered as means for the attainment of the objects of our desire, are perfect or imperfect, in proportion as they are or are not certainly and invariably correspondent to our will. There is no limit, therefore, to the demand of security for the perfection of that correspondence. A man is never satisfied with a smaller degree if he can obtain a greater. And as there is no man whatsoever, whose acts, in some degree or other, in some way or other, more immediately or more remotely may not have some influence as means to our ends, there is no man, the conformity of whose acts to our will we would not give something to secure. The demand, therefore, of power over the acts of other men is really boundless. It is boundless in two ways; boundless in the number of persons to whom we would extend it, and boundless in its degree over the actions of each.

It would be nugatory to say, with a view to explain away this important principle, that some human beings may be so remotely connected with our interests as to make the desire of a conformity between our will and their actions evanescent. It is quite enough to assume, what nobody will deny, that our desire of that conformity is unlimited, in respect to all those men whose actions can be supposed to have any influence on our pains and pleasures. With respect to the rulers of a community, this at least is certain, that they have a desire for the uniformity between their will and the actions of every man in the community. And for our present purpose this is as wide a field as we need to embrace.

With respect to the community, then, we deem it an established truth, that the rulers, one or a few, desire an exact conformity between their will and the acts of every member of the community. It remains for us to inquire to what description of acts it is the nature of this desire to give existence.

There are two classes of means by which the conformity between the will of one man and the acts of other men may be accomplished. The one is pleasure, the other pain.

With regard to securities of the pleasurable sort for obtaining a conformity between one man's will and the acts of other men, it is evident, from experience, that when a man possesses a command over the objects of desire, he may, by imparting those objects to other men, ensure, to a great extent, conformity between his will and their actions. It follows, and is also matter of experience, that the greater the quantity of the objects of desire which he may thus impart to other men, the greater is the number of men between whose actions and his own will he can ensure a conformity. As it has been demonstrated that there is no limit to the number of men whose actions we desire to have conformable to our will, it follows, with equal evidence, that there is no limit to the command which we desire to possess over the objects which ensure the result.

It is, therefore, not true that there is in the mind of a king, or in the minds of an aristocracy, any point of saturation with the objects of desire. The opinion, in examination of which we have gone through the preceding analysis, that a king or an aristocracy may be satiated with the objects of desire, and, after being satiated, leave to the members of the community the greater part of what belongs to them, is an opinion founded upon a partial and incomplete view of the laws of human nature.

We have next to consider the securities of the painful sort which may be employed for attaining conformity between the acts of one man and the will of another.

We are of opinion, that the importance of this part of the subject has not been duly considered; and that the business of government will be ill understood till its numerous consequences have been fully developed.

Pleasure appears to be a feeble instrument of obedience in comparison with pain. It is much more easy to despise pleasure than pain. Above all, it is important to consider, that in this class of instruments is included the power of taking away life, and with it of taking away not only all the pleasures of reality, but, what goes so far beyond them, all the pleasures of hope. This class of securities is, therefore, incomparably the strongest. He who desires obedience, to a high degree of exactness, cannot be satisfied with the power of giving pleasure; he must have the power of inflicting pain. He who desires it to the highest possible degree of exactness, must desire power of inflicting pain sufficient at least to ensure that degree of exactness; that is, an unlimited power of inflicting pain; for, as there is no possible mark by which to distinguish what is sufficient and what is not, and as the human mind sets no bounds to its avidity for the securities of what it deems eminently good, it is sure to extend, beyond almost any limits, its desire of the power of giving pain to others.

It may, however, be said, that how inseparable a part soever of human nature it may appear to be, to desire to possess unlimited power of inflicting pain upon others, it does not follow, that those who possess it will have a desire to make use of it.

This is the next part of the inquiry upon which we have to enter; and we need not add, that it merits all the attention of those who would possess correct ideas upon a subject which involves the greatest interests of mankind.

The chain of inference, in this case, is close and strong, to a most unusual degree. A man desires that the actions of other men shall be instantly and accurately correspondent to his will. He desires that the actions of the greatest possible number shall be so. Terror is the grand instrument. Terror can work only through assurance that evil will follow any want of conformity between the will and the actions willed. Every failure must, therefore, be punished. As there are no bounds to the mind's desire of its pleasure, there are of course no bounds to its desire of perfection in the instruments of that pleasure. There are, therefore, no bounds to its desire of exactness in the conformity between its will and the actions willed; and, by consequence, to the strength of that terror which is its procuring cause. Every, the most minute failure, must be visited with the heaviest infliction; and, as failure in extreme exactness must frequently happen, the occasions of cruelty must be incessant.

We have thus arrived at several conclusions of the highest possible importance. We have seen, that the very principle of human nature upon which the necessity of Government is founded, the propensity of one man to possess himself of the objects of desire at the cost of another, leads on, by infallible sequence, where power over a community is attained, and nothing checks, not only to that degree of plunder which leaves the members (excepting always the recipients and instruments of the plunder) the bare means of subsistence, but to that degree of cruelty which is necessary to keep in existence the most intense terror.

The world affords some decisive experiments upon human nature, in exact conformity with these conclusions. An English gentleman may be taken as a favourable specimen of civilization, of knowledge, of humanity, of all the qualities, in short, that make human nature estimable. The degree in which he desires to possess power over his fellow-creatures, and the degree of oppression to which he finds motives for carrying the exercise of that power, will afford a standard from which, assuredly, there can be no appeal. Wherever the same motives exist, the same conduct, as that displayed by the English gentleman, may be expected to follow, in all men not farther advanced in human excellence than him. In the West Indies, before that vigilant attention of the English nation, which, for many years before emancipation, had imposed a check upon the masters of slaves, there was not a perfect absence of all check upon the dreadful propensities of power. But yet it is true, that these propensities led English gentlemen, not only to deprive their slaves of property, and to make property of their fellow-creatures, but to treat them with a degree of cruelty, the very description of which froze the blood of their countrymen, who were placed in less unfavourable circumstances. The motives of this deplorable conduct are exactly those which we have described above, as arising out of the universal desire to render the actions of other men exactly conformable to our will. It is of great importance to remark, that not one item in the motives which had led English gentlemen to make slaves of their fellow-creatures, and to reduce them to the very worst condition in which the negroes have been found in the West Indies, can be shown to be wanting, or to be less strong, in the set of motives which universally operate upon the men who have power over their fellow-creatures. It is proved, therefore, by the closest deduction from the acknowledged laws of human nature, and by direct and decisive experiments, that the ruling one, or the ruling few, would, if checks did not operate in the way of prevention, reduce the great mass of the people subject to their power, at least to the condition of negroes in the West Indies.[1]

We have thus seen, that of the forms of Government which have been called the three simple forms, not one is adequate to the ends which Government is appointed to secure; that the community itself, which alone is free from motives opposite to those ends, is incapacitated by its numbers from performing the business of Government; and that whether Government is intrusted to one or a few, they have not only motives opposite to those ends, but motives which will carry them, if unchecked, to inflict the greatest evils.

These conclusions are so conformable to ordinary conceptions, that it would hardly have been necessary, if the development had not been of importance for some of our subsequent investigations, to have taken any pains with the proof of them. In this country at least, it will be remarked, in conformity with so many writers, that the imperfection of the three simple forms of Government is apparent; that the ends of Government can be attained in perfection only, as under the British constitution, by an union of all the three.

V.—*That the requisite Securities are not found in a Union of the Three simple Forms of Government. Doctrine of the Constitutional Balance.*

The doctrine of the union of the three simple forms of Government is the next part of this important subject which we are called upon to examine.

The first thing which it is obvious to remark upon it is, that it has been customary, in regard to this part of the inquiry, to beg the question. The good effects which have been ascribed to the union of the three simple forms of Government, have been *supposed;* and the supposition has commonly been allowed. No proof has been adduced; or if any thing have the appearance of proof, it is the reference to the British constitution. The British constitution, it has been said, is an union of the three simple forms of Government; and the British Government is excellent. To render the instance of the British government in any degree a proof of the doctrine in question, it is evident that three points must be established; 1*st*, That the British Government is not in show, but in substance, an union of the three simple forms; 2*dly*, That it has peculiar excellence; and, 3*dly*, That its excellence arises from the union so supposed, and not from any other cause. As these points have always been taken for granted without examination, the question with respect to the effects of an union of the three simple forms of Government may be considered as yet unsolved.

The positions which we have already established with regard to human nature, and which we assume as foundations, are these: That the actions of men are governed by their wills, and their wills by their desires: That their desires are directed to pleasure and relief from pain as *ends*, and to wealth and power as the principal means: That to the desire of these means there is no limit; and that the actions which flow from this unlimited desire are the constituents whereof bad Government is made. Reasoning correctly from these acknowledged laws of human nature, we shall presently discover what opinion, with respect to the mixture of the different species of Government, it will be incumbent upon us to adopt.

The theory in question implies, that of the powers of Government, one portion is held by the king, one by the aristocracy, and one by the people. It also implies, that there is on the part of each of them a certain unity of will, otherwise they would not act as three separate powers. This being understood, we proceed to the inquiry.

From the principles which we have already laid down, it follows, that of the objects of human desire—and, speaking more definitely, of the means to the ends of human desire, namely, wealth and power—each of the three parties will endeavour to obtain as much as possible.

After what has been said, it is not suspected that any reader will deny this proposition; but it is of importance that he keep in his mind a very clear conception of it.

If any expedient presents itself to any of the supposed parties, effectual to said end, and not opposed to any preferred object of pursuit, we may infer, with certainty, that it will be adopted. One effectual expedient is not more effectual than obvious. Any two of the parties, by combining, may swallow up the third. That such combination will take place, appears to be as certain as any thing which depends upon human will; because there are strong motives in favour of it, and none that can be conceived in opposition to it. Whether the portions of power, as originally distributed to the parties, be supposed to be equal or unequal, the mixture of three of the kinds of Government, it is thus evident, cannot possibly exist.

This proposition appears to be so perfectly proved, that we do not think it necessary to dwell here upon the subject. As a part, however, of this doctrine, of the mixture of the simple forms of Government, it may be proper to inquire, whether an union may not be possible of two of them.

Three varieties of this union may be conceived; the union of the monarchy with aristocracy, or the union of either with democracy.

Let us first suppose that monarchy is united with aristocracy. Their power is equal or not equal. If it is not equal, it follows, as a necessary consequence, from the principles which we have already established, that the stronger will take from the weaker, till it engrosses the whole. The only question, therefore, is, What will happen when the power is equal?

In the first place, it seems impossible that such equality should ever exist. How is it to be established? Or by what criterion is it to be ascertained? If there is no such criterion, it must, in all cases, be the result of chance. If so, the chances against it are as infinite to one. The idea, therefore, is wholly chimerical and absurd.

Besides, a disposition to overrate one's own advantages, and underrate those of other men, is a known law of human nature. Suppose, what would be little less than miraculous, that equality were established, this propensity would lead each of the parties to conceive itself the stronger. The consequence would be, that they would go to war, and contend till one or other was subdued. Either those laws of human nature, upon which all reasoning with respect to Government proceeds, must be denied, and then the utility of Government itself may be denied, or this conclusion is demonstrated. Again, if this equality were established, is there a human being who can suppose that it would last? If any thing be known about human affairs it is this, that they are in perpetual change. If nothing else interfered, the difference of men in respect of talents would abundantly produce the effect. Suppose your equality to be established at the time when your king is a man of talents, and suppose his successor to be the reverse; your equality no longer exists. The moment one of the parties is superior, it begins to profit by its superiority, and the inequality is daily increased. It is unnecessary to extend the investigation to the remaining cases, the union of democracy with either of the other two kinds of Government. It is very evident that the same reasoning would lead to the same results.

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[1] An acute sense of this important truth is expressed by the President Montesquieu: "C'est une expérience eternelle, que tout homme qui a du pouvoir est porté à en abuser; il va jusqu'à ce qu'il trouve des limites."—*Esprit de Loix*, ii. 4.

In this doctrine of the mixture of the simple forms of Government is included the celebrated theory of the balance among the component parts of a Government. By this it is supposed, that, when a Government is composed of monarchy, aristocracy, and democracy, they balance one another, and by mutual checks produce good Government. A few words will suffice to show, that, if any theory deserve the epithets of "wild, visionary, chimerical," it is that of the balance. If there are three powers, how is it possible to prevent two of them from combining to swallow up the third?

The analysis which we have already performed, will enable us to trace rapidly the concatenation of causes and effects in this imagined case.

We have already seen that the interest of the community, considered in the aggregate, or in the democratical point of view, is, that each individual should receive protection, and that the powers which are constituted for that purpose should be employed exclusively for that purpose. As this is a proposition wholly indisputable, it is also one to which all correct reasoning upon matters of Government must have a perpetual reference.

We have also seen that the interest of the king, and of the governing aristocracy, is directly the reverse; it is to have unlimited power over the rest of the community, and to use it for their own advantage. In the supposed case of the balance of the monarchical, aristocratical, and democratical powers, it cannot be for the interest of either the monarchy or the aristocracy to combine with the democracy; because it is the interest of the democracy, or community at large, that neither the king nor the aristocracy should have one particle of power, or one particle of the wealth of the community, for their own advantage.

The democracy or community have all possible motives to endeavour to prevent the monarchy and aristocracy from exercising power, or obtaining the wealth of the community, for their own advantage. The monarchy and aristocracy have all possible motives for endeavouring to obtain unlimited power over the persons and property of the community. The consequence is inevitable; they have all possible motives for combining to obtain that power; and unless the people have power enough to be a match for both, they have no protection. The balance, therefore, is a thing, the existence of which, upon the best possible evidence, is to be regarded as impossible. The appearances which have given colour to the supposition are altogether delusive.

VI.—*In the Representative System alone the Securities for good Government are to be found.*

What then is to be done? For, according to this reasoning, we may be told that good Government appears to be impossible. The people, as a body, cannot perform the business of Government for themselves. If the powers of Government are intrusted to one man, or a few men, and a monarchy, or governing aristocracy, is formed, the results are fatal; and it appears that a combination of the simple forms is impossible.

Notwithstanding the truth of these propositions, it is not yet proved that good Government is impossible. For though the people, who cannot exercise the powers of Government themselves, must intrust them to some one individual or set of individuals, and such individuals will infallibly have the strongest motives to make a bad use of them, it is possible that checks may be found sufficient to prevent them. The next subject of inquiry, then, is the doctrine of checks. It is sufficiently conformable to the established and fashionable opinions to say, that, upon the right constitution of checks, all goodness of Government depends. To this proposition we fully subscribe. Nothing, therefore, can exceed the importance of correct conclusions upon this subject. After the developments already made, it is hoped that the inquiry will be neither intricate nor unsatisfactory.

In the grand discovery of modern times, the system of representation, the solution of all the difficulties, both speculative and practical, will perhaps be found. If it cannot, we seem to be forced upon the extraordinary conclusion, that good Government is impossible. For as there is no individual, or combination of individuals, except the community itself, who would not have an interest in bad Government, if intrusted with its powers; and as the community itself is incapable of exercising those powers, and must intrust them to some individual or combination of individuals, the conclusion is obvious. The community itself must check those individuals, else they will follow their interest, and produce bad Government.

But how is it the community can check? The community can act only when assembled; and then it is incapable of acting.

The community, however, can choose representatives, and the question is, whether the representatives of the community can operate as a check?

VII.—*What is required in a Representative Body, to make it a security for good Government?*

We may begin by laying down two propositions, which appear to involve a great portion of the inquiry; and about which it is unlikely that there will be any dispute.

I. The checking body must have a degree of power sufficient for the business of checking.

II. It must have an identity of interest with the community; otherwise it will make a mischievous use of its power.

I. To measure the degree of power which is requisite upon any occasion, we must consider the degree of power which is necessary to be overcome. Just as much as suffices for that purpose is requisite, and no more. We have then to inquire what power it is which the representatives of the community, acting as a check, need power to overcome. The answer here is easily given. It is all that power, wheresoever lodged, which they, in whose hands it is lodged, have an interest in misusing. We have already seen, that to whomsoever the community intrusts the powers of Government, whether one, or a few, they have an interest in misusing them. All the power, therefore, which the one or the few, or which the one and the few combined, can apply to ensure the accomplishment of their sinister ends, the checking body must have power to overcome, otherwise its check will be unavailing. In other words, there will be no check.

This is so exceedingly evident, that we hardly think it necessary to say another word in illustration of it. If a king is prompted by the inherent principles of human nature to seek the gratification of his will; and if he finds an obstacle in that pursuit, he removes it, of course, if he can. If any man, or any set of men, oppose him, he overcomes them, if he is able; and to prevent him, they must, at the least, have equal power with himself.

The same is the case with an aristocracy. To oppose them with success in pursuing their interest at the expense of the community, the checking body must have power successfully to resist whatever power they possess. If there is both a king and an aristocracy, and if they would combine to put down the checking force, and to pursue their mutual interest at the expense of the community, the checking body must have sufficient power successfully to resist the united power of both king and aristocracy.

These conclusions are not only indisputable, but the very theory of the British constitution is erected upon them. The House of Commons, according to that theory, is the checking body. It is also an admitted doctrine, that if the king had the power of bearing down any opposition to his will that could be made by the House of Commons, or if the king and the House of Lords combined had the power of bearing down its opposition to their joint will, it would cease to have the power of checking them: it must, therefore, have a power sufficient to overcome the united power of both.

II. All the questions which relate to the degree of power necessary to be given to that checking body, on the perfection of whose operations all the goodness of Government depends, are thus pretty easily solved. The grand difficulty consists in finding the means of constituting a checking body, whose powers shall not be turned against the community for whose protection it is created.

There can be no doubt that if power is granted to a body of men called representatives, they, like any other men, will use their power, not for the advantage of the community, but for their own advantage, if they can. The only question is, therefore, how they can be prevented? in other words, how are the interests of the representatives to be identified with those of the community?

Each representative may be considered in two capacities; in his capacity of representative, in which he has the exercise of power over others; and in his capacity of member of the community, in which others have the exercise of power over him.

If things were so arranged, that, in his capacity of representative, it would be impossible for him to do himself so much good by misgovernment, as he would do himself harm in his capacity of member of the community, the object would be accomplished. We have already seen, that the amount of power assigned to the checking body cannot be diminished beyond a certain amount. It must be sufficient to overcome all resistance on the part of all those in whose hands the powers of Government are lodged. But if the power assigned to the representative cannot be diminished in amount, there is only one other way in which it can be diminished, and that is in duration.

This, then, is the instrument; lessening of duration is the instrument by which, if by any thing, the object is to be attained. The smaller the period of time during which any man retains his capacity of representative, as compared with the time in which he is simply a member of the community, the more difficult it will be to compensate the sacrifice of the interests of the longer period, by the profits of misgovernment during the shorter.

This is an old and approved method of identifying as nearly as possible the interests of those who rule with the interests of those who are ruled. It is in pursuance of this advantage that the members of the British House of Commons have always been chosen for a limited period. If the members were hereditary, or even if they were chosen for life, every inquirer would immediately pronounce that they would employ, for their own advantage, the powers intrusted to them; and that they would go just as far in abusing the persons and properties of the people, as their estimate of the powers and spirit of the people to resist them would allow them to contemplate as safe.

As it thus appears, by the consent of all men, from the time when the Romans made their consuls annual, down to the present day, that the end is to be attained by limiting the duration, either of the acting, or (which is better) of the checking power, the next question is, to what degree should the limitation proceed?

The general answer is plain. It should proceed, till met by overbalancing inconveniences on the other side. What then are the inconveniences which are likely to flow from a too limited duration?

They are of two sorts; those which affect the performance of the service for which the individuals are chosen, and those which arise from the trouble of election. It is sufficiently obvious, that the business of Government requires time to perform it. The matter must be proposed, deliberated upon, a resolution must be taken and executed. If the powers of Government were to be shifted from one set of hands to another every day, the business of Government could not proceed. Two conclusions, then, we may adopt with perfect certainty; that whatsoever time is necessary to perform the periodical round of the stated operations of Government, this should be allotted to those who are invested with the checking powers; and, secondly, that no time which is not necessary for that purpose should by any means be allotted to them. With respect to the inconvenience arising from frequency of election, though it is evident that the trouble of election, which is always something, should not be repeated oftener than is necessary, no great allowance will need to be made for it, because it may easily be reduced to an inconsiderable amount.

As it thus appears that limiting the duration of their power is a security against the sinister interest of the people's representatives, so it appears that it is the only security of which the nature of the case admits. The only other means which could be employed to that end would be punishment on account of abuse. It is easy, however, to see that punishment could not be effectually applied. In order to punishment, definition is required of the punishable acts; and proof must be established of the commission. But abuses of power may be carried to a great extent, without allowing the means of proving a determinate offence. No part of political experience is more perfect than this.

If the limiting of duration be the only security, it is unnecessary to speak of the importance which ought to be attached to it.

In the principle of limiting the duration of the power delegated to the representatives of the people, is not included the idea of changing them. The same individual may be chosen any number of times. The check of the short period for which he is chosen, and during which he can promote his sinister interest, is the same upon the man who has been chosen and re-chosen twenty times, as upon the man who has been chosen for the first time. And there is good reason for always re-electing the man who has done his duty, because the longer he serves, the better acquainted he becomes with the business of the service. Upon this principle of re-choosing, or of the permanency of the individual, united with the power of change, has been recommended the plan of permanent service with perpetual power of removal. This, it has been said, reduces the period within which the representative can promote his sinister interest, to the narrowest possible limits; because the moment when his constituents begin to suspect him, that moment they may turn him out. On the other hand, if he continues faithful, the trouble of election is performed once for all, and the man serves as long as he lives. Some disadvantages, on the other hand, would accompany this plan. The present, however, is not the occasion on which the balance of different plans is capable of being settled.

VII.—*What is required in the Elective Body, to secure the requisite Properties in the Representative Body.*

Having considered the means which are capable of being employed for identifying the interest of the representatives when chosen, with that of the persons who choose them, it remains that we endeavour to bring to view the principles which ought to guide in determining who the persons are by whom the act of choosing ought to be performed.

It is most evident that upon this question every thing depends. It can be of no consequence to ensure, by shortness of duration, a conformity between the conduct of the representatives and the will of those who appoint them, if those who appoint them have an interest opposite to that of the community; because those who choose will, according to the principles of human nature, make choice of such persons as will act according to their wishes. As this is a direct inference from the very principle on which Government itself is founded, we assume it as indisputable.

We have seen already, that if one man has power over others placed in his hands, he will make use of it for an evil purpose, for the purpose of rendering those other men the abject instruments of his will. If we, then, suppose that one man has the power of choosing the representatives of the people, it follows that he will choose men who will use their power as representatives for the promotion of this his sinister interest.

We have likewise seen, that when a few men have power given them over others, they will make use of it exactly for the same ends, and to the same extent, as the one man. It equally follows, that if a small number of men have the choice of the representatives, such representatives will be chosen as will promote the interests of that small number, by reducing, if possible, the rest of the community to be the abject and helpless slaves of their will.

In all these cases it is obvious and indisputable, that all the benefits of the representative system are lost. The representative system is, in that case, only an operose and clumsy machinery for doing that which might as well be done without it; reducing the community to subjection under the one or the few.

When we say the few, it is seen that in this case it is of no importance whether we mean a few hundreds or a few thousands, or even many thousands. The operation of the sinister interest is the same; and the fate is the same of all that part of the community over whom the power is exercised. A numerous aristocracy has never been found to be less oppressive than an aristocracy confined to a few.

The general conclusion, therefore, which is evidently established, is this; that the benefits of the representative system are lost, in all cases in which the interests of the choosing body are not the same with those of the community.

It is very evident, that if the community itself were the choosing body, the interest of the community and that of the choosing body would be the same. The question is, whether that of any portion of the community, if erected into the choosing body, would remain the same?

One thing is pretty clear, that all those individuals whose interests are indisputably included in those of other individuals, may be struck off without inconvenience. In this light may be viewed all children up to a certain age, whose interests are involved in those of their parents. In this light also women may be regarded, the interest of almost all of whom is involved either in that of their fathers or in that of their husbands.

Having ascertained that an interest identical with that of the whole community is to be found in the aggregate males of an age to be regarded as *sui juris*, who may be deemed the natural representatives of the whole population, we have to go on and inquire whether this requisite quality may not be found in some less number, some aliquot part of that body.

As degrees of mental qualities are not easily ascertained, outward and visible signs must be taken to distinguish, for this purpose, one part of these males from another. Applicable signs of this description appear to be three; years, property, profession or mode of life.

According to the first of these means of distinction, a portion of the males, to any degree limited, may be taken, by prescribing an advanced period of life at which the power of voting for a representative should commence. According to the second, the elective body may be limited, by allowing a vote to those only who possess a certain amount of property or of income. According to the third, they may be limited, by allowing a vote only to such persons as belong to certain professions, or certain connexions and interests. What we have to inquire is, if the interest of the number, limited and set apart, upon any of those principles, as the organ of choice for a body of representatives, will be the same with the interest of the community?

With respect to the first principle of selection, that of age, it would appear that a considerable latitude may be taken without inconvenience. Suppose the age of forty were prescribed as that at which the right of suffrage should commence, scarcely any laws could be made for the benefit of all the men of forty, which would not be laws for the benefit of all the rest of the community.

The great principle of security here is, that the men of forty have a deep interest in the welfare of the younger men; for otherwise it might be objected with perfect truth, that if decisive power were placed in the hands of men of forty years of age, they would have an interest, just as any other detached portion of the community, in pursuing that career which we have already described, for reducing the rest of the community to the state of abject slaves. But the great majority of old men have sons, whose interest they regard as an essential part of their own. This is a law of human nature. There is, therefore, no great danger that, in such an arrangement as this, the interests of the young would be greatly sacrificed to those of the old.

We come next to the inquiry, whether the interest of a body of electors, constituted by the possession of a certain amount of property or income, would be the same with the interest of the community?

It will not be disputed, that, if the qualification were raised so high that only a few hundreds possessed it, the case would be exactly the same with that of the consignment of the electoral suffrage to an aristocracy. This we have already considered, and have seen that it differs in form rather than substance from a simple aristocracy. We have likewise seen, that it alters not the case in regard to the community, whether the aristocracy be some hundreds or some thousands. One thing is, therefore, completely ascertained, that a pecuniary qualification, unless it were very low, would only create an aristocratical government, and produce all the evils which we have shown to belong to that organ of misrule.

This question, however, deserves to be a little more minutely considered. Let us next take the opposite extreme. Let us suppose that the qualification is very low, so low as to include the great majority of the people. It would not be easy for the people who have very little property, to separate their interests from those of the people who have none. It is not the interest of those who have little property to give undue advantages to the possession of property, which those who have the great portions of it would turn against themselves.

It may, therefore, be said, that there would be no evil in a low qualification. It can hardly be said, however, on the other hand, that there would be any good; for if the whole mass of the people who have some property would make a good choice, it will hardly be pretended that, added to them, the comparatively small number of those who have none, and whose minds are naturally and almost necessarily governed by the minds of those who have, would be able to make the choice a bad one.

We have ascertained, therefore, two points. We have ascertained that a very low qualification is of no use, as affording no security for a good choice, beyond that which would exist if no pecuniary qualification was required. We have likewise ascertained, that a qualification so high as to constitute an aristocracy of wealth, though it were a very numerous one, would leave the community without protection, and exposed to all the evils of unbridled power. The only question, therefore, is, whether, between these extremes, there is any qualification which would remove the right of suffrage from the people of small, or of no property, and yet constitute an elective body, the interest of which would be identical with that of the community?

It is not easy to find any satisfactory principle to guide us in our researches, and to tell us where we should fix. The qualification must either be such as to embrace the majority of the population, or some thing less than the majority. Suppose, in the first place, that it embraces the majority, the question is, whether the majority would have an interest in oppressing those who, upon this supposition, would be deprived of political power? If we reduce the calculation to its elements, we shall see that the interest which they would have, of this deplorable kind, though it would be something, would not be very great. Each man of the majority, if the majority were constituted the governing body, would have something less than the benefit of oppressing a single man. If the majority were twice as great as the minority, each man of the majority would only have one half the benefit of oppressing a single man. In that case, the benefits of good government, accruing to all, might be expected to overbalance to the several members of such an elective body the benefits of misrule peculiar to themselves. Good Government would, therefore, have a tolerable security. Suppose, in the second place, that the qualification did not admit a body of electors so large as the majority; in that case, taking again the calculation in its elements, we shall see that each man would have a benefit equal to that derived from the oppression of more than one man; and that, in proportion as the elective body constituted a smaller and smaller minority, the benefit of misrule to the elective body would be increased, and bad Government would be ensured.

It seems hardly necessary to carry the analysis of the pecuniary qualification, as the principle for choosing an elective body, any farther.

We have only remaining the third plan for constituting an elective body. According to the scheme in question, the best elective body is that which consists of certain classes, professions, or fraternities. The notion is, that when these fraternities or bodies are represented, the community itself is represented. The way in which, according to the patrons of this theory, the effect is brought about, is this. Though it is perfectly true that each of these fraternities would profit by misrule, and have the strongest interest in promoting it; yet, if three or four such fraternities are appointed to act in conjunction, they will not profit by misrule, and will have an interest in nothing but good Government.

This theory of representation we shall not attempt to trace farther back than the year 1793. In the debate on the motion of Mr, afterwards Earl Grey, for a reform in the system of representation, on the 6th of May of that year, Mr Jenkinson, afterwards Earl of Liverpool, brought forward this theory of representation, and urged it in opposition to all idea of reform in the British House of Commons, in terms as clear and distinct as those in which it has since been clothed by other leading men on both sides of that House. We shall transcribe the passage from the speech of the latter, omitting, for the sake of abbreviation, all those expressions which are unnecessary for conveying a knowledge of the plan, and of the reasons upon which it was founded.

"Supposing it agreed," he said, "that the House of Commons is meant to be a legislative body, representing all descriptions of men in the country, he supposed every person would agree that the landed interest ought to have the preponderant weight. The landed interest was, in fact, the *stamina* of the country. In the second place, in a commercial country like this, the manufacturing and commercial interest ought to have a considerable weight, secondary to the landed interest, but secondary to the landed interest only. But was this all that was necessary? There were other descriptions of people, which, to distinguish them from those already mentioned, he should style professional people, and whom he considered as absolutely necessary to the composition of a House of Commons. By professional people, he meant those members of the House of Commons who wished to raise themselves to the great offices of the state; those that were in the army, those that were in the navy, those that were in the law." He then, as a reason for desiring to have those whom he calls "professional people" in the composition of the House of Commons, gives it as a fact, that country gentlemen and merchants seldom desire, and seldom have motives for desiring, to be ministers and other great officers of state. These ministers and officers, however, ought to be made out of the House of Commons. Therefore, you ought to have "professional people" of whom to make them. Nor was this all. "There was anothor reason why these persons were absolutely necessary. We were constantly in the habit of discussing in that house all the important concerns of the state. It was necessary, therefore, that there should be persons in the practice of debating such questions." "There was a third reason, which, to his mind, was stronger than all the rest. Suppose that in that house there were only country gentlemen; they would not then be the representatives of the nation, but of the landholders. Suppose there were in that house only commercial persons; they would not be the representatives of the nation, but of the commercial interests of the nation. Suppose the landed and commercial interest could both find their way into the house; the landed interest would be able, if it had nothing but the commercial interest to combat with, to prevent that interest from having its due weight in the constitution. All descriptions of persons in the country would thus, in fact, be at the mercy of the landholders." He adds, "the professional persons are, then, what makes this house the representatives of the people. They have collectively no *esprit de corps*, and prevent any *esprit de corps* from affecting the proceedings of the house.

either the landed nor commercial interest can materially fect each other; and the interests of the different profes- ons of the country are fairly considered. The honoura- e gentleman (Mr Grey), and the petition on this table, ther proposed uniformity of election. His ideas were the verse—that the modes of election ought to be as varied possible; because, if there was but one mode of election, ere would, generally speaking, be but one description of rsons in that house; and by a varied mode of election ly could that variety be secured."

There is great vagueness undoubtedly in the language re employed, and abundant wavering and uncertainty in e ideas. But the ideas regarding this theory appear in e same half-formed state in every speech and writing in ich we have seen it adduced. The mist, indeed, by ich it has been kept surrounded alone creates the diffi- lty; because it cannot be known precisely how any thing good or bad till it is precisely known what it is.

According to the ideas of Lord Liverpool, the land- lders ought to be represented; the merchants and ma- facturers ought to be represented; the officers of the my and navy ought to be represented; and the practi- ners of the law ought to be represented. Other patrons the scheme have added, that literary men ought to be presented. And these, we believe, are almost all the aternities which have been named for this purpose by y of the advocates of representation by clubs. To en- re the choice of representatives of the landholders, ndholders must be the choosers; to ensure the choice representatives of the merchants and manufacturers, erchants and manufacturers must be the choosers; and with respect to the other fraternities, whether few or ny. Thus it must be at least in *substance*, whatever e *form* under which the visible acts may be performed. ccording to the scheme in question, these several frater- ies are represented *directly*; the rest of the community *not* represented directly; but it will be said by the pa- ons of that scheme, that it is represented *virtually*, ich, in this case, answers the same purpose.

From what has already been ascertained, it will appear rtain, that each of these fraternities has its sinister in- rest, and will be led to seek the benefit of misrule, if it able to obtain it. This is frankly and distinctly avow- by Lord Liverpool; and by those by whom it is not owed, it seems impossible to suppose that it should be sputed.

Let us now, then, observe the very principle upon ich this theory must be supported. Three, or four, or e, or more clubs of men, have unlimited power over e whole community put into their hands. These clubs ve, each and all of them, an interest, an interest the me with that which governs all other rulers, in mis- vernment, in converting the persons and properties the rest of the community wholly to their own bene- Having this interest, says the theory, they will not ke use of it, but will use all their powers for the bene- of the community. Unless this proposition can be pported, the theory is one of the shallowest by which e pretenders to political wisdom have ever exposed emselves.

Let us resume the proposition. Three, or four, or five ternities of men, composing a small part of the com- unity, have all the powers of Government placed in their nds. If they oppose and contend with one another, ey will be unable to convert these powers to their own nefit. If they agree, they will be able to convert them holly to their own benefit, and to do with the rest of the mmunity just what they please. The patrons of this stem of representation assume, that these fraternities ll be sure to take that course which is *contrary* to their erest. The course which is *according* to their interest, appears as if it had never presented itself to their imaginations.

There being two courses which the clubs may pursue, one contrary to their interest, the other agreeable to it, the patrons of the club system must prove, they must place it beyond all doubt, that the clubs will follow the first course, and not follow the second; if not, the world will laugh at a theory which is founded upon a direct contradiction of one of the fundamental principles of human nature.

In supposing that clubs or societies of men are governed, like men individually, by their interests, we are surely following a pretty complete experience. In the idea that a certain number of those clubs can unite to pursue a common interest, there is surely nothing more extraordinary, than that as many individuals should unite to pursue a common interest. Lord Liverpool talks of an *esprit de corps* belonging to a class of landholders, made up of the different bodies of landholders in every county in the kingdom. He talks of an *esprit de corps* in a class of merchants and manufacturers, made up of the different bodies of merchants and manufacturers in the several great towns and manufacturing districts in the kingdom. What, then, is meant by an *esprit de corps?* Nothing else but a union for the pursuit of a common interest. To the several clubs supposed in the present theory, a common interest is created by the very circumstance of their composing the representing and represented bodies. Unless the patrons of this theory can prove to us, contrary to all experience, that a common interest cannot create an *esprit de corps* in men in combinations, as well as in men individually, we are under the necessity of believing, that an *esprit de corps* would be formed in the classes separated from the rest of the community for the purposes of representation; that they would pursue their common interest; and inflict all the evils upon the rest of the community to which the pursuit of that interest would lead.

It is not included in the idea of this union for the pursuit of a common interest, that the clubs or sets of persons appropriated to the business of representation should totally harmonise. There would, no doubt, be a great mixture of agreement and disagreement among them. But there would, if experience is any guide, or if the general laws of human nature have any power, be sufficient agreement to prevent their losing sight of the common interest; in other words, for ensuring all that abuse of power which is useful to the parties by whom it is exercised.

The real effect of this motley representation, therefore, would only be to create a motley aristocracy; and, of course, to ensure that kind of misgovernment which it is the nature of aristocracy to produce, and to produce equally, whether it is a uniform or a variegated aristocracy; whether an aristocracy all of landowners; or an aristocracy in part landowners, in part merchants and manufacturers, in part officers of the army and navy, and in part lawyers.

We have now, therefore, examined the principles of the representative system, and have found in it all that is necessary to constitute a security for good Government. We have seen in what manner it is possible to prevent in the representatives the rise of an interest different from that of the parties who choose them, namely, by giving them little time, not dependent upon the will of those parties. We have likewise seen in what manner identity of interest may be ensured between the electoral body and the rest of the community. We have, therefore, discovered the means by which identity of interest may be ensured between the representatives and the community at large. We have, by consequence, obtained an organ of Government which possesses that quality, without which there can be no good Government.

IX.—*First Objection: That a perfect Representative System, if established, would destroy the Monarchy and the House of Lords.*

The question remains, whether this organ is competent to the performance of the whole of the business of Government? And it may be certainly answered, that it is not. It may be competent to the making of laws, and it may watch over their execution: but to the executive functions themselves, operations in detail, to be performed by individuals, it is manifestly not competent. The executive functions of Government consist of two parts, the administrative and the judicial. The administrative, in this country, belong to the king; and it will appear indubitable, that, if the best mode of disposing of the administrative powers of government be to place them in the hands of one great functionary, not elective, but hereditary; a king, such as ours, instead of being inconsistent with the representative system, in its highest state of perfection, would be an indispensable branch of a good Government; and, even if it did not previously exist, would be established by a representative body whose interests were identified, as above, with those of the nation.

The same reasoning will apply exactly to our House of Lords. Suppose it true, that, for the perfect performance of the business of legislation, and of watching over the execution of the laws, a second deliberative assembly is necessary; and that an assembly, such as the British House of Lords, composed of the proprietors of the greatest landed estates, with dignities and privileges, is the best adapted to the end: it follows, that a body of representatives, whose interests were identified with those of the nation, would establish such an assembly, if it did not previously exist: for the best of all possible reasons; that they would have motives for, and none at all against it.

Those parties, therefore, who reason against any measures necessary for identifying the interests of the representative body with those of the nation, under the plea that such a representative body would abolish the king and the House of Lords, are wholly inconsistent with themselves. They maintain that a king and a House of Lords, such as ours, are important and necessary branches of a good Government. It is demonstratively certain that a representative body, the interests of which were identified with those of the nation, would have no motive to abolish them, if they were not causes of bad Government. Those persons, therefore, who affirm that it would certainly abolish them, affirm implicitly that they are causes of bad, and not necessary to good Government. This oversight of theirs is truly surprising.

The whole of this chain of deduction is dependent, as we stated at the beginning, upon the principle that the acts of men will be conformable to their interests. Upon this principle, we conceive that the chain is complete and irrefragable. The principle, also, appears to stand upon a strong foundation. It is indisputable that the acts of men follow their will; that their will follows their desires; and that their desires are generated by their apprehensions of good or evil; in other words, by their interests.

X.—*Second Objection: That the People are not capable of acting agreeably to their Interest.*

The apprehensions of the people respecting good and evil may be just, or they may be erroneous. If just, their actions will be agreeable to their real interests. If erroneous, they will not be agreeable to their real interests, but to a false supposition of interest.

We have seen that, unless the representative body are chosen by a portion of the community, the interest of which cannot be made to differ from that of the community, the interest of the community will infallibly be sacrificed to the interest of the rulers.

The whole of that party of reasoners who support aristocratical power, affirm, that a portion of the community, the interest of whom cannot be made to differ from that of the community, will not act according to their interest, but contrary to their interest. All their pleas are grounded upon this assumption; because, if a portion of the community, whose interest is the same with that of the community, would act agreeably to their own interest, they would act agreeably to the interest of the community, and the end of Government would be obtained.

If this assumption of theirs is true, the prospect of mankind is deplorable. To the evils of misgovernment they are subject by inexorable destiny. If the powers of Government are placed in the hands of persons whose interests are not identified with those of the community, the interests of the community are wholly sacrificed to those of the rulers. If so much as a checking power is held by the community, or by any part of the community, where the interests are the same as those of the community, the holders of that checking power will not, according to the assumption in question, make use of it in a way agreeable, but in a way contrary to their own interest. According to this theory, the choice is placed between the evils which will be produced by design, the design of those who have the power of oppressing the rest of the community, and an interest in doing it; and the evils which may be produced by mistake, the mistake of those who, if they acted agreeably to their own interest, would act well.

Supposing that this theory were true, it would still be a question between these two sets of evils, whether the evils arising from the design of those who have motives to employ the powers of Government for the purpose of reducing the community to the state of abject slaves of their will, or the evils arising from the misconduct of those who never produce evil but when they mistake their own interest, are the greatest evils.

Upon the most general and summary view of this question, it appears that the proper answer cannot be doubtful. They who have a fixed invariable interest in acting ill, will act ill invariably. They who act ill from mistake, will often act well, sometimes even by accident, and in every case in which they are enabled to understand their interest, by design.

There is another, and a still more important ground of preference. The evils which are the produce of interest and power united, the evils on the one side, are altogether incurable: the effects are certain while that conjunction which is the cause of them remains. The evils which arise from mistake are not incurable; for if the parties who act contrary to their interest had a proper knowledge of that interest, they would act well. What is necessary, then, is knowledge. Knowledge, on the part of those whose interests are the same as those of the community, would be an adequate remedy. But knowledge is a thing which is capable of being increased; and the more it is increased, the more the evils on this side of the case would be reduced.

Supposing, then, the theory of will opposed to interest to be correct; the practical conclusion would be, as there is something of a remedy to the evils arising from this source, none whatever to the evils arising from the conjunction of power and sinister interest, to adopt the side which has the remedy, and to do whatever is necessary for obtaining the remedy in its greatest possible strength, and for applying it with the greatest possible efficacy.

It is no longer deniable that a high degree of knowledge is capable of being conveyed to such a portion of the community as would have interests the same with those of the community. This being the only resource for good Governmnt, those who say that it is not yet attained stand in this dimma; either they do not desire good Government, which is he case with all those who derive advantage from bad; or they will be seen employing their utmost exertions to inease the quantity of knowledge in the body of the commnity.

he practical conclusion, then, is actually the same, wether we embrace or reject the assumption that the commnity are little capable of acting according to their own inrest. That assumption, however, deserves to be consired. And it would need a more minute consideration th the space to which we are confined will enable us to bow upon it.

ne caution, first of all, we should take along with us; ar it is this, that all those persons who hold the powers of Government, without having an identity of interests with th community, and all those persons who share in the profit which are made by the abuse of those powers, and all thse persons whom the example and representations of the tw first classes influence, will be sure to represent the cmunity, or a part having an identity of interest with the cmunity, as incapable in the highest degree of acting accding to their own interest; it being clear that they who hae not an identity of interest with the community, ought tohold the power of Government no longer, if those who hae that identity of interest could be expected to act in an tolerable conformity with their interest. All representaons from that quarter, therefore, of their incapability so toct, are to be received with suspicion. They come from inrested parties; they come from parties who have the stngest possible interest to deceive themselves, and to eneavour to deceive others.

t is impossible that the interested endeavours of all those paties should not propagate, and for a long time successfy uphold, such an opinion, to whatever degree it might bound, upon accurate inquiry, to be without foundation.

parallel case may be given. It was the interest of th priesthood, when the people of Europe were all of one regon, that the laity should take their opinions exclusivelyrom them; because, in that case, the laity might be rended subservient to the will of the clergy, to any possible exent; and as all opinions were to be derived professedly frn the Bible, they withdrew from the laity the privilege of eading it. When the opinions which produced the Refnation, and all the blessings which may be traced to it, ban to ferment, the privilege of the Bible was demanded. Te demand was resisted by the clergy, upon the very sae assumption which we have now under contemplation. "he people did not understand their own interest. They wld be sure to make a bad use of the Bible. They would dve from it not right opinions, but all sorts of wrong opinns."[1]

here can be no doubt that the assumption, in the religis case, was borne out by still stronger appearance of evence than it is in the political. The majority of the pople may be supposed less capable of deriving correct opions from the Bible, than of judging who is the best m to act as a representative.

xperience has fully displayed the nature of the assumpti in regard to religion. The power bestowed upon the pele, of judging for themselves, has been productive of gd effects, to a degree which has totally altered the condin of human nature, and exalted man to what may be cad a different stage of existence.

or what reason then is it we are called upon to believe, th, if a portion of the community, having an identity of interests with the whole community, have the power of choosing representatives, they will act wholly contrary to their interests, and make a bad choice?

Experience, it will be said, establishes this conclusion. We see that the people do not act according to their interests, but very often in opposition to them.

The question is between a portion of the community, which, if intrusted with power, would have an interest in making a bad use of it, and a portion which, though intrusted with power, would not have an interest in making a bad use of it. The former are any small number whatsoever, who, by the circumstance of being intrusted with power, are constituted an aristocracy.

From the frequency, however great, with which those who compose the mass of the community act in opposition to their interests, no conclusion can, in this case, be drawn, without a comparison of the frequency with which those who are placed in contrast with them act in opposition to theirs. Now it may with great confidence be affirmed, that as great a proportion of those who compose the aristocratical body of any country, as of those who compose the rest of the community, are distinguished for a conduct unfavourable to their interests. Prudence is a more general characteristic of the people who are without the advantages of fortune, than of the people who have been thoroughly subject to their corruptive operation. It may surely be said, that if the powers of Government must be intrusted to persons incapable of good conduct, they were better intrusted to incapables who have an interest in good Government, than to incapables who have an interest in bad.

It will be said that a conclusion ought not to be drawn from the unthinking conduct of the great majority of an aristocratical body, against the capability of such a body for acting wisely in the management of public affairs; because the body will always contain a certain proportion of wise men, and the rest will be governed by them. Nothing but this can be said with pertinency, And, under certain modifications, this may be said with truth. The wise and good in any class of men do, to all general purposes, govern the rest. The comparison, however, must go on. Of that body whose interests are identified with those of the community, it may also be said, that if one portion of them are unthinking, there is another portion wise; and that, in matters of state, the less wise would be governed by the more wise, not less certainly than in that body whose interests, if they were intrusted with power, could not be identified with those of the community.

If we compare in each of these two contrasted bodies the two descriptions of persons, we shall not find that the foolish part of the democratical body are more foolish than that of the aristocratical, nor the wise part less wise.

Though, according to the opinions which fashion has propagated, it may appear a little paradoxical, we shall probably find the reverse.

That there is not only as great a proportion of wise men in that part of the community which is not the aristocracy, as in that which is, but that, under the present state of education, and the diffusion of knowledge, there is a much greater, we presume there are few persons who will be disposed to dispute. It is to be observed, that the class which is universally described as both the most wise and the most virtuous part of the community, the middle rank, are wholly included in that part of the community which is not the aristocratical. It is also not disputed, that in Great Britain the middle rank are numerous, and form a large proportion of the whole body of the people. Another proposition may be stated, with a perfect confidence in the concurrence of all those men who have attentively considered the formation of opinions in the great body of society, or, indeed, the principles of human nature in general. It is, that the opinions of that class of the people who are below the middle rank, are formed, and their minds are directed, by that intelligent and virtuous rank who come the most immediately in contact with them, who are in the constant habit of intimate communication with them, to whom they fly for advice and assistance in all their numerous difficulties, upon whom they feel an immediate and daily dependence, in health and in sickness, in infancy and in old age; to whom their children look up as models for their imitation, whose opinions they hear daily repeated, and account it their honour to adopt. There can be no doubt that the middle rank, which gives to science, to art, and to legislation itself, their most distinguished ornaments, the chief source of all that has exalted and refined human nature, is that portion of the community of which, if the basis of representation were ever so far extended, the opinion would ultimately decide. Of the people beneath them, a vast majority would be sure to be guided by their advice and example.

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[1] A most instructive display of these and similar artifices for the preservation of mischievous power, after the spirit of the times is lt to be hostile to it, may be seen in Father Paul's *History of the Council of Trent*.

The incidents which have been urged as exceptions to this general rule, and even as reasons for rejecting it, may be considered as contributing to its proof. What signify the irregularities of a mob, more than half composed, in the greater number of instances, of boys and women, and disturbing, for a few hours or days, a particular town? What signifies the occasional turbulence of a manufacturing district, peculiarly unhappy from a very great deficiency of a middle rank, as there the population almost wholly consists of rich manufacturers and poor workmen; with whose minds no pains are taken by anybody; with whose afflictions there is no virtuous family in the middle rank to sympathize; whose children have no good example of such a family to see and to admire; and who are placed in the highly unfavourable situation of fluctuating between very high wages in one year, and very low wages in another? It is altogether futile, with regard to the foundation of good government, to say that this or the other portion of the people may at this or the other time depart from the wisdom of the middle rank. It is enough that the great majority of the people never cease to be guided by that rank; and we may, with some confidence, challenge the adversaries of the people to produce a single instance to the contrary in the history of the world.

(A. A. A.)

GOWER, John, one of the most ancient of the English poets, was contemporary with Chaucer, the father of English poetry, and his intimate friend. Of what family, or in what part of the kingdom, he was born, is uncertain. He studied the law, and was some time a member of the society of Lincoln's Inn, where his acquaintance with Chaucer commenced. Some have asserted that he was chief justice of the common pleas; but this is by no means certain. In the first year of Henry IV. he became blind; a misfortune which he laments in one of his Latin poems. He died about the year 1400, and was buried in St Mary Overy, which church he had rebuilt chiefly at his own expense. His tomb, which was magnificently and curiously ornamented, still remains, but it has been repaired in later times. From the collar round the neck of his effigy on the tomb, it is conjectured that he had been knighted. As to his character as a man, it is impossible, at this distance of time, to state any thing with certainty. With regard to his poetical talents, he was admired at the time when he wrote, though a modern reader may find it difficult to discover much harmony or genius in any of his compositions. He wrote, 1. *Speculum Meditantis, un Traitée selonc les aucteurs, pour ensampler les Amants marietz au fins qils la foy de lour seints espousailles, pourront per fine loyalté guarder, et al honeur de Dieu salvement tener*, in ten books; 2. *Vox Clamantis*, in Latin verse, a chronicle of the insurrection of the commons in the reign of Richard II., in ten books; 3. *Confessio Amantis*, printed at Westminster by Caxton in 1493, also London, 1532, 1554, a sort of poetical system of morality, interspersed with a variety of moral tales; and, 4. *De Rege Henrico IV.*, printed in Chaucer's works. There are likewise several historical tracts, in manuscript, written by Gower, which are to be found in different libraries, besides short poems printed in Chaucer's works. At a very early period Gower had become obsolete. Skelton, in the *Boke of Philip Sparrow*, says, "Gower's Englishe is old;" and, about the beginning of the sixteenth century, his language was out of use. A second edition of the *Confessio Amantis* was printed by Barthelet in 1532, a third in 1544, a fourth in 1554, and, at the distance of two centuries and a half, a fifth was published in a modern edition of the English poets. Gower was esteemed a man of great learning, and he appears to have lived and died in affluence.

GOWN, Robe, a long upper garment worn by lawyers, divines, and other graduates, who are hence called *men of the gown*, or *gownmen*. At Rome they gave the name "virile gown," *toga virilis*, to a plain kind of gown which their youth assumed on arriving at puberty. This they particularly denominated *prætexta*.

GRABE, John Ernest, a learned theologian, was born at Königsberg in the year 1666. The perusal of the works of the fathers having inspired him with doubts as to some points of his creed, he explained them in a memoir addressed to the consistory of Sambia, and departed with the resolution of repairing to a city where he could make open profession of the Catholic religion. The elector of Brandenburg ordered three theologians to examine, each separately, the memoir of Grabe; and some of the reasons contained in the answers which they made to it having struck him forcibly, he demanded a safe conduct, which was granted him, and proceeded to Berlin to confer with Speuer, one of his adversaries. Upon some of the points in dispute they came to agree; but Grabe persisting in maintaining the necessity of the apostolical succession in the ministry, Speuer, having despaired of overcoming his conviction of this doctrine, counselled him to proceed to England, where he would find it established. Grabe followed this advice, and, having reached London, got himself ordained priest according to the English ritual; but not being able to bring his belief into accordance with that of the church which he had entered, he always preserved his private opinions touching the eucharist and consecration. Nevertheless, the regularity of his conduct, and his useful labours, recommended him to notice; he obtained some benefices; and Queen Anne granted him a pension, which he enjoyed till his death, which took place at London on the 13th of September 1711, in the forty-fifth year of his age. His works, which have obtained him the reputation of a learned and laborious man, but indifferent critic, are, 1. Specilegium SS. Patrum et Hæreticorum sæculi post Christi natum primi, secundi, tertii, Oxford, 1698 and 1699, in 8vo; 2. S. Irenæi episcopi Lugdunensis adversus hæreses libri v. Oxford, 1702, in folio; 3. Vetus Testamentum juxta Septuaginta Interpretes, Oxford, 1707, 1719, 1720, and 1729, in folio; 4. Liturgia Græca, Hague, 1715, in 8vo; 5. De forma consecrationis Eucharistiæ, hoc est, Defensio Ecclesiæ Græcæ contra Romanam, London, 1721, in 8vo; 6. Editions of the First Apology of St Justin Martyr, of the works of George Bull, and of the treatise of Daubuz *pro Testimonio Flavii Josephus de Jesu Christo;* 7. Doubts presented to the Consistory of Sambia, in German, two writings in English against Whiston, and some polemical pieces of little importance. (A.)

GRACCHUS, Tiberius Sempronius, the son of Tiberius Gracchus, who had been censor, twice consul, and had triumphed twice. His mother was the celebrated Cornelia, daughter of Scipio Africanus the Elder, and she was left by the death of her husband with the charge of no fewer than twelve children. She lost all except three; one daughter, married to Scipio the Younger, and two sons, Caius and Tiberius. Tiberius was born about 163 B.C. and was murdered 133 B.C. He began early to exhibit proofs of great talents, and his mother appears to have cultivated his mind by every means in her power. He was distinguished from his brother Caius by his mildness of manner and the dignity of his deportment. The language of Tiberius was chaste and polished; that of Caius exhibited more of pretension and splendour. The two brothers, however, were equally attentive to their duties as magistrates, and in their self-government in respect to pleasure they were perfectly alike. Tiberius served his first campaign under Scipio the Younger in Africa (B.C. 146), and made himself much beloved by the army. He was some time afterwards (B.C. 137) appointed quæstor, and attended the consul C. Mancinus in the Numantine war. This consul was one of the most unfortunate generals the Romans ever had, and conducted matters so ill that he and his whole army were obliged to submit to conditions of peace imposed by the Numantians. That people refused to treat with any one except Tiberius Gracchus, and he was employed to draw up the articles of peace. The peace, however, was disavowed at Rome, and Mancinus was delivered up to the Numantians naked and in chains. Tiberius was spared, chiefly through the interest and influence of Scipio, his brother-in-law. It was now that Tiberius entered on the stormy path of politics, and the measure which he first advocated was of a magnitude suited to the part he intended to act in the affairs of his country. It was to restrain the avarice of the rich, and to compel them to give up the possession of the public lands, of which they had unjustly become masters. Caius Lælius, the friend of Scipio, had attempted to correct this disorder; but, frightened by the opposition of men in power, he gave up the undertaking. No sooner, however, had Tiberius been elected tribune of the people, than he determined to make an attempt to restore their share of the public lands to the poor. No law could have been of a milder nature than that which he proposed to introduce; for, instead of punishing those who had infringed the rights of the community, they were to receive a sum of money for foregoing their groundless claims. Nothing, however, could induce the rich to listen for a moment to the proposal; and, like all reformers of abuses, he was accused of attempting to throw the country into disorder, and to subvert the constitution of the state. Incensed at this, Tiberius no longer kept on terms with his opponents, but proposed another law of a severer character, which commanded all to quit the lands which they held contrary to law. This law was confirmed by the people, and three commissioners were appointed to survey the public domain. Tiberius, his brother Caius, and his father-in-law Appius Claudius, received orders to make the survey. If he had contented himself with the passing of this measure, we should have regarded him as a patriot rather than a demagogue; but his position had now become so critical, and his enemies so numerous, that he was urged forward in his career by a regard to his own personal safety rather than by a reference to the good of the republic. In retiring to a private station he would have been exposed to the vengeance of his enemies, and he could not expect to be re-elected tribune, unless by some new proof of his devotion to the popular cause. He therefore proposed laws for shortening the time of military service, and for granting an appeal from the judges to the people. As the bench of judges consisted entirely of senators, he proposed that an equal number of knights and senators should be admitted. On the day when these laws were to be put to the vote, his opponents resolved to create a disturbance, during which they would have an opportunity of putting him to death. Tiberius became acquainted with it during the meeting of the assembly, and as there was great clamour, he had no other way of communicating the information than by touching his head with his hand, to signify the danger he was in. Some one ran to the senate and informed them that Tiberius had demanded a diadem of the people. This excited a great commotion in the senate, and Scipio Nasica rushed out with numerous attendants, and having put the people to flight, killed Tiberius in the Forum. (Plutarch, *Life of Tiberius Gracchus;* Liv. *Epit.* 58.)

Gracchus, *Caius Sempronius*, was nine years younger than his elder brother Tiberius, having been born in the year B.C. 154. He had as yet taken no part in public affairs when his brother was murdered, but he soon showed that he did not intend to lead a life of idleness. He cultivated his powers of eloquence, and the senate began to have apprehensions of his succeeding to the power of his brother. They were not therefore sorry when he was appointed quæstor to the consul Aurelius Orestes, B.C. 126, in Sardinia, as it took him away from Rome. He became so great a favourite with the inhabitants of Sardinia, that though they had obtained from the senate an exemption from the burden of clothing his men, he had so much influence with them, that he prevailed on them to send a voluntary supply. On his return to Rome, whither he repaired contrary to orders, he offered himself a candidate for the tribuneship, and was elected B.C. 123, against the wishes of the nobility. He now brought forward a number of laws to increase the authority of the people, of a nature similar to those which his brother had advocated. He proposed to divide the public lands among the poor, to clothe the soldiers at the public expense, without diminution of their pay, and to give to the Italian allies the right of voting at elections; but his most important measure was, that he took the judicial authority from the patricians, and conferred it on the equestrian order. He took great interest also in the constructing of public roads through Italy, and building granaries. He kept up his influence amongst the people by sending colonies of the poorer citizens to Tarentum and Capua; but the senate, fearing that his power would soon no longer be capable of being controlled, tried to draw the people from him by gratifying them in every thing. Caius however was appointed tribune a second time (B.C. 122), without even declaring himself a candidate, and proceeded to Africa to plant a colony at Carthage. During his absence one of his colleagues, Drusus, succeeded in gaining the favour of the people; and this induced Caius to hasten home. The following year the consul Opimius determined to repeal many of the laws which had been passed by Caius; and as the party of the latter mustered in great force, and that of the consul was equally resolute, an engagement took place, in which the friends of Caius were defeated, and he himself killed, to the great grief of the Roman people, whose interests he had laboured to promote. (Plutarch, *Life of Caius Gracchus;* Liv. *Epit.* 60, 61.)

GRACE, amongst divines, is used, first, to denote the free love and favour of God, which is the spring and source of all the benefits we receive from him; and, secondly, to signify the work of the Spirit in renewing the soul after the image of God, and continually guiding and strengthening the believer to obey his will, to resist sin, and to overcome it.

Grace is also used, in a peculiar sense, to signify a short prayer said before and after meat.

The proofs of the moral obligation of this ceremony, drawn from passages in the New Testament, are so well known that it is needless to insist on them. But others, derived from the practice of different nations, and of remote antiquity, may not be uninteresting.

1. Athenæus tells us, in his Deipnosophist (lib. ii.), that in the famous regulation made by Amphictyon, king of Athens, respecting the use of wine, both in sacrifices and at home, he required that the name of Jupiter the Sustainer should be decently and reverently pronounced. The same writer (lib. iv. p. 149) quotes Hermeias, an author extant in his time, who mentions a people in Egypt, inhabitants of the city of Naucratis, whose custom it was on certain occasions, after they had placed themselves in the usual posture of eating at table, to rise again and kneel, upon which the priest or precentor of the solemnity began to chant a grace, according to a stated form amongst them; and when that was over, they joined in the meal in a solemn sacrificial manner. Heliodorus has a passage to the same purpose in his *Æthiopica*, where it is stated that it was the custom of the Egyptian philosophers to pour out libations and utter ejaculations before they sat down to meals. Porphyry (in his treatise *De Abstinentia*, lib. iv. p. 408) gives a high character of the Samnean gymnosophists in Egypt for the strictness of their lives; and, as one circumstance in their favour, he observes, that at the sounding of a bell before their meals, which consisted only of rice, bread, fruits, and herbs, they went to prayers; that when these were ended, and not before, the bell again sounded, and they sat down to eat. This religious usage or rite was also common amongst the ancient Greeks, and, if Clement of Alexandria rightly informs us, it was derived from yet older times. He mentions that this people, when they met together to refresh themselves with the juice of the grape, sung a piece of music, in imitation of the Hebrew psalms, which they called a scholion. Livy (lib. xxxix.) likewise speaks of it as a settled custom amongst the old Romans, that they offered sacrifice and prayer to the gods at their meals and compotations. But one of the fullest testimonies to our purpose is given by Quintilian (*Declam.* 301): *Adisti mensam*, says he, *ad quam cum venire cœpimus, Deos invocamus.*

Trigautius, in his elegant and instructive narrative of the expedition of the Jesuit missionaries into China (book i. p. 69), gives this account of the people of that country in the particular now under consideration. “ Before they place themselves for partaking of an entertainment, the person who makes it sets a vessel, either of gold, or silver, or marble, or some such valuable material, in a charger full of wine, which he holds with both his hands, and then makes a low bow to the person of chief quality or character at the table. Then from the hall or dining-room he goes into the porch or entry, where he again makes a very low bow, and turning his face to the south, pours out this wine upon the ground as a thankful oblation to the Lord of heaven. After this, repeating his reverential obeisance, he returns into the hall.” The Turks also pray for a blessing on their meat; and many more instances might be produced of infidels who constantly observe the same custom in some way or other.

2. The fact, therefore, with respect to the heathen world being thus evident, we proceed to notice the sentiments and conduct of the Jews in this particular. Their historian Josephus, giving a detail of the rites and customs of the Essenes, who were confessedly the strictest and most pious professors of the Jewish religion, has this remarkable passage: “ The priest,” says he, “ prays for a blessing before they presume to take any nourishment; and it is looked upon as a great sin to take or taste before.” Then follows the thanksgiving after meat. “ When the meal,” he proceeds, “ is over, the priest prays again; and the company with him bless and praise God as their preserver, and the giver of their life and nourishment.”

But Philo, in his book *De Vita Contemplativa*, gives an account of a body of men and women stricter than even the Essenes. He distinguishes them by no particular name, though his relation is minute and circumstantial; namely, that on certain special occasions, before “ they took their meals, they placed themselves in a proper decent order, when, lifting up their hands and eyes to heaven, they prayed to God that he would be pleased to be propitious to them in the use of those his good creatures.”

It appears, from the Hebrew ritual, that the Jews had their hymns and psalms of thanksgiving, not only after eating their passover, but on a variety of other occasions, at and after meals, and even between their several courses and dishes; as when the best of their wine was brought upon the table, or their aromatic confections, or the fruits of the garden, or the like. Upon the day of the passover was sung the 114th psalm, “ When Israel went out of Egypt.”

Aristæus has also a passage on the same subject. “ Moses,” says he, “ commands that when the Jews are going to eat or drink, the company should immediately join in sacrifice or prayer.” It is doubtful where Rabbi Eleazar found this sentence, and its genuineness has been controverted. But supposing it not to be found *in scriptis*, it is sufficient to know that the Jews constantly practised this custom, upon the foundation of an ancient tradition and general usage. That the prophet Daniel gave thanks before meat is evident from the Apocryphal book concerning Bel and the Dragon, where (verses 38, 39) we find that “ Daniel said, Thou hast remembered me, O God, neither hast thou forsaken them who seek thee and love thee; so Daniel arose, and did eat.” Of this text Prudentia takes notice in Cathemirin (hymn iv.):

His sumptis Danielis excitavit
In cœlum faciem, ciboque fortis,
Amen reddidit, allelujah dixit.

It may be observed by the way, that the poet is a little mistaken in making the prophet give thanks after meat; for, according to the text, he did so before.

GRACES, Gratiæ, *Charites*, in the heathen theology, were fabulous deities, three in number, who attended on Venus. Their names were, Aglaia, Thalia, and Euphrosyne; or, according to some authors, Pasithea, Euphrosyne, and Ægiale. They were supposed by some to be the daughters of Jupiter and Eurynome, and by others to be the daughters of Bacchus and Venus. Some suppose the Graces to have been four in number; and make them the same with the *Horæ* or Hours, or rather with the four seasons of the year. A marble in the king of Prussia's cabinet represents the three Graces in the usual manner, with a fourth seated and covered with a large veil, having underneath the words *Ad Sorores* IIII. But this group we may understand to be the three Graces, and Venus, who was their sister, as being daughter of Jupiter and Dione. The Graces were always supposed to hold one another by the hands, and never to have parted. They were painted naked, to show that they borrowed nothing from art, and that they had no other beauties than such as were purely natural. Yet in the first ages they were not represented naked, as appears from Pausanias (lib. vi. and ix.), who describes their temple and statues. They were f wood, all but the head, the feet, and the hands, which ere of white marble. Their robe or gown was gilt; and ne of them held in her hand a rose, another a dye, and he third a sprig of myrtle.

GRÆVIUS, the Latinized form of GRÆFE, JOHN EORGE, one of the most learned and laborious writers of s time, was born at Naumburg, in Saxony, on the 29th January 1632. He began his studies in the gymnaum of Pforta, and completed them at the university of eipsic, under Rivinus and Strauch. Grævius was led to e study of letters by his natural inclination, and every y he became more and more devoted to this pursuit. ut his father wished that he should study the law; rauch seconded this view; and Grævius obeyed, though ith repugnance. About the same time it happened that s father had occasion to send him into East Friesland accelerate the payment of a considerable debt. This urney fixed the destination of Grævius. Having sucssfully accomplished the object of his mission, he had e curiosity to visit Holland, where Salmasius, Heinsius, d Frederick Gronovius, were then in the zenith of their putation. The conversation of Gronovius revealed to m the painful truth that his studies had been almost enrely unavailing, that he had been taught according to the inciples of a bad school, and that he had no time to lose he desired to correct the vices of its method of instruc-on. At this period the taste in Latinity had been corpted in almost all the German universities. Justus Lipus had first set the example. Despairing of ever attaing the classical elegance of Manucius, Muretus, and a small mber of other learned men of their age, he had abanned their model, Cicero, and betaken himself to the imition of some writers of an inferior order, who belonged t to the golden age of the Latin language. In a man of ch merit as Justus Lipsius this was a temerity excused rhaps by other qualities of a superior order; in his imitors it implied the total absence of reason and taste. In e rudeness of Ennius, amongst the rugged archaisms of cuvius, and the ignoble trivialities of Plautus, they went seek for words and phrases, which they accommodated all subjects, even the gravest. They affected ridiculous nts, and certain finesses of thought, by which all the viur of the style was enervated; and they cut down into all periods, of studied brevity, a language already rened meagre and dry. Grævius, ill directed, had entered on the same evil path. But he entreated Gronovius to come thenceforth his guide, nor could he have chosen e more able; so, having abandoned jurisprudence, he ssed two years at Deventer, attending assiduously the sons of his new master. He then proceeded to Amstern to hear Alexander Morus and David Blondel, whose unsels decided him to quit Lutheranism for the sect of vin. Peter Burmann, his panegyrist, anxious that this ange of religion should not be misrepresented, declares t it did not proceed from interested motives, and that new convert listened only to the voice of his conence. Grævius, whose reputation had now begun to be ended, was, in 1656, called to the university of Duisg; and he had been there two years, surpassing all the pes which had been conceived of his talents, when onovius, who had entered the university of Leyden, cited the magistrates of Deventer to appoint Grævius successor. They agreed to this application, and Græs, notwithstanding the efforts of the elector of Branburg, who, in order to retain him, offered an augmenon of fees, quitted an university for a simple gymnan, influenced probably by the desire of living under a government. After a stay of three years at Deventhe yielded to the solicitations of the university of echt, which offered him the chair of history, then vacant he death of Æmilius. This satisfied all his ambition, and, content with his situation, he declined the invitations of the magistrates of Amsterdam and Leyden, who twice attempted, by brilliant offers, to attach him to the schools in those cities. The elector palatine, who wished to draw him to Heidelberg, was also refused; the king of Prussia was not more fortunate; and the republic of Venice, which offered him a chair in the university of Padua, had as little success, although, in the hope of inducing him to accept, it had promised him, besides considerable appointments, full liberty on the score of religion, and all necessary protection against the importunity of the inquisitors. But none of these offers could overcome his resolution. The eager desire of foreigners to obtain his services was justified by the great reputation which he had attained as professor. Pupils crowded to his lectures, not only from all Holland, but from all Europe. In Germany, particularly, almost all the great lords sent their sons to be educated by him; and he reckoned amongst his auditors sons of princes, and even of kings; for William III., who made him his historiographer, had confided to his care the young Prince of Nassau. To the reputation of a great professor Grævius joined that of a learned writer and able critic. Paquot, and before him G. Burmann in the *Trajectum Eruditum*, have given a complete list of his works. The principal are, 1. An edition of the Letters of Casaubon, Brunswick, 1655; 2. The Solecist of Lucian, Amsterdam, 1668, in 8vo, with notes rich in grammatical erudition; 3. Hesiod, with a collection of excellent observations under the title of *Lectiones Hesiodeæ;* 4. Justin, 1669, *cum Notis Variorum;* 5. Catullus, Tibullus, and Propertius, Utrecht, 1680, *cum Notis Variorum*; 6. Suetonius, 1672; 7. Florus, 1680; 8. The Commentaries of Cæsar; 9. The miscellaneous Letters of Cicero, his Letters to Atticus, his Treatise of Offices, and his Discourses, *cum Notis Variorum.* But his masterpiece is his *Thesaurus Antiquitatum Romanarum*, in 12 vols. folio, a work of incredible labour and research, to which he afterwards added *Thesaurus Antiq. et Hist. Italiæ*, printed the year after his death, 1704, in 3 vols. folio, and continued by his successor Peter Burmann. Besides all these works, which are more than sufficient to have exhausted the industry of ten ordinary men, Grævius edited the Philological Lexicon of Martinus, the treatise of Junius *De Pictura Veterum*, the Greek and Latin Poetry of Huet, and several works of Meursius; and, in concert with Peter Burmann and Holthen, he had commenced a reimpression of the Inscriptions of Gruter. But in the midst of his labours death surprised this indefatigable scholar, who was suddenly carried off by an attack of apoplexy, on the 11th of January 1703, in the seventy-first year of his age. Fabricius has published a collection of his Prefaces and Letters, and Burmann a collection of his Discourses. (A.)

GRAFTING, or ENGRAFTING, in *Gardening*, is the taking a shoot from one tree, and inserting it into another, in such a manner that both may unite closely and become one tree. By the ancient writers on husbandry and gardening, this operation is called *incision*, to distinguish it from inoculation or budding, which they call *inserere oculos.*

GRAHAM, JAMES, Marquis of Montrose, a man celebrated by one party as a hero comparable to the greatest of antiquity, and branded by another as a renegade and a traitor. His name, his exploits, and his character belong properly to history (see the article BRITAIN); but he deserves notice here as one who occupied his intervals of leisure, few and far between, with the elegant and peaceful pursuits of literature. Such of his poems as have been preserved, though they possess but little merit in themselves, are remarkable as the effusions of a mind in which the most heroic and chivalrous daring seems to have been attempered by a degree of refinement beyond his age, and a capacity for pursuits less dazzling, but far more innocent and useful, than those which have shed an equivocal lustre on his name. His desertion of the covenanters may perhaps be excused, but cannot be defended; amidst the conflicts of exasperated parties and the excitement of civil commotion, it is not easy to steer a consistent and blameless course; but the laws of honour and morality are nevertheless unchangeable. Having joined the royal cause, however, he devoted himself to promote its success; and if his caution had been equal to his genius, or if he had been provided with the necessary supplies, he would in all probability have reduced the kingdom of Scotland to the necessity of acknowledging the royal authority. But, from want of means, his conquests were lost almost as soon as gained; victory produced him no solid advantage; and the first reverse he experienced proved his ruin. His second attempt, after the death of Charles I., was accordingly hopeless from the commencement; he was completely defeated by the army sent against him; and, being betrayed into the hands of the enemy by the laird of Assynt, his intimate friend, he was carried to Edinburgh, and executed with every circumstance of indignity, on the 21st of May 1650. His exploits made him a hero, and to this his enemies added the distinction of martyrdom. Considered as a commander, Montrose was merely a bold and active partisan; a sort of guerilla chief, whose services would have been invaluable to the party he had espoused, if there had been in the field a regular force with which he could have connected his operations, but who, acting independently, contributed merely to aggravate the evils of the contest, without in the slightest degree affecting its result.

Graham, *Sir Richard*, Lord Viscount Preston, eldest son of Sir George Graham of Netherby, in Cumberland, was born in the year 1648. He was sent by Charles II. as ambassador to Louis XIV., and was master of the wardrobe and secretary of state under James II. But when the revolution took place, he was tried and condemned, on a charge of attempting the restoration of that prince; and although he obtained a pardon by the queen's intercession, he spent the remainder of his days in retirement. He published an elegant translation of Boethius on the Consolations of Philosophy, and died in 1695.

Graham, *George*, clock and watch-maker, the most ingenious and accurate artist of his time, was born in 1675. After his apprenticeship, Mr Tompion received him into his family on account of his merit, and treated him with a kind of parental affection as long as he lived. Besides his universally acknowledged skill in his profession, he was a complete mechanic and astronomer; the great mural arch in the observatory at Greenwich was made for Dr Halley, under his immediate inspection, and divided by his own hand; and from this incomparable original, the best foreign instruments of the kind were copied by English artists. The sector by which Dr Bradley first discovered two new motions in the fixed stars was of his invention and construction; and when the French academicians were sent to measure a degree of the meridian in Lapland, with the view of determining the figure of the earth, Mr Graham was considered the fittest person in Europe to supply them with instruments. He was for many years a member of the Royal Society, to which he communicated several ingenious and important discoveries. He died in 1751.

GRAMINA, **Grasses**, one of the seven tribes or natural families, into which all vegetables are distributed by Linnæus in his *Philosophia Botanica*. They are defined to be plants which have very simple leaves, a jointed stem, a husky calyx termed *gluma*, and a single seed.

GRAMMAR.

Grammar is the art of speaking or writing any language with correctness and propriety; and the purpose of language is to communicate our thoughts.

Grammar, considered as an art, necessarily supposes the previous existence of language; and as its design is to teach any language to those who are ignorant of it, it must be adapted to the genius of that particular language of which it treats. A just method of grammar, therefore, without attempting any alterations in a language already introduced, furnishes certain observations called rules, to which the methods of speaking used in that language may be reduced; and this collection of rules is called the *grammar* of that particular language. For the greater distinctness with regard to these rules, grammarians have usually divided this subject into four distinct heads: *Orthography*, or the art of combining letters into syllables, and syllables into words; *Etymology*, or the art of deducing one word from another, and the various modifications by which the sense of any one word can be diversified consistently with its original meaning or its relation to the theme whence it is derived; *Syntax*, or what relates to the construction or due disposition of the words of a language into sentences or phrases; and *Prosody*, or that which treats of the quantities and accents of syllables, and the art of making verses.

But grammar, considered as a science, views language only as significant of thought. Neglecting particular and arbitrary modifications introduced for the sake of beauty or elegance, it examines the analogy and relation between words and ideas; distinguishes between those particulars which are essential to language and those which are only accidental; and thus furnishes a certain standard, by which different languages may be compared, and their several excellencies or defects pointed out. This is what is called **Philosophical or**

UNIVERSAL GRAMMAR.

The origin of language is a subject which has employed much learned investigation, and about which there is still a diversity of opinion. The design of speech is to communicate to others the thoughts and perceptions of the mind of the speaker; but it is obvious, that between an internal idea and any external sound there is no natural relation; that the word *fire*, for instance, might have denominated the substance which we call *ice*, and that the word *ice* might have signified *fire*. Some of the most acute feelings of man, as well as of every other animal, are indeed expressed by simple inarticulate sounds, which, as they tend to the preservation of the individual, or the continuance of the species, and invariably indicate either pain or pleasure, are universally understood; but these inarticulate and significant sounds are very few in number; and if they can with any propriety be said to constitute a natural and universal language, it is a language of which man as a mere sensitive being partakes in common with the other animals.

Man is endowed not only with sensation, but also with the faculty of reasoning; and simple inarticulate sounds are insufficient for expressing all the various modifications thought, for communicating to others a chain of argu-entation, or even for distinguishing between the different nsations either of pain or of pleasure; a man scorched th fire or unexpectedly plunged amongst ice, might utter e cry naturally indicative of sudden and violent pain; e cry would be the same, or nearly the same, but the nsations of cold and heat are widely different. Articula-n, by which those simple sounds are modified, and a par-ular meaning fixed to each modification, is therefore ab-utely necessary to such a being as man, and forms the nguage which distinguishes him from all other animals, d enables him to communicate with facility all that di-rsity of ideas with which his mind is stored, to make own his particular wants, and to distinguish with accu-cy all his various sensations. Those sounds thus modi-d are called *words;* and as words have confessedly no tural relation to the ideas and perceptions of which they e significant, the use of them must either have been the sult of human sagacity, or have been suggested to the st man by the author of nature.

Whether language be of divine or human origin, is a estion upon which, though it might perhaps be soon re-lved, it is not necessary to enter here. Upon either sup-sition, the first language, compared with those which cceeded it, or even with itself as afterwards enlarged, st have been extremely narrow and rude. If it was of man contrivance, this will be readily granted; for what t was ever invented and brought to a state of perfection illiterate savages? If it was taught by God, which is least the more probable supposition, we cannot imagine at it would be more comprehensive than the ideas of ose for whose immediate use it was intended; that the st men should have been taught to express pains or plea-res which they never felt, or to utter sounds that should terwards be significant of ideas which at the time of ut-rance had not occurred to the mind of the speaker. Man ce taught the elements of language would be able of him-lf to improve and enlarge it as his future occasions re-ired.

As all language is composed of significant words vari-sly combined, a knowledge of them is necessary previous our acquiring an adequate idea of language as con-ucted into sentences and phrases. But as it is by words at we express the various ideas which occur to the mind, is necessary to examine how ideas themselves are sug-sted, before we can ascertain the various classes into ich words may be distributed. It is the province of *gic* to trace our ideas from their origin, as well as to fold the process of reasoning; but it is necessary at esent to observe, that our earliest ideas are all ideas of nsation, excited by the impressions that are made upon r organs of sense by the various objects with which we e surrounded. Let us therefore suppose a reasonable ing, devoid of every possible prepossession, placed upon is globe; and it is obvious that his attention would in e first place be directed to the various objects which he w existing around him. These he would naturally en-avour to distinguish from one another; and if he were ther learning or inventing a language, his first effort would to give them *names*, by means of which the ideas of em might be recalled when the objects themselves should absent. This is one copious source of words, and forms natural class which must be common to every language, and which is distinguished by the name of *nouns;* and as these nouns are the names of the several substances which exist, they have likewise been called *substantives.*

It would likewise be early discovered that every one of these substances was endowed with certain qualities or attributes, to express which another class of words would be requisite, since it is only by their qualities that substances themselves can attract our attention. Thus, to be weighty, is a quality of matter; to think, is an attribute of man. Therefore in every language words have been invented to express the known qualities or attributes of the several objects which exist. These may all be comprehended under the general denomination of *attributives.*

Nouns and attributives must comprehend all that is essential to language;[1] for every thing which exists, or of which we can form an idea, must be either a substance or the attribute of some substance; and therefore the two classes which we denominate substances and attributes must comprehend all the words that are necessary to communicate to the hearer the ideas which are present to the mind of the speaker. If any other words occur, they can only have been invented for the sake of dispatch, or introduced for the purposes of ease and ornament, to avoid tedious circumlocutions or disagreeable tautologies. There are indeed grammarians of great name, who have considered as essential to language an order of words, of which the use is to connect the nouns and attributes, and which are said to have no signification of themselves, but to become significant by relation. Hence all words which can possibly be invented are by these men divided into two general classes; those which are *significant of themselves*, and those which are *not.* Words significant of themselves are either expressive of the names of substances, and therefore called *substantives;* or of attributes, and therefore called *attributives.* Words which are not significant of themselves must acquire a meaning either as defining or connecting others, and are therefore arranged under the two classes of *definitives* and *connectives.*

That in any language there can be words which of themselves have no signification, is a supposition which a man free from prejudice will not readily admit. For to what purpose, we ask, should they have been invented? As they are significant of no ideas, they cannot facilitate the communication of thought, and must therefore be only an incumbrance to the language in which they are found. But in answer to this it has been said, that these words, though devoid of signification themselves, acquire a sort of meaning when joined with others, and that they are as necessary to the structure of a sentence as mortar is to the structure of an edifice; for as stones cannot be arranged into a regular building without a cement to bind and connect them, so the original words significant of substances and attributes cannot be made to express all the variety of our ideas without being defined and connected by those words which of themselves signify nothing. It is wonderful that he who first suggested this simile did not perceive that it tends to overthrow the doctrine which it is meant to illustrate. For surely the cement is as much the matter of the building as the stones themselves are; it is equally solid and equally extended. By being united with the stones, it neither acquires nor loses any one of the qualities essential to matter; it neither communicates its own softness nor acquires their hardness. By this mode of reasoning, therefore, it would appear that the words called definitives and connectives, so far from having of themselves no signification, are equally essential to language, and equally significant with those which are denominated substantives and attributives; and upon investigation it will be found that this is the truth. For whatever is meant by the definition or connection of the words which all men confess to be significant, that meaning must be the sense of the words of which the purpose is to define and connect; and as there can be no meaning where there are no ideas, every one of these definitives and connectives must be significant of some idea, although it may not always be easy or even possible to express that idea by another word.

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[1] This is the doctrine of many writers on the theory of language; yet it is not easy to conceive mankind so far advanced in the t of abstraction as to view *attributes* by themselves independently of particular *substances*, and to give one general name to each attri-te wheresoever it may be found, without having at the same time words expressive of affirmation. We never talk of any attri-te, a colour for instance, without affirming something concerning it; as, either that it is bright or faint, or that it is the colour of me substance. It will be seen afterwards, that to denote affirmation is the proper office of what is called the substantive verb; , "Milk is white." That verb therefore appears to be as necessary to the communication of thought as any species of words whatever; and if we must range words under a few general classes, we should be inclined to say that nouns, attributes, and affirma-ves, comprehend all that is really essential to language.

These different modes of dividing the parts of speech we have just mentioned because they have been largely treated of by grammarians of high fame. But it does not appear to us that any man can feel himself much the wiser for having learned that all words are either substantives or attributives, definitives or connectives. The division of words into those which are *significant of themselves*, and those which are *significant by relation*, is absolute nonsense, and has been productive of much error and much mystery in some of the most celebrated treatises on grammar. It is indeed probable that any attempt to establish a different classification of the parts of speech from that which is commonly received, will be found of little utility either in practice or in speculation. As far as the former is concerned, the vulgar division seems sufficiently commodious; for every man who knows any thing, knows when he uses a noun and when a verb. With respect to the latter, not to mention that all the grammarians from Aristotle to Horne Tooke have differed on the subject, it should seem to be of more importance, after having ascertained with precision the nature of each species of words, to determine in what circumstances they differ than in what they agree.

In most languages, probably in all cultivated languages, grammarians distinguish the following parts of speech, viz. noun, pronoun, verb, participle, adverb, preposition, conjunction. The Latin and English grammarians admit the interjection among the parts of speech, although it is confessedly not necessary to the construction of the sentence, being only thrown in to express the affection of the speaker; and in the Greek and English tongues there is the article prefixed to nouns when they signify the common names of things, to point them out, and to show how far their signification extends. In the method of arrangement commonly followed in grammars, adjectives are classed with substantives, and both are denominated nouns. But it is certain that, when examined philosophically, an essential difference is discovered between the substantive and the adjective; and therefore some philologists of eminence, when treating of this subject, have given the following classification of words, which we shall adopt: The ARTICLE, NOUN, PRONOUN, VERB, PARTICIPLE, ADJECTIVE, ADVERB, PREPOSITION, CONJUNCTION, INTERJECTION. All these words are to be found in the English language, and therefore we shall examine each class, endeavour to ascertain its precise import, and show in what respects it differs from every other class. It is impossible to investigate the principles of grammar without confining the investigation in a great measure to some particular language from which the illustrations must be produced; and that we should prefer the English language for this purpose can excite no wonder, as it is a preference which is due to every tongue from those by whom it is spoken. The principles, however, which we shall here expound and elucidate, being in substance the same with those so clearly and ingeniously established by Dr John Hunter of St Andrews, in his oral prelections on philology, will be found to apply universally; and our inquiry, though principally illustrated from the English language, will be an inquiry into Philosophical and Universal Grammar.

I. *Of the Noun or Substantive.*

Nouns.

Nouns are all those words by which objects or substances are denominated, and which distinguish them from one another, without marking either quantity, quality, action, or relation. The substantive or noun is the name of the thing spoken of, and in Greek and Latin is called *name;* for it is *ονομα* in the one, and *nomen* in the other; and if in English we had called it the *name* rather than the *noun*, the appellation would perhaps have been more proper, as this last word, being used only in grammar, is more liable to be misunderstood than the other, which is in constant and familiar use. That nouns or the names of things must make a part of every language, and that they must have been the words first suggested to the human mind, will not be disputed. Men could not speak of themselves, or of any thing else, without having names for themselves and the various objects with which they are surrounded. Now, as all the objects which exist must be either in the same state in which they were produced by nature, or changed from their original state by art, or abstracted from substances by the powers of imagination, and conceived by the mind as having at least the capacity of being characterised by qualities; this naturally suggests a division of nouns into *natural*, as man, vegetable, tree; *artificial*, as house, ship, watch; and *abstract*, as whiteness, motion, temperance.

But the diversity of objects is so great, that had each individual a distinct and proper name, it would be impossible for the most tenacious memory, during the course of the longest life, to retain even the nouns of the narrowest language. It has therefore been found expedient, when a number of things resemble each other in some important particulars, to arrange them all under one *species;* to which is given a name that belongs equally to the whole species, and to each individual comprehended under it. Thus the word *man* denotes a *species* of animals, and is equally applicable to every human being; the word *horse* denotes another species of animals, and is equally applicable to every individual of that species of *quadrupeds;* but it cannot be applied to the species of men, or to any individual comprehended under that species. We find, however, that there are some qualities in which several species resemble each other; and therefore we refer them to a higher order called a *genus*, to which we give a name that is equally applicable to every species and every individual comprehended under it. Thus, men and horses and all living things on earth resemble each other in this respect, that they have *life*. We refer them therefore to the genus called *animal;* and this word belongs to every species of animals, and to each individual animal. The same classification is made both of artificial and abstract substances; of each of which there are genera, species, and individuals. Thus, in natural substances, animal, vegetable, and fossil, denote *genera;* man, horse, tree, metal, *species;* and Alexander, Bucephalus, oak, gold, *individuals*. In artificial substances, again, edifice is a *genus;* house, church, tower, are *species;* and the Vatican, St Paul's, and the Tower of London, are *individuals*. Lastly, in abstract substances, motion and virtue are *genera;* flight and temperance are *species;* the flight of Mahommed, and temperance in wine, are *individuals*. By arranging substances in this manner, and giving a name to each genus and species, the nouns necessary to any language are comparatively few and easily acquired; and when we meet with an object unknown to us, we have only to examine it with attention, and, comparing it with other objects, to refer it to the genus or species which it most nearly resembles. By this contrivance we supply the want of a proper name for the individual; and, as far as the resemblance is complete between it and the species to which it is referred, and of which we have given it the name, we may converse and reason about it without danger of error;

whereas had each individual in nature a distinct and proper name, words would be innumerable and incomprehensible; and to employ our labours in language would be as idle as that study of numberless written symbols which has been attributed to the Chinese.

Although nouns are thus adapted to express, not the individuals, but the genera or species into which substances are classed; yet, in speaking of these substances, whether natural, artificial, or abstract, all men must have occasion to mention sometimes one of a kind, and sometimes more than one. In every language, therefore, nouns must admit of some variation in their form, to denote *unity* and *plurality;* and this variation is called *number.* Thus in the English language, when we speak of a single place of habitation, we call it a house; but if of more, we call them houses. In the first of these cases the noun is said to be in the *singular*, in the last case it is in the *plural* number. Greek nouns have also a *dual* number to express two individuals, as have likewise some Hebrew nouns; but this variation is evidently not essential to language; and it is perhaps doubtful whether it ought to be considered as an elegance or as a deformity.

But although number be a natural accident of nouns, it can only be considered as essential to those which denote genera or species. Thus we may have occasion to speak of one animal or of many animals, of one man or of many men; and therefore the nouns *animal* and *man* must be capable of expressing *plurality* as well as *unity.* But this is not the case with respect to the proper names of individuals; for we can only say *Xenophon, Aristotle, Plato,* in the *singular*; as, were any one of these names to assume a plural form, it would cease to be the proper name of an individual, and become the common name of a species. Of this, indeed, we have some examples in every language. When a proper name is considered as a general appellative under which many others are arranged, it is then no longer the name of an individual, but of a species, and as such admits of a plural; as the *Cæsars*, the *Howards*, the *Pelhams*, the *Montagues;* but *Socrates* can never become plural, as long as we know of no more than one man of that name. The reason of all this will be obvious, if we consider that every genus may be found whole and entire in each of its species; for *man*, *horse*, and *dog*, are each of them an entire and complete animal; and every species may be found whole and entire in each of its individuals, Socrates, Plato, and Xenophon, being each of them completely and entirely *man.* Hence it is, that every genus, though *one*, is multiplied into *many;* and every species, though *one*, is also multiplied into *many*, by reference to those beings which are their subordinates; but as no individual has any such subordinates, it can never in strictness be considered as *many*; and so, as well in nature as in name, is truly an *individual* which cannot admit of number.

Nouns.

Besides number, another characteristic, visible in substances, is that of *sex.* Every substance is either male or female, or both male and female, or neither the one nor the other. So that with respect to sexes and their negation, all substances conceivable are comprehended under this fourfold consideration, which language would be very imperfect if it could not express. Now the existence of hermaphrodites being rare, if not doubtful, and language being framed to answer the ordinary occasions of life, no provision is made, in any of the tongues with which we are acquainted, for expressing, otherwise than by a name made on purpose, or by a periphrasis, duplicity of sex. With regard to this great natural characteristic, grammarians have made only a threefold distinction of nouns: those which denote *males* are said to be of the *masculine gender;* those which denote *females*, of the *feminine;* and those which denote substances that admit not of *sex*, are said to be *neuter*, or of *neither gender.* All animals have sex, and therefore the names of all animals should have gender. But the sex of all is not equally obvious, nor equally worthy of attention. In those species which are most common, or of which the male and female are, by their size, form, colour, or other outward circumstances, eminently distinguished, the male is sometimes called by one name, which is masculine, and the female by a different name, which is feminine. Thus in English we say, *husband, wife; king, queen; father, mother; son, daughter,* and so on. In others of similar distinction, the name of the male is applied to the female only by prefixing a syllable or by altering the termination; as *man, woman; lion, lioness; emperor, empress,* anciently *emperess; master, mistress,* anciently *masteress*; and so in other similar instances. When the sex of any animal is not obvious, or not material to be known, the same name, in some languages, is applied, without variation, to *all* the species, and that name is said to be of the *common gender.* Thus in Latin *bos albus* is a white ox, and *bos alba* a white cow. Diminutive insects, though they are doubtless male and female, seem to be considered in the English language as if they were really creeping things. No man, speaking of a worm, would say *he* creeps, but *it* creeps upon the ground. But although the origin of genders is thus clear and obvious, yet the English is the only language with which we are acquainted that deviates not, except in a very few instances, from the order of nature. Greek and Latin, and many of the modern tongues, have nouns, some masculine, some feminine, which denote substances where sex never had existence. Nay, some languages are so particularly defective in this respect, as to class every object, inanimate as well as animate, under either the masculine or the feminine gender, as they have no neuter gender for those which are of neither sex. This is the case with the Hebrew, French, Italian, and Spanish. But the English, strictly following the order of nature, puts every noun which denotes a male animal, and no other, in the masculine gender; every name of a female animal, in the feminine; and every animal whose sex is not obvious, or known, as well as every inanimate object whatsoever, in the neuter gender. And this gives our language an advantage above most others in the poetical and rhetorical style; for when nouns naturally neuter are converted into masculine and feminine, the personification is more distinctly and more forcibly marked. Some very learned and ingenious men have endeavoured, by what they call a more subtile kind of reasoning, to discern even in things without a sex a distant analogy to that *natural distinction,* and to account for the names of inanimate substances being, in Greek and Latin, masculine and feminine. But such speculations are wholly fanciful, and the principles upon which they proceed are overturned by an appeal to facts. Many of the substances that, in one language, have masculine names, have in others names that are feminine; which could not be the case were this matter regulated by reason or nature. Indeed, for this, as well as many other anomalies in language, no other reason can be assigned than that custom,

> Quem penes arbitrium est, et jus, et norma, loquendi.

It has been already observed that most nouns are the names, not of individuals, but of whole classes of objects termed genera and species.[1] In classing a number of individuals under one species, we contemplate only those qualities which appear to be important, and in which the several individuals are found to agree, abstracting the mind from the consideration of all those which appear to be less essential, and which in one individual may be such as have nothing exactly similar in any other individual upon earth. Thus, in classing the individuals which are comprehended under the species denominated horse, we pay no regard to their colour or their size; because experience teaches us that no particular colour or size is essential to that individual living creature, and that there are not perhaps upon earth two horses whose colour and size are exactly alike. But the qualities which in this process we take into view, are the general shape, the symmetry, and proportion of the parts; and in short, every thing which appears evidently essential to the life of the individual and the propagation of the race. All these qualities are strikingly similar in all the individuals which we call *horses*, and as strikingly dissimilar from the corresponding qualities of every other individual animal. The colour of a horse is often the same with that of an ox; but the shape of the one animal, the symmetry and proportion of his parts, are totally different from those of the other; nor could any man be led to class the two individuals under the same species. It is by a similar process that we ascend from one species to another, and through all the species to the highest genus. In each species or genus in the ascending series fewer particular qualities are attended to than were considered as essential to the genus or species immediately below it; and our conceptions become more and more general as the particular qualities which are the objects of them become fewer in number. The use of a general term, therefore, can recal to the mind only the common qualities of the class, the genus, or species, which it represents. But we have frequent occasion to speak of individual objects. In doing this, we annex to the general term certain words significant of particular qualities, which discriminate the object of which we speak from every other individual of the class to which it belongs, and of which the general term is the common name. For instance, in advertising a *thief*, we are obliged to mention his height, complexion, gait, and whatever may serve to distinguish him from all other men.

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[1] It is almost unnecessary to observe, that the words *genus* and *species*, and the phrases *higher genus* and *lower species*, are taken in the logical sense; and not as the words *genus, species, order, class,* are often employed by naturalists.

The process of the mind in rendering its conceptions particular, is indeed exactly the reverse of that by which it generalizes them. For, as in the process of generalization, it abstracts from the ideas of any number of species certain qualities in which they differ from each other, and of the remaining qualities in which they agree constitutes the first genus in the ascending series; so, when it wishes to make its conceptions more particular, it annexes to the idea of any genus those qualities or circumstances which were before abstracted from it; and the genus, with this annexation, constitutes the first species in the descending series. In like manner, when it wishes to descend from any species to an individual, it has only to annex to the idea of the species those particular qualities which discriminate the individual intended from the other individuals of the same kind.

This particularizing operation of the mind points out the manner of applying the general terms of language for the purpose of expressing particular ideas. For, as the mind, to limit a general idea, connects that idea with the idea of some particular circumstance, so language, as we have already observed, in order to limit a general term, connects that term with the word denoting the particular circumstance. Thus, in order to particularize the idea of horse, the mind connects that general idea with the circumstance, suppose, of whiteness; and in order to particularize the word horse, language connects that word with the term white; and so in other instances. Annexation, therefore, or the connecting of general words or terms in language, fits it for expressing particular conceptions; and this must hold good alike in all languages. But the methods of denoting this annexation are various in various tongues. In English and most modern languages we commonly use for this purpose little words, which we have chosen to style *particles*; and in the Greek and Latin languages, the *cases of nouns* answer the same end.

Cases, therefore, though they are accidents of nouns not absolutely necessary, have been often considered as such; and they are certainly worthy of our examination, since there is perhaps no language in which some cases are not to be found, as indeed without them or their various powers no language could readily answer the purposes for which it was formed.

All the oblique cases of nouns, if we except the vocative, are merely marks of annexation; but as the connections or relations subsisting among objects are very various, some cases denote one kind of relation, and some another. We shall endeavour to investigate the connection which each case denotes, beginning with the *genitive*.

This is the most general of all the cases, and gives notice that *some* connection indeed subsists between two objects, but does not point out the particular kind of connection. That we must infer, not from our nature or termination of the genitive itself, but from our previous knowledge of the objects connected. That the genitive denotes merely relation in general, might be proved by adducing innumerable examples, in which the relations expressed by this case are different; but we shall content ourselves with one observation, from which the truth of our opinion will appear beyond dispute. If an expression be used in which are connected by the genitive case, two words significant of objects between which a twofold relation may subsist, it will be found impossible, from the expression, to determine which of these two relations is the true one, which must be gathered wholly from the context. Thus, for example, from the phrase *injuria regis*, no man can know whether the injury mentioned be an injury *suffered* or an injury *inflicted* by the king; but if the genitive case notified any particular relation, no such ambiguity could exist. This case therefore gives notice, that two objects are somehow connected,[1] but it marks not the particular sort of connection. Hence it may be translated by our particle *of*, which will be seen afterwards to be of a signification equally general.

The dative and accusative cases appear to have nearly the same meaning; each of them denoting apposition, or the junction of one object with another. Thus, when any one says, *Comparo Virgilium Homero*, Homer and Virgil are conceived to be placed beside one another, in order to their being compared; and this sort of connection is denoted by the dative case. In like manner, when it is said *latus humeros*, breadth is conceived as joined to or connected in apposition with shoulders; and the expression may be translated " broad *at* the shoulders."

This apposition of two objects may happen either without previous motion, or in consequence of it. In the foregoing instances no motion is presupposed; but if one say, *Misit aliquos subsidio eorum*, the apposition is there in consequence of motion. In like manner, when it is said *Profectus est Romam*, his apposition with Rome is conceived as the effect of his motion thither. From this idea of the accusative, the reason is obvious why the object after the active verb is often put in that case; it is because the action is supposed to proceed *from* the agent *to* the patient. But the same thing happens with respect to the dative case, and for the same reason. Thus, *Antonius læsit Ciceronem*, and *Antonius nocuit Ciceroni*, are expressions of the same import; in each the action of hurting is conceived as proceeding *from* Antony *to* Cicero; and this is finely illustrated by the passive form of such expressions, where the procedure above mentioned is expressly marked by the preposition *ab*, as *Cicero nocetur, Cicero læditur* AB *Antonio*. It is therefore not true that the accusative is that case, at least the only case, which to an efficient nominative and a verb of action subjoins either the effect or the passive subject; nor is the dative the only case which is formed to express relations tending to itself. The only thing *essential* to these two cases is to denote the apposition or junction of one object with another; and this they do nearly, if not altogether, in the same manner, although from the custom of language they may not be indifferently subjoined to the same verb.

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[1] The Greek grammarians seem to have been aware of the nature of this case when they called it πτωσις γενικη, or the general case; a name of which the Latin grammarians evidently mistook the meaning when they translated it *casus genitivus*, or the generative case, which is a name totally foreign to its nature.

The Greek language has no *ablative* case; but in the Latin, where it is used, it denotes concomitancy, or that one thing accompanies another. From this concomitancy we sometimes draw an inference, and sometimes not. For example, when it is said, *Templum clamore petebant*, clamour is represented as concomitant of their going to the temple; but here no inference is drawn. From the phrase *Palleo metu*, although nothing more is expressed than that paleness is a concomitant of the fear, yet we instantly infer that it is also the effect of the fear. In most instances where the ablative is used, an inference is drawn, of which the foundation is some natural connection observed to subsist between the objects thus connected in language. When this inference is not meant to be drawn, the *preposition* is commonly added; as, *interfectus est* CUM *gladio*, he was slain with a sword *about* him; *interfectus est gladio*, he was slain with a sword as the *instrument* of his death.

The remaining cases, which have not been noticed, are the nominative and the vocative. These are in most instances alike in termination, which makes it probable that they were originally one and the same case. The foundation of this conjecture will appear from considering the use to which each of these cases is applied. The nominative is employed to call up the idea of any object in the mind of the hearer. But when a man hears his own name mentioned, his attention is instantly roused, and he is naturally led to listen to what is to be said. Hence, when one man meant particularly to solicit the attention of another, he would naturally pronounce that other person's name; and thus the nominative case would pass into a vocative, of which the use is always to solicit attention.[1]

The Greek and Latin among the ancient, and the German among the modern languages, express different connections or relations of one thing with another by cases. In English this is done for the most part by prepositions; but the English being derived from the same origin as the German, that is, from the Teutonic, has at least one variation of the substantive to answer the same purpose. For instance, the relation of possession, or belonging, is often expressed by a different ending of the substantive, which may be well called a case. This case answers nearly to the genitive case in Latin; but as that is not a denomination significant of the nature of the case in any language, it may perhaps in English be more properly called the possessive case. Thus, *God's grace*, anciently *Godis grace*, is the grace belonging to or in the possession of God; and may be likewise expressed by means of the preposition, as, *the grace of God*.

Although the word *Godis* is as evidently an inflexion of the noun *God* as the word *Dei* is an inflexion of *Deus*, there are grammarians who have denied that in English there is any true inflexion of the original noun, and who have said that the noun with the addition of that syllable which we consider as the sign of a case, ceases to be a noun, and becomes a definitive; a word which with them is devoid of signification. Thus, in the expression *Alexander's house*, the word *Alexander's* stands not as a *noun*, but as an article or definitive, serving to ascertain or point out the individuality of the house. But this is a palpable mistake. The word *Alexander's* serves not to point out the individuality of the house, but to show to whom the house belongs; and is therefore beyond dispute not an article, but a noun in the possessive case. Again, when we say *St Peter's* at Rome and *St Paul's* at London, the words *St Peter's* and *St Paul's* are neither articles, nor, as has been absurdly imagined, the proper names of edifices, like the Rotunda or the Circus, but they are, in the possessive case, the names of the two apostles to whom the churches were dedicated, and to whom they are supposed to belong.

But that this, which we have called the possessive case, is really not so, must be evident, it is said, because there are certain circumstances in which it cannot be substituted for the noun with the preposition prefixed. Thus, though a man may say, I speak *of* Alexander, I write *of* Cæsar, I think *of* Pompey, he cannot say, I speak Alexander's, I write Cæsar's, or I think Pompey's. This is indeed true, but it is nothing to the purpose. For though I may say *Loquor* DE *Alexandro, Scribo* DE *Cæsare, Cogito* DE *Pompeio*, I cannot say, *Loquor Alexandri, Scribo Cæsaris*, or *Cogito Pompeii*; and therefore all that can be inferred from this argument is, that as the Latin genitive is not always of the same import with the preposition *de*, so the English possessive is not always of the same import with the preposition *of*. Upon the whole, then, we may conclude that English nouns admit of one inflexion; and that though cases are not so essential to nouns as gender and number, no language can be wholly without them or their various powers.

II. *Of Articles or Definitives.*

The intention of language is to communicate thought, or to express those ideas which are suggested to us by our senses external and internal. The ideas first suggested to us are those of pain and pleasure, and of the objects with which we are surrounded; and therefore the words first learned must be nouns, or the names of objects natural, artificial, and abstract. Every object about which the human mind can be conversant is strictly and properly speaking particular; for all things in nature differ from one another in numberless respects, which, not to mention the idea of separate existence, so circumstance and individualize them, that no one thing can be said to be another. Now the use of language being to express our ideas or conceptions of these objects, it might naturally be expected that every object should be distinguished by a proper name. This would indeed be agreeable to the truth of things, but we have already seen that it is altogether impracticable. Ob-

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[1] The chief objection to this conjecture, that the nominative and vocative were originally the same case, is taken from the Latin tongue, in which the nouns of the second declension ending in *us* terminate their vocative in *e*. But this is easily accounted for. The *s* in such words was often dropped, as appears from the scanning of old Latin poetry; when this was done, the *u* being short, would naturally in pronunciation pass into *e*, a like short vowel; and thus, in the vocative case, *e* would in time be written instead of *u*.

Articles.

jects have therefore been classed into genera and species; and names given, not to each individual, but to each genus and species. By this contrivance of language, we are enabled to ascertain in some measure any individual that may occur, and of which we know not the proper name, only by referring it to the genus or species to which it belongs, and calling it by the general or specific name; but as there is frequent occasion to distinguish individuals of the same species from one another, it became necessary to fall upon some expedient to mark this distinction. In many languages general and specific terms are modified and restricted by three orders of words; the *article*, the *adjective*, and the *oblique cases of nouns*. The cases of nouns we have already considered; the adjective will employ our attention afterwards; at present our observations are confined to the *article*, a word so very necessary, that without it, or at least some equivalent invention, men could not employ nouns to any of the purposes of life, or indeed communicate their thoughts at all. As the business of articles is to enable us, upon occasion, to employ general terms to denote particular objects, they must be considered in combination with the general terms as merely substitutes for proper names. They have, however, been commonly called definitives; because they serve to define and ascertain any particular object so as to distinguish it from the other objects of the general class to which it belongs, and, of course, to denote its individuality. Of words framed for this purpose, whether they have by grammarians been termed articles or not, we know of no language that is wholly destitute. The nature of them may be explained as follows.

An object occurs with which, as an individual, we are totally unacquainted; it has a head and limbs, and appears to possess the powers of self-motion and sensation; we therefore refer it to its proper species, and call it a dog, a horse, a lion, or the like. If it belongs to none of the species with which we are acquainted, it cannot be called by any of their names; we then refer it to the genus, and call it an animal.

But this is not enough. The object at which we are looking, and which we want to distinguish, is not a species or a genus, but an individual. Of what kind? Known or unknown? Seen now for the first time, or seen before and now remembered? This is one of the instances in which we shall discover the use of the two articles A and THE; for, in the case supposed, the article A respects our primary perception, and denotes an individual as unknown; whereas THE respects our secondary perception, and denotes individuals as known. To explain this by an example: I see an object pass by which I never saw till now: What do I say? There goes *a* beggar with *a* long beard. The man departs and returns a week after: What do I then say? There goes *the* beggar with *the* long beard. Here the article only is changed; the rest remains unaltered. Yet mark the force of this apparently minute change. The individual once vague is now recognised as something known; and that merely by the efficacy of this latter article, which tacitly insinuates a kind of previous acquaintance, by referring a present perception to a like perception already past.

This is the explanation of the articles A and THE as given by the learned Mr Harris, and thus far what he says on the subject is certainly just; but it is not true that the article THE always insinuates a previous acquaintance, or refers a present perception to a like perception already past. I am in a room crowded with company, of which the greater part is to me totally unknown; I feel it difficult to breathe from the grossness of the enclosed atmosphere; and, looking towards the window, I see in it a person whom I never saw before. I instantly send my compliments to *the* gentleman in the window, and request that, if it be not inconvenient, he will have the goodness to let a little fresh air into the room. Of this gentleman I have no previous acquaintance; my present perception of him is my primary perception, and yet it would have been extremely improper to send my compliments to *a* gentleman in the window. Again, there would be no impropriety in saying, "*A* man whom I saw yesterday exhibiting a show to the rabble was this morning committed to jail charged with the crime of housebreaking." Notwithstanding the authority, therefore, of Mr Harris, and his master Apollonius, we may venture to affirm, that it is not essential to the article A to respect a primary perception, or to the article THE to indicate a pre-established acquaintance. Such may indeed be the manner in which these words are most frequently used; but we see that there are instances in which they may be used differently. What, then, it may be asked, is the import of each article, and in what respects do they differ?

We answer, that the articles A and THE are both of them definitives, as, by being prefixed to the names of genera and species, they so circumscribe the latitude of those names as to make them for the most part denote individuals. A noun or substantive, without any article to limit it, is taken in its widest sense. Thus the word man means all mankind;

> The proper study of mankind is man;

where *mankind* and *man* may change places without making any alteration in the sense. But let either of the articles of which we are treating be prefixed to the word *man*, and that word is immediately reduced from the name of a whole genus to denote only a single individual; and instead of the noble truth which this line asserts, the poet will be made to say, that the proper study of mankind is not the common nature which is diffused through the whole human race, but the manners and caprices of one individual. Thus far therefore the two articles agree; but they differ in this, that though they both limit the specific name to some individual, the article A leaves the individual itself unascertained; whereas the article THE ascertains the individual also, and can be prefixed to the specific name only when an individual is intended of which something may be predicated that distinguishes it from the other individuals of the species. Thus, if I say, *a* man is fit for treasons, my assertion may appear strange and vague; the sentence, however, is complete, and wants nothing to make it intelligible; but if I say, *the* man is fit for treasons, I speak nonsense; for as the article THE shows that I mean some particular man, it will be impossible to discover my meaning till I complete the sentence, and predicate something of the individual intended to distinguish him from other individuals.

> The man that hath not music in himself....
> Is fit for treasons.

A man, therefore, means some one or other of the human race indefinitely; *the* man means, definitely, that particular man who is spoken of. The former is called the indefinite, the latter the definite, article.

The two articles differ likewise in this respect, that as the article A serves only to separate one individual object from the general class to which it belongs, it cannot be applied to plurals. It has indeed the same signification nearly with the numerical word *one*; and in French and Italian the same word that denotes unity is also the article of which we now treat. But the essence of the article THE being to define objects, by pointing them out as those of which something is affirmed or denied which is not affirmed or denied of the other objects of the same class, it is equally applicable to both numbers; for things may be predicated of one set of men, as well as of a single man, which cannot be predicated of other men. The use and import of each article will appear from the following example: "*Man* was made for society, and ought to extend his good will to *all men;* but *a man* will naturally entertain a more particular regard for *the men* with whom he has the most frequent intercourse, and enter into a still closer union with *the man* whose temper and disposition suit best with his own."

We have said that the article A cannot be applied to plurals, because it denotes unity. But to this rule there is apparently a remarkable exception in the use of the adjectives *few* and *many* (the latter chiefly with the word *great* before it), which, though joined with plural substantives, yet admit of the singular article A: as, *a few men*, *a great many men.* The reason of this is manifest from the effect which the article has in these phrases. It means a small or a great number collectively taken, to which it gives the idea of a whole, that is, of unity. Thus likewise *a hundred, a thousand,* is one whole number, an aggregate of many collectively taken, and therefore still retains the article A, though joined as an adjective to a plural substantive; as, *a hundred years.* The exception therefore is only apparent; and we may affirm that the article A universally denotes unity.

The indefinite article is much less useful than the other; and therefore the Greek and Hebrew languages have it not, though they have both a definite article. In languages of which the nouns, adjectives, and verbs, have inflexion, no mistake can arise from the want of the indefinite article; because it can always be known by the terminations of the noun and the verb, and by the circumstances predicated of the noun, whether a whole species or one individual be intended. But this is not the case in English. In that language, the adjectives having no variation with respect to gender or number, and the tenses of the verbs being for the most part the same in both numbers, it might be often doubtful, had we not the indefinite article, whether the specific name was intended to express the whole species or only one individual. Thus, if we say in English, *man was born sent from God,* we must be understood to mean that the birth of *every* man is from God, because to the specific term the indefinite article is not prefixed. Yet the words, Εγενετο ἀνθρωπος ἀπεσταλμενος παρα Θεου, convey no such meaning to any person acquainted with the Greek language; as the word ἀνθρωπος, without any article, is restricted to an individual by its concord with the verb and the participle; and the sense of the passage is, A *man was born, or existed, sent from God.* But though the *Greeks* have no article corresponding to the article A, yet nothing can be more nearly related than their 'Ο to our THE; 'Ο *βασιλευς*, THE *king*, TO δωρον, THE *gift.* In one respect, indeed, the Greek and English articles differ. The former is varied according to the gender and number of the noun with which it is associated, being ὁ, *masculine*, ἡ, *feminine*, το, *neuter*, and οἱ, αἱ, τα, in the *plural number;* whereas the English article suffers no change, being invariably THE before nouns of every gender and in both numbers. There are, however, some modern languages which, in imitation of the Greek, admit of a variation of their article which relates to gender; but this cannot be considered as essential to this species of words, and it may be questioned whether it be an improvement to the language. In tongues of which the nouns have no inflexion, it can only serve to perplex and confuse, as it always presents a particular idea of sex where in many cases it is not necessary.

The articles already mentioned are allowed to be strictly and properly such by every grammarian; but there are some words, such as *this*, *that*, *any*, *some*, *all*, *other*, &c. which are generally said to be sometimes articles and sometimes pronouns, according to the different modes of using them. That words should change their nature in this manner, so as to belong sometimes to one part of speech and sometimes to another, must appear very extraordinary; and if it were a fact, language would be a thing so equivocal, that all inquiries into its nature, upon principles of science and reason, would be vain. But we cannot perceive any such fluctuation in any word whatever; though we know it to be a general charge brought against words of almost every denomination, of which we have already seen one instance in the possessive case of nouns, and shall now see another in those words which are commonly called pronominal articles.

If it be true, as we acknowledge it to be, that the genuine *pronoun* always stands by itself, assuming the power of a noun, and supplying its place, then is it certain that the words *this, that, any, some,* &c. can never be *pronouns.* We are indeed told, that when we say *this* is virtue, give me *that*, the words *this* and *that* are pronouns; but that when we say, *this habit* is virtue, *that man* defrauded me, then are they articles or definitives. This, however, is evidently a mistake occasioned by overlooking those abbreviations in construction which are frequent in every language, and which, on account of that very frequency, have perhaps escaped the attention of grammarians whose sagacity has been successfully employed on matters less obvious. When we say *this* is virtue, it is evident that we communicate no intelligence till we add a substantive to the word *this*, and declare what is virtue. The word *this* can therefore in no instance assume the power of a noun, since the noun to which it relates, though for the sake of dispatch it may be omitted in writing or conversation, must always be supplied by the mind of the reader or hearer, to make the sentence intelligible, or *this* itself of any importance. When we have viewed speech analysed, we may then consider it as compounded. And here, in the first place, we may contemplate that synthesis which by combining simple terms produces a truth; then by combining two truths produces a third; and thus others and others in continued demonstration, till we are led, as by a road, to the regions of science. Now *this* is that superior and most excellent synthesis which alone applies itself to our intellect or reason, and which to conduct according to rule constitutes the art of logic. After *this* we may turn to those inferior compositions which are productive of the pathetic, &c. Here, if any where, the word *this* may be thought to stand by itself, and to assume the power of a noun; but let any man complete the construction of each sentence, and he will perceive that *this* is no more than a definite article. Thus, we may contemplate that synthesis which by combining simple terms produces a truth; then by combining two truths produces a third truth; and thus other truths and other truths in continued demonstration, till we are led, as by a road, into the regions of science. Now *this* combination of truths is that superior and most excellent synthesis which alone applies itself to our intellect or reason, and which to conduct according to rule constitutes the art of logic. After we have contemplated *this* art, we may turn, &c.

The word *that* is generally considered as still more equivocal than *this;* for it is said to be sometimes an article, sometimes a pronoun, and sometimes a conjunction. In the following extract it appears in all these capacities; and yet, upon resolving the passage into parts, and completing the construction, it will be found to be invariably a definite article. "It is necessary to *that* perfection, of which our present state is capable, *that* the mind and body should both be kept in action; *that* neither the faculties of the one nor of the other be suffered to grow lax or torpid for want of use; but neither should health be purchased by voluntary submission to ignorance, nor should knowledge be cultivated at the expense of health;

for *that* must enable it either to give pleasure to its possessor, or assistance to others." If this long sentence be resolved into its constituent parts, and the words be supplied which complete the construction, we shall see the import of the word THAT to be precisely the same in each clause. " The mind and body should both be kept in action; *that* action is necessary to *that* perfection of which our present state is capable; neither the faculties of the one nor of the other should be suffered to grow lax or torpid for want of use; the degree of action proper to prevent *that* laxness is necessary; but neither should health be purchased by voluntary submission to ignorance, nor should knowledge be cultivated at the expense of health; for *that* health must enable it either to give pleasure to its possessor, or assistanee to others." Again:

> He that's unskilful will not toss a ball.

A man unskilful (he is *that*) will not toss a ball. Here the word *that*, though substituted for what is called the relative pronoun, still preserves unchanged its definitive import; and in every instance, except where it may be used very improperly, it will be found to be neither more nor less than a definitive article.

It appears, then, that if the essence of an article be to define and ascertain, the words *this* and *that*, as well as *any*, *some*, *all*, &c. which are commonly called pronominal articles, are much more properly articles than any thing else, and as such should be considered in universal grammar. Thus, when we say, *this* picture I approve, but *that* I dislike, what do we perform by the help of the words *this* and *that*, but bring down the common appellative to denote two individuals, the one as the more near, the other as the more distant? So when we say, SOME men are virtuous, but ALL men are mortal; what is the natural effect of this *all* and *some*, but to define that universality and that particularity which would remain indefinite were we to take them away? The same thing is evident in such sentences as, " SOME substances have sensation, OTHERS want it; choose ANY way of acting, and SOME men will find fault," &c. For here *some*, *other*, and *any* serve all of them to define different parts of a given whole; *some*, to denote any indeterminate part; *any*, to denote any indefinite mode of action, no matter what; and *other*, to denote the remaining part, when a part has been assumed already.

We have said that the article is a part of speech so very necessary, that without it, or some equivalent invention,[1] mankind could not communicate their thoughts; and that of words falling under this description we know of no language which is wholly destitute. We are aware that these positions may be controverted; and that the Latin may be instanced as a language which, without articles, is not only capable of communicating the ordinary thoughts of the speaker to the mind of the hearer, but which, in the hands of Cicero, Virgil, and Lucretius, was made to serve all the purposes of the most profound philosopher, the most impassioned orator, and the most sublime poet. That the Latin has been made to serve all these purposes cannot be denied, although Lucretius and Cicero both complain, that on the subject of philosophy, where the use of articles is most conspicuous, it is a deficient language. But should we grant what cannot be demanded, that these two great men were unacquainted with the powers of their native tongue, our positions would still remain unshaken; for we deny that the Latin is wholly without articles. It has indeed no word of precisely the same import with our *the* or the Greek ὁ; but the place of the indefinite article A might be always supplied, if necessary, with the numerical word *unus*. It may be so even in English; for we believe there is not a single instance where the words *one man*, *one horse*, *one virtue*, might not be substituted for the words *a man*, *a horse*, *a virtue*, without in the slightest degree altering the sense of the passage where such words occur. This substitution, however, can be but seldom or never necessary in the Latin tongue, of which the precision is much greater than that of the English would be without articles, because the oblique cases of the Latin nouns, and the inflexion of its verbs, will almost always enable the reader to determine whether an appellative represents a whole species or a single individual. The want of the definite article *the* seems to be a greater defect; yet there are few instances in which its place might not be supplied by *this* or by *that* without obscuring the sense; and the Latin tongue is by no means deficient of articles corresponding to these two. Let us substitute the words *one* and *that* for *a* and *the* in some of the foregoing examples, and we shall find, though the sound may be uncouth, the sense will remain. Thus,

> THAT man who hath not music in himself....
> Is fit for treasons,

conveys to the mind of the reader the very same sentiment which the poet expresses by the words *the* man that hath not music, &c. Again, *Man* was made for society, and ought to extend his good will to *all men*; but *one* man will naturally entertain a more particular regard for *those men* with whom he has the most frequent intercourse, and enter into a closer union with *that man* whose temper and disposition suit best with his own. Now the words *hic* and *ille* being exactly of the same import with the words *this* and *that*, it follows, that wherever the place of the article *the* may in English be supplied by *this* or by *that*, it may in Latin be supplied by *hic* or by *ille*. This is the case with respect to Nathan's reproof of David, where the definite article is indeed most emphatical. The original words might have been translated into English, " thou art *that* man," as well as " thou art *the* man;" and in Latin they may with the utmost propriety be rendered, " Tu es ille homo." Indeed the words *hic* and *ille*, and we might instance many more, though they are commonly called pronouns, are in truth nothing but definite articles. *Hic* is evidently ὁκε; and *ille* is most probably derived from the Hebrew word *al*, in the plural *ale*, which may be translated indifferently, either *the* or *that*. But, what proves beyond dispute that these words are not pronouns, but articles, is, that in no single instance will they be found to stand by themselves and assume the power of nouns. For the sake of dispatch, or to avoid disagreeable repetitions, the noun may indeed be often omitted; but it is always supplied by the reader or hearer, when *hic* and *ille* appear in their proper place, and are seen to be invariably definitive articles. We shall give an example of the use of each word, and dismiss the subject.

In the first oration against Catiline, Cicero begins with addressing himself in a very impassioned style to the traitor, who was present in the senate-house. He then exclaims pathetically against the manners of the age, and proceeds in these words: *Senatus hæc intelligit, consul videt,* HIC *tamen vivit. Vivit? immo vero etiam in senatum venit; fit publici consilii particeps.* In this passage *hic* cannot be a pronoun; for from the beginning of the oration there occurs not a single noun of which it can possibly supply the place. When the orator uttered it, he was probably pointing with his finger at Catiline, and every one of his audience would supply the noun in his own mind, as we do when we translate it, "*yet* this traitor lies." When Virgil says,

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[1] As in the Persian and other eastern languages, in which the place of our indefinite article is supplied by a termination to those nouns which are meant to be particularized.

> *Ille* ego, qui quondam gracili modulatus avena
> Carmen,

it is obvious that he means, I am *that man*, or *that poet*, who sung, &c.; and though we may translate the words "I am *he* who tuned his song," yet when we construe the passage we are under the necessity of supplying either *vates* or *vir*, which shows that *ille* is nothing more than a definite article signifying *that* or *the.* It appears, then, that the Latin tongue is not wholly destitute of articles, as few cases can occur where the Greek ὁ and our *the* may not be supplied by the words *hic* and *ille*, which have in our opinion been very improperly termed pronouns. If there be any such cases, we can only confess that the Latin language is defective; whereas, had it no articles, it is not easy to conceive how it could answer, to a cultivated people, the ordinary purposes of speech.

The articles *this* and *that*, unlike *a* and *the*, are varied according as the noun, with which they are associated, is in the singular or in the plural number. Thus we say, *this* and *that man* in the singular, and *these* and *those men* in the plural. The Latin articles *hic* and *ille*, for such we will call them, are varied, like the Greek ὁ, not only with the number, but also with the gender of their nouns. In languages where the structure of a sentence may be so changed from the order of nature, as it commonly is in Greek and Latin, and where the reader is guided, not by the position, but by the terminations of the words, to those which are in concord and those which are not, these variations of the articles have their use; but in English they are of no importance. Were it not that the custom of the language, the *forma loquendi* as Horace calls it, has determined otherwise, there would be no more impropriety in saying *this* or *that men*, than in saying *some men* or *the men.*

As articles are by their nature definitives, it follows of course that they cannot be united with such words as are in their own nature as definite as they may be, nor with such words as, being undefinable, cannot properly be made otherwise; but only with those words which, though indefinite, are yet capable through the article of becoming definite. Hence the reason why it is absurd to say, *the I* or *the thou*, because nothing, as will be seen afterwards, can make these pronouns more definite than they are of themselves; and the same may be said of proper names. Neither can we say, *the both*, because the word *both* is in its own nature perfectly defined. Thus if it be said, "I have read both poets," this plainly indicates a definite pair, of whom some mention has been made already. On the contrary, if it be said, "I have read two poets," this may mean any pair out of all that ever existed. And hence the numeral being in this sense indefinite, as indeed are all others as well as itself, is forced to assume the article whenever it would become definite. Hence also it is that as *two*, when taken alone, has reference to some primary and indefinite perception, whilst the article *the* has reference to some perception secondary and definite, it is bad language to say *two the men*, as this would be blending of incompatibles, that is, it would be representing two men as defined and undefined at the same time. On the contrary, to say, *both the men*, is good language; because the substantive cannot possibly be less apt, by being defined, to coalesce with a numeral adjective which is defined as well as itself. So likewise it is correct to say, *the two men*, *these two men*, or *those two men*; because here the article, being placed at the beginning, extends its power as well through the numeral adjective as the substantive, and tends equally to define them both.

As some of the above words admit of no article because they are by nature as definite as may be, so there are others which admit it not because they are not to be defined at all. Of this sort are all *interrogatives.* If we question about substances, we cannot say, *the who is this*, but *who is this?* And the same both as to qualities and quantities; for we say, without an article, *what sort of, how many, how great?* The reason is, the article *the* respects beings of which we can predicate something; but interrogatives respect beings about which we are ignorant, and of which we can therefore predicate nothing; for as to what we know, interrogation is superfluous. In a word, the natural associates of articles are *all those common appellatives which denote the several genera and species of beings:* and it may be questioned whether in strictness of speech they are ever associated with any other words.

We have said that proper names admit not of the article, being in their own nature definite. This is true, whilst each name is confined to one individual; but as different persons often go by the same name, it is necessary to distinguish these from one another, to prevent the ambiguity which this identity of name would otherwise occasion. For this purpose we are obliged to have recourse to adjectives or epithets. For example, there were two Grecian chiefs who bore the name of Ajax; and it was not without reason that Mnestheus used epithets when his intention was to distinguish the one from the other. "If both *Ajaxes* cannot be spared," said he, "at least let mighty Telamonian Ajax come." But as epithets are diffused through various subjects, in as much as the same adjective may be referred to many substantives, it has been said to be necessary, in order to render both parts of speech equally definite, that the adjective itself assume an article before it, which may indicate a reference to some single person only. It is thus we say, Trypho *the* Grammarian, Apollodorus *the* Cyrenian, &c. This is the doctrine of Mr Harris, from which, with the highest respect for the learning of the author, we feel ourselves obliged to dissent. In the examples given, the article THE is certainly not associated with the words Grammarian and Cyrenian, in the same manner in which it is associated with the word *man* in the sentence, "The man that hath not music in himself." When we say Apollodorus THE Cyrenian, we may, without folly or impertinence, be asked, the Cyrenian *what?* And the moment this question is answered, it will be seen that the article defines, not an adjective, but a substantive. If the answer be, the Cyrenian philosopher, the article *the* is associated with the word philosopher, and the phrase Apollodorus THE Cyrenian is an abbreviation of Apollodorus THE philosopher of Cyrene. In like manner, Trypho THE grammarian, is Trypho THE grammarian writer, or Trypho THE writer of grammar. Such abbreviations are very common. We say familiarly *the Speaker*, and are understood to mean a high officer in the British parliament; yet as speaker is a name common to many men, we may without impropriety be asked, *what* speaker we mean; and if so, we must reply, *the Speaker of the House of Commons.* But that which is eminent is supposed to be generally known; and therefore, in common language, *the speaker* is deemed a sufficient designation of him who presides over the lower house of parliament. Hence, by an easy transition, the definite article, from denoting reference, comes to denote eminence also; that is to say, from implying an ordinary preacquaintance, to presume a kind of general and universal notoriety. Thus *a king* is any king, but *the king* is that person whom we acknowledge as our sovereign, the king of Great Britain. In Greek, too, as in English, the article is often a mark of eminence; for *the Poet* meant Homer, and *the Stagyrite* meant Aristotle; not but that there were many poets besides Homer, and many stagyrites besides Aristotle, but none equally illustrious.

Before we dismiss the *Article*, we shall produce one example to show the utility of this species of words; which, although they may seem to be of small importance, yet, when properly applied, serve to make a few general terms sufficient for expressing with accuracy all the various objects about which mankind can have occasion to converse. Let *man* be the general term, which I have occasion to employ for the purpose of denoting some particular. Let it be required to express this particular as unknown, I say *a* man; known, I say *the* man; definite, *a certain* man; indefinite, *any* man; present and near, *this* man; present and at some distance, *that* man; like to some other, *such* a man; different from some other, *another* man; an indefinite multitude, *many* men; a definite multitude, *a thousand* men; the ones of a multitude taken throughout, *every* man; the same ones taken with distinction, *each* man; taken in order, *first* man, *second* man, &c.; the whole multitude of particulars taken collectively, *all* men; the negation of that multitude, *no* man; a number of particulars present and near, *these* men; at some distance, or opposed to others, *those* men; a number of individuals separated from another number, *other* men; a small indefinite number, *few* men; a proportionally greater number, *more* men; a smaller number, *fewer* men. And so we might proceed on almost to infinitude. But not to dwell longer upon this subject, we shall only remark, that minute changes in principles lead to mighty changes in effects; so that principles are well entitled to regard, however trivial they may appear.

III.—*Of Pronouns, or Substantives of the second order.*

To men who are neither intoxicated with their own abilities, nor ambitious of the honour of building new systems, little pleasure can accrue from differing upon points of science from writers of great and deserved reputation. In such circumstances a man of modesty, although he will not upon the authority of a celebrated name adopt an opinion of which he perceives not the truth, must always advance his own notions with some degree of diffidence, as being conscious that the truth which he cannot perceive, may be visible to a keener and more perspicacious eye. In these circumstances we feel ourselves with regard to some of the most celebrated writers on grammar, from whom, concerning one or two points, comparatively indeed of but little importance, we have already been compelled reluctantly to differ. In treating of pronouns we are likely to deviate still farther from the beaten track; but that we may not be accused of acting the part of dogmatists in literature, and of claiming from others that implicit confidence which we refuse to give, we shall state with fairness the commonly received opinions, point out in what respects we think them erroneous, assign our reasons for calling them in question, and leave our readers to judge for themselves. The most celebrated writer in English who has treated of pronouns, and whom, since the publication of his *Hermes*, most other writers have implicitly followed, is Mr Harris, who, after a short introduction, proceeds thus:—

" All conversation passes between individuals, who will often happen to be till that instant unacquainted with each other. What, then, is to be done? How shall the speaker address the other, when he knows not his name? or how explain himself by his own name, of which the other is wholly ignorant? Nouns, as they have been described, cannot answer this purpose. The first expedient upon this occasion seems to have been pointing, or indicating by the finger or hand; some traces of which are still to be observed, as a part of that action which naturally attends our speaking. But the authors of language were not content with this. They invented a race of words to supply this pointing; which words, as they always stood for substantives or nouns, were characterized by the name of *pronouns*. These also they distinguished into three several sorts, calling them pronouns of the first, the second, and the third person, with a view to certain distinctions, which may be explained as follows:—

" Suppose the parties conversing to be wholly unacquainted, neither name nor countenance on either side known, and the subject of the conversation to be the speaker himself. Here, to supply the place of pointing by a word of equal power, the inventors of language furnished the speaker with the pronoun I; *I* write, *I* say, *I* desire, &c.; and as the speaker is always principal with respect to his own discourse, this they called, for that reason, the pronoun of the first person.

" Again, suppose the subject of the conversation to be the party addressed. Here, for similar reasons, they invented the pronoun *thou; thou* writest, *thou* walkest, &c. And as the party addressed is next in dignity to the speaker, or at least comes next with reference to the discourse, this pronoun they therefore called the pronoun of the second person.

" Lastly, suppose the subject of conversation neither the speaker nor the party addressed, but some third object different from both. Here they provided another pronoun, *he, she*, or *it*; which, in distinction to the two former, was called the pronoun of the third person. And thus it was that pronouns came to be distinguished by their respective *persons*."

The description of the different *persons* here given is taken, we are told, from Priscian, who took it from Apollonius. But whatever be the deference due to these ancient masters, their learned pupil, though guided by them, seems not to have hit upon the true and distinguishing characteristic of the personal pronouns. He supposes, that when the names of two persons conversing together are known to each other, they may, by the use of these names, express all that the personal pronouns express; but this is certainly not true. To us, at least, there appears to be a very material difference between saying " George did this," and " I did this;" nor do we think that the power of the pronoun would be completely supplied by the name, even with the additional aid of indication by the hand. So, when one man says to another with whom he is conversing, " James did so and so;" it is surely not equivalent to his saying " You did so and so." If such were the case, one might pertinently ask, when both persons are known to each other, Why do they use the personal pronouns? Mr Harris tells us, that " when the subject of conversation is the speaker himself, he uses I; and when it is the party addressed, he uses *thou*." But, in fact, the nature of the personal pronouns has no sort of connection with the subject of conversation, whether that conversation relate to the speaker, the party addressed, or a Greek book. In this sentence, " I say that the three angles of every triangle are equal to two right angles," the speaker is surely not the subject of the discourse; nor is the party addressed, but the truth of his assertion, the subject of discourse in the following sentence: " *You* say, that Horne Tooke's Diversions of Purley is the most masterly treatise on grammar, as far as it goes, that you have ever seen." Mr Harris uses the phrase " becoming the subject of conversation," in no other sense than that when the speaker has occasion to mention *himself*, he uses I; when the party addressed, *thou*; and when some other person or thing, *he, she*, or *it*. But we know that he may use other words by no means equivalent to the two first of these pronouns, which will sufficiently mark himself, and the party addressed; and that he may use indifferently, and without the smallest injury to the sense, either the third pronoun, or the word for

Pronouns.

which it is merely a substitute. A man who sustains various characters may design himself by any one of them. Thus Mr Pitt might have spoken of himself as the first lord of the treasury, chancellor of the exchequer, or member for the university of Cambridge; and in each case he would have been what Mr Harris calls the subject of conversation; yet every one feels that none of these designations would have been equivalent to I. What, then, is the force of the personal pronouns?

It appears to be simply this: The first denotes the speaker, *as characterised by the present act of speaking*, in contradistinction to every other character which he may bear. The second denotes the party addressed, *as characterised by the present circumstance of being addressed*, in contradistinction to every other character. And what is called the pronoun of the third person is merely a *negation of the other two*, as the neuter gender is a negation of the masculine and feminine. If this account of the personal pronouns be true, and we flatter ourselves that its truth will be obvious to every body, there is but one way of expressing by other words the force of the pronouns of the first and second person. Thus, "The person who now speaks to you did so and so," is equivalent to "*I* did so and so;" and "The person to whom I now address myself did so and so," is equivalent to "*You* did so and so." Hence we see why it is improper to say the *I* or the *thou*; for each of these pronouns has of itself the force of a noun with the definite article prefixed, and denotes a person of whom something is predicted, which distinguishes him from all other persons. *I* is the person who now speaks, *thou* is the person who is now addressed by the speaker. Hence too we see the reason why the pronoun *I* is said to be of the first, and the pronoun *thou* of the second person. These pronouns can have place only in conversation, or when a man, in the character of a public speaker, addresses himself to an audience; but it is obvious that there must be a speaker before there can be a hearer; and therefore, that the pronouns may follow the order of nature, *I*, which denotes the person of the speaker, must take place of *thou*, which denotes the person of the hearer. Now the speaker and the hearer being the only persons engaged in conversation or declamation, *I* is with great propriety called the pronoun of the first, and *thou* the pronoun of the second person. We have said, that with respect to pronouns, the third person, as it is called, is merely a negative of the other two. This is evident from the slightest attention to the import of those words which are called pronouns of the third person. *He*, *she*, or *it*, denotes not the person either of the speaker or of the hearer; and, as we have just observed, no other person can have a share in conversation or declamation. An absent person or an absent thing may be the subject of conversation, but cannot be the speaker or the person addressed. *He*, *she*, and *it*, however, as they stand by themselves, and assume the power of nouns, are very properly denominated pronouns; but they are not personal pronouns in any other sense than as the negation of sex is the neuter gender.

We have already seen that nouns admit of number; pronouns, which are their substitutes, likewise admit of number. There may be *many* speakers at once of the same sentiment, as well as one, who, including himself, speaks the sentiment of *many*; speech may likewise be addressed to *many* at a time, as well as to *one*; and the subject of the discourse may likewise be *many*. The pronoun, therefore, of every one of the persons must admit of number to express this singularity or plurality. Hence the pronoun of the first person *I*, has the plural *we*; that of the second person *thou*, has the plural *ye* or *you*; and that of the third person *he*, *she*, or *it*, has the plural *they*, which is equally applied to all the three genders.

The Greeks and Romans, when addressing one person, used the pronoun in the singular number *thou*; whereas in the polite, and even in the familiar style, we, and many other modern nations, use the plural *you*. Although in this case we apply *you* to a single person, yet the verb must agree with it in the plural number; it must necessarily be, *you have*, not *you hast*. *You was*, the second person plural of the pronoun placed in agreement with the first or third person singular of the verb, is an enormous, though common solecism, which ought to be carefully avoided. In very solemn style, as when we address the Supreme Being, we use *thou*, perhaps to indicate that he is God alone, and that there is none like unto him; and we sometimes use the same form of the pronoun in contemptuous or very familiar language, to intimate that the person to whom we speak is the meanest of human beings, or the dearest and most familiar of our friends. A king, exerting his authority on a solemn occasion, adopts the plural of the first person, "*we* strictly command and charge;" meaning, that he acts by the advice of counsellors, or rather as the representative of a whole people. But in all cases in which the use of the pronoun deviates from the nature of things, the verb in concord deviates with it; for, as will be seen afterwards, these two words universally agree in number and person.

But though all these pronouns have number, neither in Greek, Latin, or any modern language, do those of the first and second person carry the distinctions of sex. The reason is obvious,[1] namely, that sex, and all other properties and attributes whatever, except those mentioned above as descriptive of the nature of these pronouns, are foreign from the intention of the speaker, who, when he uses the pronoun *I*, means *the person who now speaks*, no matter whether man or woman; and when the pronoun *thou*, *the person*, no matter whether man or woman, *to whom he now addresses himself*, and nothing more. But the pronoun of the third person denoting neither the speaker nor the hearer, but the subject of the discourse, and being merely the substitute of a noun which may be either masculine, feminine, or neuter, must of necessity agree with the noun which it represents, and admit of a triple distinction significant of gender. In English, which allows its adjectives no genders, this pronoun is *he* in the masculine, *she* in the feminine, and *it* in the neuter; the utility of which distinction may be better found in supposing it away. Suppose, for example, that we should in history read these words, *He caused him to destroy him*, and were informed that the pronoun, which is here thrice repeated, stood each time for something different; that is to say, for a man, for a woman, and for a city, whose names were Alexander, Thais, and Persepolis. Taking the pronoun in this manner, divested of its gender, how would it appear which was destroyed, which the destroyer, and which the cause that moved to the destruction? But there is no ambiguity, when we hear the genders distinguished: when we are told with the proper distinctions, that *she* caused *him* to destroy *it*, we know with certainty that the prompter was the woman; that her instrument was the hero; and that the subject of their cruelty was the unfortunate city. From this example we would be surprised how the Italians, French, and Spaniards could express themselves with precision or elegance with no more than two variations of this pronoun.

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[1] The reason assigned by Mr Harris and his followers is, that "the speaker and hearer being generally present to each other, it would have been superfluous to have marked a distinction by art, which from nature and even dress was commonly apparent on both sides." This is perhaps the best reason which their description of the personal pronouns admits, but it is not satisfactory; for the speaker and hearer may meet in the dark, when different dresses cannot be distinguished.

Although in every language with which we are acquainted, there is but one pronoun for each of the first and second persons; and although it is obvious, from the nature and import of those words, that no more can be necessary; yet the mere English reader may perhaps be puzzled with finding three distinct words applied to each; *I*, *mine*, and *me*, for the first person; *thou*, *thine*, and *thee*, for the second. The learned reader will see at once that the words *mine* and *me*, *thine* and *thee*, are equivalent to the genitive and accusative cases of the Latin pronouns of the first and second persons. That *mine* is a pronoun in the possessive case is obvious; for if I were asked "whose book is that before me?" I should reply, "It is *mine*,"[1] meaning that it belongs to me. That the word *me* is the same pronoun in the case which the Latin grammarians call the accusative, is evident from the import of that word in the sentence *he admires me*, where the admiration is supposed to proceed from the person spoken of to the person who speaks. It appears, therefore, that though English nouns have only two cases, the nominative and possessive, the pronouns of that language have three, as, *I*, *mine*, *me*; *thou*, *thine*, *thee*; *he*, *his*, *him*, &c.; and that these are cases, can be questioned by no man who admits that *mei*, *mihi*, *me*, are cases of the Latin pronoun *ego*. Both pronouns, the Latin and the English, are irregularly inflected; and perhaps those words which are called the oblique cases of each may have originally been derived from nominatives different from *ego* and *I*; but these nominatives are now lost, and *mei* and *mine* have, beyond all dispute, the effect of the genitives of the Latin and English pronouns of the first person. These variations, however, cannot be looked upon as an essential part of language, but only as a particular refinement, invented to prevent the disagreeable repetition of the pronoun, which must frequently have happened without such a contrivance. This seems to have been the only reason why pronouns have been endowed with a greater variety of cases than nouns. Nouns are in themselves greatly diversified. Every genus and every species of objects has a distinct name, and therefore the sameness of sound does not so often occur among them as it would among the pronouns, without cases, where the same *I*, *thou*, *he*, *she*, or *it*, answers for every object which occurs in nature; but by this diversity in the form of the words, the *cacophonia*, which would be otherwise disgusting, is in a great measure avoided. It is, probably, for the same reason that the plural of each of these pronouns is so very different from the singular. Thus from *I*, *mine*, *me*, in the singular, is formed, in the plural, *we*, *ours*, *us*; from *thou*, *thine*, and *thee*, *ye* or *you*, *yours*, *you*; and from *he*, *she*, *it*, *his*, *hers*, *its*, *him*, *her*, *it*, in the singular, *they*, *theirs*, *them*, in the plural. In all of which there is not the least resemblance between the singular and plural of any one word; and except in *he*, *his*, *him*; *it*, *its*; *they*, *theirs*, *them*; there is not any similarity between the different cases of the same word in the same number.

From the account here given of the personal pronouns, it appears that the first or second will, either of them, coalesce with the third, but not with each other. For example, it is good sense, as well as good grammar, to say in any language, *I am he*, *thou art he*, *we were they*, *you were they*; but we cannot say, *I am thou*, nor *thou art I*, nor *we are you*, &c. The reason is, there is no absurdity for the speaker to be also the subject of the discourse, as when it is said, I am he; or for the person addressed, as when we say, thou art he. But for the same person, in the same circumstances, to be at once the speaker and the party addressed, is impossible; for which reason the coalescence of the pronouns of the first and second persons is likewise impossible.

I, *thou*, *he*, *she*, and *it*, are all that are usually called personal pronouns. There is another class of words, which are called sometimes pronominal adjectives, sometimes adjective pronouns, sometimes possessive pronouns; and by one writer of grammar they have been most absurdly termed pronominal articles. It is not worth while to dispute about a name; but the words in question are *my*, *thy*, *her*, *our*, *your*, *their*. These words are evidently in the form of adjectives; for, like other English adjectives, they have no variation to indicate either gender, number, or case; and yet they are put in concord with nouns of every gender and both numbers, as, *my wife*, *my son*, *my book*; *her husband*, *her sons*, *her daughters*, &c. But though in the form of adjectives, they have the power of personal pronouns in the possessive case: *my book* is the book of *me*, or the book of *him who now speaks*; *our house* is the house of *us*, or the house occupied by the *persons who now speak*; *her husband*, is the husband of a woman who can be known only from something preceding in the discourse; and *their property* is the property of them, of any persons, whether men or women, or both, who have been previously mentioned. Words which have the form of adjectives, with the power of pronouns, may, without impropriety, be called pronominal adjectives; and such is the name by which we shall henceforth distinguish them. To these pronominal adjectives, as well as to the personal pronouns, are subjoined the words own and self, and in the plural selves; in which case they are emphatical, and imply a silent contrariety or opposition. Thus, *I live in my own house*; that is, not in a hired house. *This I did with my own hand*; that is, not by proxy. *This was done by myself*; that is, not by another. The word self subjoined to a personal pronoun forms also the reciprocal pronoun; as, *we hurt ourselves by vain rage; he blamed himself for his misfortune. Himself*, *itself*, *themselves*, are supposed by Wallis to be put, by corruption, for *his self*, *its self*, *their selves*; so that *self* is always a substantive or noun, and not a pronoun. This seems to be a just observation; for we say, *the man came himself*, *they went themselves*; where the words *himself* and *themselves* cannot be accusatives, but nominatives, and were anciently written *his self*, *their selves*.

There are other words which are usually ranked under the class of pronouns; as *who*, *which*, *what*. These, when employed in asking questions, are called interrogative pronouns; though a name more characteristic might surely be found for them. Their import, however, will be more easily ascertained after we have considered another species of pronouns, which have been denominated relatives, and with which they are intimately connected.

The pronouns already mentioned may be called preposive, as may indeed all substantives, because they are capable of introducing or leading a sentence: but there is another pronoun which has a character peculiar to itself, and which, as it is never employed but to connect sentences, and must therefore have always a reference to something preceding, is called the subjunctive or relative pronoun. This pronoun is in Greek, ὁς ἡ, ὁ; in Latin, *qui, quæ, quod*; and in English, *who, which, what.*

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[1] If we mistake not, Dr Johnson has somewhere affected to ridicule Bishop Lowth for considering the word *mine* as the possessive case of the pronoun of the first person. According to the doctor, *mine* is the same word with the pronominal adjective *my*; and was anciently used before a vowel, as *my* was before a consonant. This is not said with the lexicographer's usual precision. That *mine* was anciently used before a vowel is certain; but it does not therefore follow that it is the same word with *my*. If it were, we might on every occasion substitute either of these for the other, without offending against grammar, however we might injure the sound; but we apprehend that this is not the case. "That book is *mine*," is good English; but "that book is *my*" would be a gross solecism. The reason is, that *mine* is a genuine pronoun, and stands by itself with the power of a noun; but *my*, being an adjective, cannot stand by itself.

In order to determine with precision the nature and import of the *relative pronoun*, it will be necessary to ascertain the powers which it contains, or the parts of speech into which it is capable of being resolved. Now, it is obvious that there is not a single noun, or prepositive pronoun, which the relative is not capable of representing; for we say, I WHO *saw him yesterday cannot be mistaken;* YOU WHO *did not see him may have been misinformed;* THEY WHO *neither saw nor heard can know nothing of the matter;* THE THINGS WHICH *he exhibited were wonderful.* From these examples, it is apparent, in the first place, that the relative contains in itself the force of any other pronoun; but it contains something more.

If from any sentence in which there is a relative, that relative be taken away, and the prepositive pronoun which it represents be substituted in its stead, the sentence will lose its bond of union, and stand quite loose and unconnected. Thus, if instead of saying *the man is wise* WHO *speaks little*, we should say *the man is wise* HE *speaks little*, the sentence would be resolved into two; and what is affirmed of the man's wisdom, would have no connection with the circumstance of his speaking little. Hence it is evident, in the second place, that the relative contains the force of a connective as well as of the prepositive pronoun. What kind of connection it denotes is next to be ascertained.

It may be laid down as a general principle, that, by means of a relative pronoun, a clause of a sentence, in which there is a verb, is converted into the nature of an adjective, and made to denote some attribute of a substance, or some property or circumstance belonging to the antecedent noun. Thus, when it is said, *homo qui prudentia præditus est*, the relative clause, *qui prudentia præditus est*, expresses nothing more than the quality of prudence in concrete with the subject *homo*, which might have been equally well expressed by the adjective *prudens*. In like manner, when we say, *vir sapit qui pauca loquitur*, the relative fact expresses the property of speaking little as belonging to the man, and as being that quality which constitutes, or from which we infer, his wisdom; but if there were such a word as *pauciloquens*, that quality might very properly be expressed by it, and the phrase *vir sapit pauciloquens* would express the same assertion with *vir sapit qui pauca loquitur.*

Now if a relative clause expresses that which might be expressed by an adjective, the presumption is, that it may be resolved into the same constituent parts. But every adjective contains the powers of an abstract substantive, together with an expression of connection; and may be resolved into the genitive case of that substantive, or into the nominative with the particle *of* prefixed, which, in English, corresponds to the termination of the genitive in the ancient languages. That the member of a sentence in which there is a relative, may, in every instance, be analysed in the same manner, will be apparent from the following examples. *Vir qui sapit, vir sapiens*, and *vir sapientiæ*, "a man who is wise, a wise man, and a man of wisdom," are certainly phrases of the same import. Again, *homo, cui ingratus est animus, malus fit amicus*, may be translated into Greek, ἀνθρωπος ἀχαριστιας κακος γινεται φιλος; and into English, "the man of ingratitude is a bad friend."

Thus then it appears, that the relative pronoun contains in itself the force of the prepositive pronoun, together with that connection implied in English by the preposition *of*, and in the ancient languages by the genitive case. When one says, *vir sapit qui pauca loquitur*, the relative clause *qui pauca loquitur* expresses that attribute of the man from which his wisdom is inferred. It is conceived by the mind, as stripped of its propositional form, and standing in the place of a substantive noun governed in the genitive case by *vir*. The whole sentence might be thus translated, "the man *of little speaking* is wise;" or, did the use of the English language admit of it, "the man *of he speaks little* is wise." In like manner, when it is said, "Man, who is born of woman, is of few days and full of trouble," the relative clause is equivalent to an abstract noun in the genitive case, and the whole might be expressed in the following manner: "Man *of he is born of woman* is of few days and full of trouble."

It is obvious that these expressions into which, in the instances adduced, the relative clauses have been resolved, will appear extremely uncouth and offensive; but it is not meant to recommend them as common modes of phraseology. Against their being employed as such, present use loudly remonstrates.[1] They are introduced only with a view to show the true import of the relative pronoun; and for that purpose they are well adapted. That pronoun seems to be of use only when there is a deficiency of adjectives or substantives to denote some complex attribute by which we want to limit a general term or expression. Where such adjectives or substantives exist in language, we may indeed use the relative or not at pleasure. Thus we may say, *homo qui grandia loquitur*, or *homo grandiloquus;* because the adjective and the relative clause are precisely of the same meaning. But if the Latins were called upon to translate ανθρωπος αυτοδιδακτος, we believe they must have made use of the relative pronoun, as we know not any corresponding adjective in their language.

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[1] It is worthy of observation, however, that, repugnant as such expressions are to the present idiom of the English language, there is nothing in the nature of the thing that could render the use of them improper. All prepositions, as will be seen afterwards, are expressive of relations subsisting between those objects of which they connect the signs in discourse. Those objects may be denoted, either by single words, and then the preposition will govern a noun; or by assertions, and then it will govern a nominative and a verb. Thus, when it is said, "I came after his departure," the preposition *after* expresses the relation between two events, *my coming* and *his departure*, and governs a substantive noun; but if it is said, "I came after he departed," the preposition in this case (for, as shall be shown afterwards, it is absurd to call it in the one instance a preposition, and in the other a conjunction) expresses the same relation as before, but governs a nominative and a verb.

This last expression is exactly similar to those employed above. When one says, for example, "the man *of he speaks little* is wise," however uncouth the expression may appear from its not being supported by the authority of custom, the preposition *of* is used precisely in the same manner, and serves the very same purpose, as when it is said, "the man *of little speaking* is wise." In both cases it denotes the relation between the two objects, *man* and *little speaking;* only in the one it is prefixed to a noun, in the other to an assertive clause of a sentence, the import of which is to be taken as a noun. Custom has indeed determined that prepositions shall more frequently govern a noun than a nominative and a verb; but they are, in their own nature, equally well adapted to answer both purposes.

But as the pronoun of the third person is merely the substitute of some noun, an objector may ask, What noun is here represented by *he?* "The man *of he speaks little* is wise." Who is meant by the pronoun *he?* We answer, *the man* who is declared to be *wise*. The objection proceeds from inattention to the radical signification of the word *of*, which a late ingenious writer has shown to be the fragment of a Gothic or Anglo-Saxon word, signifying *consequence* or *offspring*. If this be admitted, and, after the proofs which he has given, we think it cannot be denied, the uncouth phrase, "The man *of he speaks little* is wise," may be thus resolved, "The man, *in consequence* (of his mind is) *he speaks little*, is wise;" or, in other words. "The man, *in consequence* of his speaking little, is wise." The same acute writer, Mr Horne Tooke, has shown that *of* and *for*, though of different radical meanings, may often be substituted the one for the other without injury to the sense. Let this substitution be made in the present instance, and the propriety of the phrase will be apparent: "The man is wise *for* he speaks little." It must be remembered, however, that such a substitution cannot be made in every instance, because *for* signifies *cause*, and *of* signifies *consequence*.

The learned and ingenious Mr Harris, in his Treatise on Universal Grammar, has given an analysis of the relative pronoun very different from that which has been given by us. The result of his inquiry is, that the relative is equivalent to another pronoun, together with an expression of connection of that kind which is denoted by the particle *and.* This analysis he exemplifies, and endeavours to confirm, by the sentence, "Light is a body which moves with great celerity." Now, says he, instead of *which* substitute the word *and it*, and in their united powers you see the force and character of the pronoun here treated. But let any one attentively consider these two expressions, "Light is a body *which* moves with great celerity," and "Light is a body *and it* moves with great celerity;" and he will find that they are not precisely equivalent. For, to speak in the language of logic, there is in the first but one proposition, of which the subject is light, and the predicate a complex term expressed by the words, *body which moves with great celerity.* In the second there are two propositions, or two predications, concerning light; first, that it is a body; and, secondly, that it moves with great celerity. The relative clause, in the first case, expresses a property of the antecedent body, which, with that property, is predicated of the subject light; in the second case, this property is removed from the predicate of which it was an essential part, and is improperly converted into a new predication of the subject. The sentence may be resolved upon our principles, and its precise import preserved; as "Light is a body *of it moves with great celerity;*" the clause "it moves with great celerity," is conceived by the mind as having the force of an abstract substantive, and is connected with the antecedent body by the preposition *of*, answering to the termination of the genitive case. This abstract substantive thus connected expresses a quality of the body light. But by this example Mr Harris's doctrine is not exhibited in all its absurdity; it may be proper to try it by another.

Let us suppose that the following assertion is true; "Charles XII. was the only monarch who conquered kingdoms to bestow them on his friends." Here it is evident there is but one proposition, of which the predicate is expressed by the words, "only monarch who conquered kingdoms to bestow them on his friends;" so that the relative clause is a necessary part of the predicate, and has, like an abstract noun in the genitive case, the effect of modifying the general term monarch. Resolve this sentence on Mr Harris's principles, and you have two propositions of which the first is a notorious falsehood: "Charles XII. was the *only monarch, and he* conquered kingdoms to bestow them on his friends." But instead of *and* substitute *of*, thus, "Charles XII. was the only monarch *of he conquered kingdoms to bestow them on his friends,*" and you preserve the true import of the expression.[1]

Are there no cases, then, in which the relative may be resolved into the connective *and* with a prepositive pronoun? Undoubtedly there are, and we shall now endeavour to ascertain them.

Adjectives in language have two different effects upon the substantives to which they belong, according to the nature of the attribute which they express. If the attribute expressed by the adjective be competent to all the species of which the substantive is the specific name, it is plain that the adjective does not modify or limit the substantive, for this obvious reason, that nothing can modify which is not discriminative. Thus, when Horace says, *Prata canis albicant pruinis*, the adjective *canis* denotes a quality common to all hoarfrost; and therefore cannot modify the substantive, because it adds nothing to the conception of which that substantive is the name. But when the attribute expressed by the adjective is competent to some individuals only of the species of which the substantive is the name, the adjective has then the effect of modifying or limiting the substantive. Thus when one says *vir bonus*, he makes use of an adjective which modifies the substantive, *vir*, because it expresses a quality or attribute which does not belong to all men.

The clause of a sentence, in which there is a relative, as it is in every other respect, so is it in this, equivalent to an adjective; it either modifies, or does not modify, the antecedent, according as the attribute which it expresses is or is not characteristic of the *species* to which the antecedent belongs. Thus, when it is said, "Man, who is born of woman, is of few days and full of trouble," the relative clause "who is born of woman," expresses an attribute common to all men, and therefore cannot modify. In like manner, when we say, "SOCRATES, who taught moral philosophy, was virtuous," the clause, "who taught moral philosophy," does not modify. In both these instances the relative clause might be omitted; and it might be said with equal truth, "Man is of few days and full of trouble," and "SOCRATES was virtuous."

But if it be said, *vir sapit qui pauca loquitur*, the relative clause, *qui pauca loquitur*, modifies the antecedent *vir*; for it is not affirmed of every man that he is wise, but only of such men as speak little. So "Charles XII. was the only monarch who conquered kingdoms to bestow them on his friends;" and, "the man that endureth to the end shall be saved;" with many more examples that will occur to every reader.

Now it will be found that it is only when the relative clause expresses such a property or circumstance of the antecedent as does not limit its signification, that the relative pronoun can be resolved into a prepositive pronoun with the conjunction *and*, and that in these cases the relative clause itself is of very little importance. Thus in the assertion, "Charles XII. was the only monarch who conquered kingdoms to bestow them on his friends," where the relative clause is restrictive, the *who* cannot be resolved into *and he* consistently with truth or common sense. But in the expression, "Man, who is born of woman, is of few days and full of trouble," the relative *who* may be so resolved, at least without violating truth, thus, "man is of few days and full of trouble, and he is born of a woman." The only difference between the sentence with the relative *who*, and the same sentence thus resolved, is, that, in the former case, it contains but one predication; in the latter two, and these but loosely connected.

Thus, then, it appears that the general analysis of the

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[1] Mr Harris was probably led into his opinion, from considering the Latin *qui* or *quis* as compounded of *que* and *is* (See *Hermes*, p. 81, 82, third edit.). But the notion of *Perizonius* is perhaps better founded, who, in his notes to the *Minerva* of Sanctius, considers it as immediately taken from the Greek τις, which in the Doric is made κις, and in the Latin *quis*. For it seems highly probable, as some ingenious writers have endeavoured to show, that the Latin is a dialect of the Greek. Of this at least we may be certain, that many words in the former are immediately adopted from the latter.

Pronouns.

relative pronoun is into the particle *of*, and a prepositive pronoun; but that there are also occasions on which it may be resolved into a prepositive pronoun and the particle *and*, without materially altering the sense. Now, what is the reason of this distinction?

If the relative clause be equivalent to an adjective, or to an abstract substantive in the genitive case, it is easy to see that the relative itself may, in every instance, be resolved into another pronoun and the particle *of*; but it will not perhaps be quite so evident how it should in any instance be resolved by *and*. This last analysis has its foundation in the nature of the particles *of* and *and*; or, to speak more properly, in the nature of the attribute which the relative clause expresses. Both the particles *of* and *and* are used to link or join conceptions together; but with this difference, that *of* has the effect of making the conceptions it connects figure in the mind as one object; whereas the conceptions connected by *and* are still conceived separately as before. To explain ourselves by an example: suppose we take two words, *man* and *virtue*, which denote two distinct ideas or conceptions, and join them together by the particle *of*, saying *man of virtue*; the mind no longer views them separately as significant of two conceptions, but of one. Take the same words, and join them together by the particle *and*, saying *man and virtue*; the conceptions denoted by *man* and *virtue* are still viewed separately as *two*, and notice is only given that they are collaterally connected.

This being the case, it follows, that when the relative modifies the antecedent, or, in other words, when the relative clause and the antecedent denote but one conception, the relative must then be resolved by *of*, in order to preserve this unity of conception. But when the relative does not modify the antecedent; that is, when its clause does not express any necessary part of a complex conception, then the conceptions or ideas denoted by the relative clause and the antecedent may be viewed separately as two; and therefore the relative may be resolved into the corresponding prepositive pronoun and the particle *and*.

To state this reasoning in a light somewhat different. As every relative clause, which expresses an attribute that is not applicable to a whole genus or species, must necessarily modify some general term, that is, restrict its signification; and as that general term must belong either to the subject or to the predicate of a proposition; it is evident, that every such relative clause is a necessary part of that subject or predicate in which its antecedent stands. If therefore a relative clause, which modifies, be taken away either from the subject or the predicate of a proposition; or if that connection, in consequence of which it modifies, be dissolved, which is always done when the relative is resolved by *and*; then the proposition itself will not hold true. The reason is, that the subject or the predicate becomes then too general; for, in the one case, something is predicated of a whole genus or species, which can be predicated only of some individuals of that genus or species; and in the other, a general predication is made where only a particular one can be applied. Thus, if it be said, "all men who transgress the laws are deserving of punishment;" the subject of the proposition is expressed by the words, "all men who transgress the laws." Take away the clause of the relative "who transgress the laws," and say, "all men are deserving of punishment;" and you have a proposition which is not true, because that is affirmed of the whole species which can be affirmed only of some individuals. Retaining now the clause of the relative, but resolving it by *and*, you have the same proposition as before; and together with it, in this instance, another which is equally false, namely, "all men, *and they* transgress the laws, are deserving of punishment;" that is, "*all men* are deserving of punishment, and *all men* transgress the laws."

But when the attribute expressed by the clause of the relative is characteristic of the genus or species of the antecedent, and consequently applicable to every individual which that genus or species comprehends, the relative clause may be entirely omitted without affecting the truth of the proposition, which is already as general as it can be. As in this case the import of the relative clause is not restrictive of the signification of the antecedent, it is of little consequence whether the attribute be represented by the connective part of the relative, as *of* the antecedent, or be affirmed to belong to the antecedent in a separate assertion. Thus it matters not much, whether we say, "man, who is subject to death, ought not to be too much elated," that is, according to our analysis, "man *of he is subject to death*, ought not to be too much elated;" or whether, forming the relative clause into a separate assertion, and connecting the two by the particle *and*, we say "man, and he is subject to death, ought not to be too much elated." In the one sentence, indeed, the reason is implied why man should not be too much elated, his being subject to death; and in the other, no reason is assigned for this; we only affirm that man is subject to death, and likewise that he should not be too much elated; but as both affirmations are equally true and evident, it is of little consequence, in such a case as this, whether the reason upon which either is founded be implied or not.

From the whole of this investigation, the following conclusions may be deduced as sufficiently established: 1*st*, That the relative pronoun contains in itself the united powers of a connective and another pronoun. 2*dly*, That *of* is the connective of which, together with another pronoun, it contains the powers, as in every possible instance it may be resolved into these constituent parts, and the import of the sentence in which it has place remain unaltered. 3*dly*, That in the ancient languages the relative clause of a sentence has the import of an abstract substantive in the *genitive case*; in English, with the particle *of* prefixed. 4*thly*, That the relative pronoun is of necessary use only where there is a deficiency of adjectives or substantives to denote some complex attribute, by which we want to limit a general term or expression; but that where such adjectives or substantives exist in language, we may use the *relative* or not at pleasure. And, 5*thly*, That though, in cases where the relative clause does not limit a general term, the relative pronoun may, without violating truth, be analysed by *and*; yet such analysis is never proper, as it gives two predicates to the same subject, which, in the original proposition, had but one predicate.

If the clause of the relative be equivalent to an adjective, as in every instance it seems to be, it will naturally occur, that in the ancient languages, the relative should agree with its antecedent in gender, number, and case. They do agree for the most part in gender and number; in case they cannot often, because the very intention of introducing a relative into language is to represent the antecedent in a different case. Whenever we have occasion to use a substantive or noun in a clause of a sentence, and afterwards to express by another clause, in which there is a verb, an attribute of the object denoted by that substantive, we then employ the relative pronoun. Now it seldom happens that the two clauses admit of the same regimen; and hence the case of the relative is often necessarily different from that of the antecedent, as the case of each must be accommodated to the clause in which it is found. Thus we cannot say, "Deus *qui* colimus bonus est;" but, "Deus *quem* colimus bonus est;" because the regimen of the verb *colo* is always the accusative.

This shows the necessity of introducing a relative into those languages which give inflexions to their nouns. Were all the nouns of a language indeclinable, there would be little occasion for a relative; and accordingly in English it is often omitted. Examples are frequent in our best authors. Suffice it to quote the following.

> For I have *business would employ* an age.—*Rowe.*
> I had several *men died* in my ship of calentures.—*Swift.*
> They affect to guess at the *object they* cannot see.—*Bolingbroke.*

We are not ignorant that our most eminent grammarians consider such expressions as chargeable with impropriety; and we are far from recommending them in any dignified or solemn composition. But in the instances adduced there is not the smallest degree of obscurity; at least there is none occasioned by the omission of the relative. The reason seems to be, that the mind can easily, by an effort of its own, make the antecedent unite, first with the one clause, and then with the other. Thus, when it is said, "I have business would employ an age," the mind can, without any difficulty, as the word business has no inflexions, consider it first as the objective case after *have*, and then as the nominative to *would employ*; but this cannot be so easily done in the ancient languages, where the termination of the noun is changed by the variation of its cases.

Both in the learned and in the living languages the relative has different forms, corresponding to the different genders of nouns; and by these it gives notice whether it is applied to persons, or to things without life. Thus in the English language we say, The man or the woman *who* went to Rome; The tree *which* stands on yonder plain. It admits likewise, when applied to males or females, a variation of cases similar to that of the personal pronouns. Thus we say, The man *whose* book is now before me; The man or woman *whom* I saw yesterday; but the neuter admits of no such distinction,[1] as we say, The tree *which* I saw, as well as The tree *which* stands on yonder plain. In modern languages the relative admits not of any distinction to denote number; for we say, The *man* or the *men* who came yesterday; The *man* or the *men* of whom I speak.

In English, the word *that*, which by some has been called a demonstrative pronoun, by others a pronominal article, and by us a definite article, is often used instead of the relative, as in the following examples: "He is the same man *that* I saw yesterday; he was the ablest prince *that* ever filled a throne." With regard to the principle upon which this acceptation of the word *that* depends, we beg to offer the following conjecture.

In English, from the phlegmatic arrangement of the language, occasioned by the want of inflexions and conjugations, the place of every part of a sentence is almost uniformly determined, and very little variety is allowed in the collocation of the words. The adjective is almost always placed in apposition with its substantive, and the nominative with its verb. In consequence of this uniformity in the collocation of the words, the mind acquires a habit of connecting in idea any kind of word with the place in which it is used to stand; and is naturally led to consider every word which stands in such a place as belonging to such a class. Hence it is, we imagine, that the definitive *that* passes into the nature of the relative pronoun; as in those instances in which it occupies the place of the relative, it was natural to consider it as having the same import. Yet the word *that* has undoubtedly in itself no more the force of the relative pronoun than *the* or *this*, or any other definitive whatever. In such expressions as the foregoing, it is not improbable that originally the clause of the definitive *that*, which we now call the *relative* clause, was thrown in as a kind of modifying circumstance, thus, "The book (I read that) is elegant," where the speaker, finding the word book too general for his purpose, throws in a clause to qualify and restrict it, or to confine his affirmation to that particular book which he is then reading. We can easily suppose that through time the definitive *that* in such an expression might be transposed or removed from its own place to that of the relative; so that the expression would run thus, "The book *that* I read is elegant;" which would be considered as precisely equivalent to "The book *which* I read is elegant." This opinion is not a little confirmed by a similar use of the article in Greek, which, though undoubtedly a definitive like the English *the*, is often used instead of the relative pronoun. Numberless examples may be found in Homer and Herodotus, especially in the latter, who seldom uses what is properly called the relative. We shall produce one instance from each.

> *Εισεαι Ατρειδην Αγαμεμνονα,* ΤΟΝ *περι παντων*
> *Ζευς ενεηκε πόνοισι διαμπερὲς.*—*Homer.*
>
> *Ορκιοισι γαρ μεγαλοισι κατειχοντο* (*scil.* *Αθηναιοι*) *δεκα*
> *ετεα κρησεσθαι νομοισι* ΤΟΥΣ *αν σφισι Σολων θηται.*—*Herodot.*

We have said that the interrogative pronouns, as they are called, *who*, *which*, *what*, are intimately connected with relatives; we now affirm, that the two first of these words are nothing but relatives, and that the last contains in itself the united powers of a relative and a definitive. With respect to cases, number, and gender, the words *who* and *which*, when employed as interrogatives, differ not from the same words when employed as relatives; and we hold it as a maxim, without which science could not be applied to the subject of language, that the same word has always the same radical import, in whatever different situations it may be placed. To understand this, it is necessary to observe, that all men have a natural propensity to communicate their thoughts in the fewest words possible: hence it follows, that words are often omitted which are necessary to complete the construction of the sentence; and this nowhere happens more frequently than in the use of *who* and *which*. In sentences where these words are confessedly relatives, we often find them without an antecedent; as,

> *Who* steals my purse steals trash.—*Shakspeare.*
> Which *who* would learn, as soon may tell, &c.—*Dryden.*
> Qui *Bavium non odit, amet tua carmina, Mœvi.*—*Virg.*

That is, "*He* who steals my purse;" "Which *he* who would learn, as soon may tell;" and "Ille *qui Bavium non odit*," &c. Such abbreviations occasion no obscurity, because from previous circumstances the hearer knows the mind of the speaker and the persons to whom he refers. But it is not with respect to the relative and antecedent only that such abbreviations have place; in sentences of a different form, whole clauses are sometimes omitted, whilst the meaning of the speaker is made sufficiently plain. Thus, when King Richard III. having lost his horse in battle, exclaims,

> A horse! a horse! my kingdom for a horse!

there is no complete thought expressed; but the circumstances in which the king then was, enabled those about him to understand that he *wanted a horse*. Accordingly Catesby answers him,

> Withdraw, my lord; I'll help you to a horse.

In like manner, when a person asks a question, his expression is frequently incomplete; but the tone of his voice, or some other circumstance, enables us to ascertain his meaning, and to supply, if we please, the words that are omitted. Thus when it is said, *An fecisti?* nothing more is expressed than *If you did it*, the Latin *an* being nothing else but the Greek *αν*, *si*; but some circumstance enables the person who hears it to know that the meaning is, "Say if you did it." Let us apply these observations to the words *who* and *which*. If these words be relatives, and if our analysis of the relative be just, it is obvious, that no complete meaning can be contained in the clause, "Who is your principal friend?" for that clause contains nothing more than the circumstance of being your principal friend predicated of some unknown person; "of he is your principal friend." That this is indeed the case, every man may be convinced, by asking himself what he means by the interrogative *who* in such a sentence; for he will find it impossible to affix to it any meaning without supplying an antecedent clause, by which that which is called an interrogative will be immediately converted into the relative pronoun. The custom, however, of language, and the tone of voice with which the relative clause is uttered, intimates, without the help of the antecedent, the wish of the speaker to be informed by the person addressed of the name and designation of his principal friend; and we know that the sentence when completed is, "Tell me the name and designation of the person who is your principal friend." Again, when the prophet says, "Who is this that cometh from Edom, with dyed garments from Bozrah?" he utters but part of a sentence, which when completed will run thus: "*Describe the person* who cometh from Edom (this is that *person*), with dyed garments from Bozrah." He sees a person coming from Edom, of whose name and designation he is ignorant; he calls upon some one for information concerning these particulars; and that there may be no mistake, he describes the unknown person as having "dyed garments from Bozrah;" but lest even that description should not be sufficiently accurate, he throws in the definitive clause, "this is that person," pointing at him, we may suppose, with his finger. *Which*, used as an interrogative, indicates a wish of knowing a particular person or thing out of more than one mentioned; as, "Which of the two did it?" that is, "*Tell me the one* of the two which did it;" for, in old English, *which* as a relative is often used, where in modern English we should say *who*; and that mode of speech is still retained when the antecedent is omitted, and the relative clause employed to indicate such a wish as that before us. *What* includes in itself the signification of a definitive and a relative pronoun; as, "from what has gone before, *what* follows may easily be guessed;" where the word *what* is equivalent to *that which*. When therefore we say, "What rude fellow is that?" our meaning is, "*Describe* that *person* who is that rude fellow." Upon the whole, then, it is evident, that the words called interrogatives are merely relative pronouns; and that interrogative sentences are relative clauses uttered in such circumstances as to enable the hearer to supply the antecedents necessary to complete the meaning.

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[1] "*Whose* is by some authors made the possessive case of *which*, and applied to things as well as persons; I think, improperly.—*Lowth.*

In fine, we have seen that substantives are either primary or secondary; or, in other words, nouns or pronouns. Nouns denote substances, and those either natural, artificial or abstract. They moreover denote things either general, or special, or particular; and a general or specific name is made to denote an individual by means of words called articles or definitives. Pronouns are the substitutes of nouns, and are either prepositive or subjunctive. The prepositive is distinguished into three orders, called the first, the second, and the third person. The subjunctive, otherwise called the relative, includes the powers of all those three, having superadded as of its own the peculiar force of a connective.

IV. *Of Verbs.*

The words which we have hitherto considered are commonly called substantives primary or secondary, and definitives; because nouns are significant of substances; pronouns are the substitutes of nouns; and the article serves to ascertain the extent of the noun, and to determine whether on any occasion it be significant of a whole class of substances, or only of one individual. But substances are of importance to mankind only on account of their various qualities or attributes; for their internal texture is a thing of which we are profoundly ignorant, and with which we have no manner of concern. Thus, experience teaches us that certain vegetables are pleasant to the taste, and wholesome food; whilst others are unpleasant and poisonous. The former kinds are valuable only for their qualities or attributes; and they are the qualities or attributes of the latter that make them worthless or hurtful. A horse is strong, and swift, and docile, and may be trained to carry a man on a journey, or to drag a plough. It is for his strength, swiftness, and docility, that he is the most valuable of all quadrupeds. One man is brave, another learned, and another eloquent; and by possessing these different qualities or attributes, each is fitted for a different station in society. It is plain, therefore, that in contemplating substances, our attention must be principally bestowed upon their qualities, and that the words which serve to denote these qualities must be an essential part of language. Such words are in general called attributives, and are of three sorts, verbs, participles, and adjectives.

Of all the constituent parts of speech, none has given the grammarians greater trouble than the verb. The vast variety of circumstances which it blends together in one word throws very considerable difficulties in the way of him who attempts to analyse it and ascertain its nature; at the same time that, by its eminent use in language, it is entitled to all the attention which can be bestowed upon it. To the discussion of the verb, Mr Harris, whose notions of this as of the other parts of speech have been generally adopted by the subsequent writers on grammar, has dedicated a large proportion of his book, in which he has thrown out many excellent observations, mixed, as it appears to us, with several errors. We have already observed, that no man is ignorant when he uses what is called a *verb* and when a *noun*. Every schoolboy knows that the words *is*, *loveth*, *walketh*, *standeth*, in English, and *est*, *amat*, *amatur*, *ambulat*, *stat*, in Latin, are verbs; he knows likewise that they are of different kinds, that some of them are said to be active, some passive, and some neuter. But it should seem that the first object of our investigation ought to be the characteristic of the verb, or that which all these words have in common, and which constitutes them *verbs*, distinguishing them from every other species of words. Now it is obvious to the slightest attention, that every verb, whether active, passive, or neuter, may be resolved into the substantive verb IS, and another *attributive*; for *loveth* is of the same import with IS *loving*; *walketh*, with IS *walking*; and *amat*, with *amans est*. But *loving*, *walking*, and *amans*, are not verbs; and hence it follows, that the characteristic of the verb, that which constitutes it what it is, and cannot be expressed by other words, must be that which is signified by the word IS; and to us that appears to be neither more nor less than assertion.

Assertion, therefore, or predication, is certainly the very essence of the verb, as being that part of its office, and that part only, which cannot be discharged by other kinds of words.[1] Every other circumstance which the verb includes, such as attribute, mode, time, it may be possible to express by adjectives, participles, and adverbs;

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[1] Hence a common noun, or even a proper name, may be converted into a verb by being rendered assertive or predicative. Thus, in the indignant rebuke addressed by Rob Roy to Rashleigh Osbaldistone, "Don't Mr or *Campbell* me, sir; my foot is on my native heath, and my name is Macgregor;" the proper name "*Campbell*," being that which Rob usually assumed in his lowland and southern expeditions, is converted into a verb, and great force thereby given to the exclamation. (*Dr Hunter.*)

but without a verb it is impossible to predicate, to affirm or deny, any one thing of any other thing. The office of the verb, then, when stript of all accidental circumstances, seems to be merely this: "To join together the subject and predicate of a proposition." Its powers are analogous to those of the sign + in algebra, which does not affect the separate value of the quantities between which it is placed, but only indicates their union or coalescence. To explain by an example: When we say, *Cicero eloquens, Cicero wise:* these are imperfect sentences, though they denote a substance and an attribute. The reason is, that they want an assertion, to show that such an attribute appertains to such a substance. But when we insert the word *was,* we join the substance and attribute together; we give notice that the *wisdom* and *eloquence* are applied to *Cicero,* and we do nothing more; we neither increase the wisdom nor diminish it, we neither make it real nor imaginary; for it was supposed in all its extent when the words *Cicero* and *wise* stood independent of each other. We may indeed use the verb in a form which implies not an assertion only, but likewise an attribute; as when we say, *George writeth,* or *George walketh.* But as whiteness or any other particular colour is not of the essence of a horse, an animal which is found of all colours; so, in the phrases quoted, the attribute, though implied, is not of the essence of the verb; for it may be equally well expressed by other words, as *George* IS *writing,* and *George* IS *walking,* which are phrases of the very same import with *George writeth* and *George walketh.*

In resolving every verb, whether active, passive, or neuter, into the substantive verb IS and another attributive, we have the honour to agree with all the grammarians; but to the word IS itself the learned author of *Hermes* has given a meaning which, as a verb, it does not admit. He observes, that before any thing can be the subject of a proposition, it must exist; that all existence is either absolute or qualified, mutable or immutable; that the verb IS can by itself express absolute existence, but never the qualified, without subjoining the particular form; and that it signifies both mutable and immutable existence, having in these cases different meanings, although the sentences which he gives as examples are evidently constructed in the same manner, and consist of the same parts of speech. His examples are: Of absolute existence, B IS: of qualified, B IS *an animal*; of mutable, *This orange* IS *ripe*; of immutable, *The diagonal of the square* IS *incommensurable with its sides.* But if predication be the essence of verb, all this is nothing to the purpose, and part of it is not true. It is not true that the verb IS ever varies its signification; for it has as verb no connection with existence of any kind. All such circumstances are superadded to its verbal nature; or, to speak more accurately, we infer such circumstances from our previous knowledge of the objects concerning which the predication is made. When we say, "*This* orange IS ripe," we do indeed mean, as Mr Harris observes, that it *is* so now at this *present* in opposition to past and future time; but it is not the verb IS, but the definitive *this,* which fixes the time of maturity, as well as the place, of the orange. If we had said, Oranges ARE ripe, we might have been properly asked, When and where are they ripe? although the same verb is used in both sentences. Even in the sentence B IS, absolute existence, the most simple of all, is inferred, and not expressed, by the verb; and the inference is made from this obvious principle, that when one utters a mark of predication, we naturally conclude that he means to predicate something of the subject. If he adds no specific predication, as B IS ROUND, we apply to B the most general that we can; and what other species is so general as existence?

That the idea of existence, considered as mutable or immutable, is not contained in the verb IS itself, but is derived from our knowledge of the objects concerning which the predication is made, appears manifestly from this, that if a person be supposed ignorant of the meaning of the words GOD and MAN, whilst he knows that of IS, the uttering of the two propositions, *God is happy,* and *This man is happy,* will give him no notice of existence considered as mutable or immutable, temporary or eternal.[1] His conclusion with respect to these modes of existence, if any such conclusion be drawn at all, must be derived entirely from his previous knowledge of the nature of God and the nature of man.

Some of our readers may possibly think this notion of verb too abstract and metaphysical; yet what other circumstance than mere predication is essential to that species of words? We say *essential*; for we are inquiring, not what is expressed by each individual verb, but what it is which is equally expressed by all verbs, and which distinguishes them from the other parts of speech. And if it be true, that every thing which the verb implies, predication alone excepted, may be expressed by other parts of speech, and that no other parts of speech can predicate, then we think ourselves warranted to affirm, that simple predication is the essential characteristic of *verb*; that every word which predicates is a VERB; and that nothing is so which does not predicate.

It must not, however, be concealed, that a doctrine very different from this has been maintained by a writer of distinguished abilities. "We have *energy* expressed," says Dr Gregory,[2] "and of course a verb constituted without affirmation, when we wish or command; without command, when we affirm or wish; without wish, when we command or affirm; yet in all these cases we have equally and indisputably a verb."

That in all these cases we have a verb, is indeed indisputable; but we hold it to be equally indisputable, that in all these cases we have affirmation. The ingenious author has given no direct example of a wish or command uttered without affirmation; and a feeling or sentiment which is not uttered has nothing to do with language; but he has given a sentence in which there are three verbs, that in his opinion denote no affirmation, but a very plain supposition. If a supposition can be expressed without affirmation, we shall very readily allow that a wish or command may be so expressed likewise. The doctor's supposition is thus expressed: "*Had* any punishment ever overtaken you for your broken vows; *were* but one of your teeth growing black, or even *were* but one of your nails growing less beautiful, I should believe you." It is almost superfluous to observe, that to every verb not in the infinitive mode there must be a nominative, and to every active verb an object, whatever be the arrangement of the sentence in which such verbs are found. These are truths known to every schoolboy; the reasons of them shall be afterwards given. It is likewise undeniable, that in the sentence before us the nominative to "had" is "any punishment;" to the first, "were one of your teeth;" and to the second, "one of your nails." But the sentence arranged in grammatical order, with the several nominatives before their respective verbs, is evidently elliptical; and the conjunction *if* must be supplied as well to complete the construction as to make sense of the passage. "*If* any punishment had ever overtaken you; *if* but one of your teeth were growing black, or even *if* but one of your nails were growing less beautiful, I should believe you." Now it has been proved, by such evidence as leaves no room for doubt, that *if*, though called a conjunction, is in fact a verb in the imperative mode, of the same import with *give*; so that we may substitute the one for the other without in the smallest degree altering the sense. The sentence will then run thus: "*Give* any punishment had ever overtaken you; *give* but one of your teeth were growing black, &c. I should believe you." It is therefore so far from being true, that *had* and *were*, when the sentence is completed, express no affirmation; that it is only upon granting the truth of the affirmation which they denote that the speaker says, "I should believe you." "Any punishment had ever overtaken you," is plainly an affirmation; *if give* that affirmation, *admit its truth*, "I should believe you." But it cannot be supposed that *had* and *were* change their significations by a mere change of place, or that by being removed from the middle to the beginning of a clause they lose their original import, and come to denote something entirely different. Were this the case, every attempt to ascertain and fix the general principles of grammar would be as ridiculous as an attempt to arrest the course of time. For what purpose, then, it may be asked, if the verb always denotes affirmation, is it removed from the middle to the beginning of the clause, when supposition is implied, as in the present instance? We answer, that supposition is neither more nor less than conditional affirmation; that when such affirmation is completely expressed, the verb is not removed to the beginning of the clause; and that such removal takes place only when the clause is elliptical, being merely an artificial contrivance in language, to show the reader or hearer that some such word as *if*, demanding the truth of the affirmation, is omitted for the sake of dispatch. This is evident; for when the word requiring the affirmation to be granted is supplied, the verb must be restored to its place in the middle of the clause. Such abbreviations, and such contrivances to mark them, are frequent in all languages, as will be seen more clearly when we come to treat of modes or moods. Upon the whole, then, we are compelled reluctantly to differ from this writer, and still to think that simple predication is the essence of the verb.

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[1] The truth of this observation may be proved by experiment, as, for instance, by uttering to a man of good common sense these two propositions, taking care to express the words *God* and *man* in a language which he does not understand. Thus, *Deus* is *happy,* and *hic homo* is *happy,* uttered to a man totally unacquainted with the Latin tongue, will contain no notice of existence considered as mutable or immutable.

[2] *Theory of the Moods of Verbs,* published in vol. ii. of the Transactions of the Royal Society of Edinburgh.

Should we be required to exemplify our theory by language, and to produce instances of this simplified verb in practice, we might answer, that the not being able to produce such instances would be no good argument against the truth of our principles. It is the nature of language to express many circumstances by the same word, all of which, however, are not essential to distinguish the species to which that word belongs from the other species of words; and it is the nature of man to infer from discourse many things which are not actually expressed. Perhaps, however, something very nearly approaching to an exemplification of our idea of a simple verb will be found in the proposition, "The three angles of every plane triangle *are* equal to two right angles." What other office the verb *are* here performs than simply to join the subject and predicate, it is difficult to perceive. It does not give notice of time; or such notice, if given, is an imperfection; for the truth of the proposition is independent of time. Neither ought it to imply existence; for the proposition would be true were there neither a triangle nor a right angle in nature.

This idea of verb, when well considered, will be found just; but should any of our readers suspect it of novelty, and on that account be disposed to condemn it, we have only to request that he will restrain his censure till he has examined the writings of others, and nicely observed the several states of his own mind in discourse; for meditation may perhaps show him that our theory is not false, and inquiry will satisfy him that it is not novel.[1]

But although it is certain that assertion, and assertion only, is essential to the verb, yet the greater part of that species of words which grammarians call *verbs* are used to denote an attribute as well as an assertion; or, in the language of logic, they express both the copula and the predicate of a proposition; thus, *he liveth, he writeth, he walketh*, are phrases equivalent in all respects to *he is living, he is writing, he is walking*. Now, of attributes, some have their essence in motion, as *walking*; some in the privation of motion, as *resting*; and *others* have nothing to do with either motion or its privation, as *white* and *black*. But all motion and all privation of motion imply *time* as their concomitant; and a substance may have an attribute to-day which it had not yesterday, and will not have to-morrow. This is self-evident; for a man may be at rest to-day who yesterday was walking, and to-morrow will be on horseback; and a sheet of paper may have been white yesterday which to-day is black, and at some future time will be of a different colour. As, therefore, all motions and their privations imply time; and as a proposition may be true at one time which is not true at another, all *verbs*, as well those which denote both an attribute and an assertion, as those which denote an assertion only, come to denote *time* also. Hence the origin and use of *tenses*, which are so many different forms assigned to each verb, to show, without altering its principal signification, the various *times* in which the assertion expressed by it may be true. Whether these various forms of the verb be essential to language, it is vain to dispute. They have place in every language with which we are acquainted; and as the use of the verb is to affirm one thing of another, it is absolutely necessary that the *time* when such or such an affirmation is true be marked by *tenses*, or some other contrivance. Concerning tenses, therefore, we shall throw together some observations, which, *mutatis mutandis*, are applicable to every language, premising only a general remark or two which seem necessary in order to proceed with precision.

Time, although its essence consists in succession continued and unbroken, may yet be considered by the mind as divided into an infinite number of parts. There is, however, one grand division which necessarily occurs, and to which the different *tenses* of verbs are in all languages adapted. Computing from some portion conceived to be

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[1] "Besides words, which are names of ideas in the mind, there are a great many others that are made use of to signify the connexion that the mind gives to ideas or propositions one with another. The mind, in communicating its thoughts to others, does not only need signs of the ideas it has then before it, but others also to show or intimate some particular action of its own at that time relating to those ideas. This it does several ways; as IS and IS NOT are the general marks of the mind affirming or denying." (Locke on *Human Understanding*.) "Verbum est pars orationis variabilis, aliquid de re aliqua dici seu affirmari significans. Vulgaris vero definitio est, quod, sit pars orationis, quæ agere, pati, aut esse significet. Sed nostra accuratior, magisque ex ipsa verbi cujusvis natura petita videtur. Cæterum *το affirmari* laxiore hic sensu accipimus, pro eo quod prædicari dialectici appellent, quo non modo affirmationes strictius sic dictæ, sed negationes etiam interrogationesque includuntur." (Ruddiman, *Grammaticæ Institutiones*; see also Beattie's *Theory of Language*.)

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present, all time is either *past* or to *come*. Hence the tenses of verbs are threefold; some denoting time *present*, some time *past*, and others time *future*.

Again, from the very nature of time, it must be obvious that all its parts are relative; or, in other words, that no portion of it can be ascertained by any thing *inherent in itself*, but only by referring it to some other portion, with respect to which it is past, present, or to come. In this respect time is perfectly analogous to space; for as the space in which any object exists cannot be described but by stating its relation to some other space, so neither can the time of any attribute or action be determined, but by stating its relation to some other time. When, therefore, we would mark the time of any action or event, we must previously fix upon some point to which we may refer it. If this point be known, the time referred to it will also be known; but if the former be not known, neither will the latter.

Lastly, in contemplating an *action*, we may have occasion to consider it as *going on*, or as *finished*. This distinction is likewise denoted by the different tenses of verbs. In treating, therefore, of the tenses, there are two things to which attention ought principally to be turned;—the *relation* which the several tenses have to one another in respect of time; and the notice which they give of an action's being *completed* or *not completed*.

Having premised these remarks, we proceed now to the tenses themselves; of which Mr Harris has enumerated no fewer than twelve. Of this enumeration we can by no means approve; for, without entering into a minute examination of it, nothing can be more obvious, than that his inceptive present, *I am going to write*, is a *future* tense; and his completive present, *I have written*, a *past* tense. But, as was before observed of the classification of words, we cannot help being of opinion, that to take the tenses as they are commonly received, and endeavour to ascertain their nature and their differences, is a much more useful exercise, as well as more proper for a work of this kind, than to raise, as might easily be done, new and hypothetical theories on the subject.

It has already been observed that all the tenses must necessarily mark *relative time*. In one sense this is extremely obvious. The present tense is used in contradistinction to both the past and future, and marks an attribute or action as existing in neither. The past and the future are in like manner used in contradistinction to the present, and mark an attribute or action which exists not now, but which in the one case has existed formerly, and in the other will exist at some time coming. But besides this relation of contradistinction subsisting among the tenses, there is another of co-existence, as we may call it, to which it is of great consequence to attend, especially in examining the nature of the present.

The present tense refers not only to something which is past or future, but also to something with which the attribute or action of the verb is contemporary. This reference is necessarily implied in its very name; for we cannot say of any thing that it is present, without implying at the same time that there is something else with which it is present. Hence it appears with how little reason Mr Harris and others have given us an aorist of the present, as marking present time indefinitely in contradistinction to *other* presents, which have been called *inceptive*, *extended*, and *completive presents*. For from what has been said, it follows, that the present tense is necessarily and from its very nature perfectly indefinite, and can of itself give notice of no precise or determinate portion or point of time whatever. A thing may have been present fifty years ago, may be present now, or at any future period. This tense implies the relation of co-existence between two or more things; but without some auxiliary circumstance, it cannot in any language mark the particular portion of time in which those things exist. The indefinite nature of this tense is indeed most clearly seen in that use of it in which Mr Harris has styled it the aorist of the present; that is, in cases where it is employed to denote the repetition of an action which the agent is accustomed frequently to perform, or to express propositions of which the truth is evinced by general experience; as in the following examples:—

> Hypocrisy......the only evil that *walks*
> Invisible, except to God alone.
>
> *Ad pœnitendum* properat *qui cito judicat.*

In these instances it is plain that there is no particular time pointed out; the propositions are *true*, or apprehended as true, at all times. Although the actions, therefore, of "walking" and "hastening" are expressed as present, it is impossible from the expressions to determine any precise point of time when they are present.

But if the *present tense* be thus indefinite, how, it may be asked, are we to ascertain the particular time which is intended? We answer, it is to be ascertained, either by stating the action of the verb as existing in some time already known, or by inference. If, for example, we say, "Millions of spiritual creatures *walk* the earth unseen," the proposition is general, and the time of walking undetermined. But if we add, "both *when* we *wake* and *when* we *sleep*," the *time* is by this addition ascertained and specified; for if the time when men wake and sleep be known, the time when these spirits walk the earth is also known. When no specifying clause is given by which to determine the time of the present tense, it is very commonly determined by inference. Thus, if one use such an expression as "He *sleeps* while I am *speaking to him*," the time of his sleeping is ascertained by the subsequent clause of the sentence; but if it be said simply, "he sleeps," without assigning any data from which it may be concluded when his sleeping is present, we very naturally infer that it is at the instant when we receive the information of his sleeping. Such inferences as this are common in language. The mind is desirous to obtain complete information on every subject, and therefore frequently supplies to itself what is not expressed in the speech of others.

Both these ways of ascertaining the precise time of the present tense are excellently illustrated by the use of the word present as applied to space. Take a familiar example: "His brother and he were *present* when I read the letter." It is at first sight evident that this expression is perfectly indefinite. But if it be said, "His brother and he were *present at your house* when I read the letter," the place of action is then determined by being referred to a portion of space which is known. If no such reference be made, the person who hears the speech uttered must either remain ignorant of the place intended, or he must ascertain it to himself by inference; and he will probably infer it to be that in which the speaker is at the time of his uttering the indefinite sentence. This leads us to observe, that such inferences are not often made without sufficient foundation. Various circumstances may assist the reader or hearer in making them, and prevent all danger of mistake. He may have the evidence of sense, or of something preceding in the discourse, and a number of other particulars, to warrant his conclusion. Thus, if, when sitting by a large fire, any one pronounce the words "I am too warm," those to whom he addresses his speech are authorized to conclude that he is too warm at the time of speaking, unless he expressly prevent the drawing of that conclusion by adding some such clause as "when I wear a great coat."

It is strictly demonstrable, and has been in fact demonstrated by Mr Harris, that there is no such thing as present time. Yet do we not only conceive time as present

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and existing, but frequently as extended to a very great degree. We speak not only of the present instant, or the present day, but also of the present year, and even of the present century. This manner of conceiving time is indeed loose and unphilosophical, but it is sufficient for the ordinary purposes of language. To express time as it really is, we ought to say, the passing day, the passing year, and the passing century; but in common discourse we denominate any portion of time present, in which the present now or instant is included, although it is obvious that part of that portion is past, and the remainder of it future. From the very nature of time thus conceived to be present, the tense now under consideration must represent the action of the verb as commenced, and not finished; for as time is in continued succession, and accompanies every action, when any action is *not* commenced, it exists not in any time, although it may exist hereafter in time which is now future; and when it is finished, it exists no longer in time present, but in *time past.* Hence the absurdity of introducing into a theory of the tenses an inceptive present and a completive present; for these terms imply each a direct contradiction.

After having said so much respecting the present tense, we shall have but little to say of the *præter-imperfect.* It states an action in regard to time as *past;* and in respect of progress, as *unfinished.* *Legebam,* I was reading at some time, but my reading was then incomplete; I had not finished the book or the letter. We must here observe, however, as we did with respect to the present tense, that although the præter-imperfect represents the action as past, it does not inform us in what precise portion of past time the unfinished action was going on; this circumstance must either be given in separate words, or be inferred by the hearer. If one say simply, *Legebam,* the person to whom he addresses his speech will conclude that the time of his reading is past with respect to the present time of his speaking. But if he say *Legebam antequam venisti,* he expressly states the action of reading as past with respect to the time in which his hearer came to the place where they both are at the time of speaking. The time of the præter-imperfect is always past with respect to the present instant when the imperfect is used, and of this the tense itself gives notice; but it may also be past with respect to some other time, and of this it conveys no information.

If we join two præter-imperfects together, the expression will state the co-existence of two progressive actions, both of which were going on at a time *past* in respect of some determinate time given or supposed. *Cum tu scriberes ego legebam;* "when you were writing I was reading." Hence the præter-imperfect has by some grammarians been called the relative present; a name which, however, is by no means exclusively applicable to this tense. When the præter-imperfect is by the conjunction *and* joined in the same sentence with a plusquam-perfect, the two tenses express two actions, both prior to the time of speaking; but the one as having continued after the other was finished. Thus Æneas, speaking of the destruction of Troy, says, that after having escaped with his father and followers, he returned to the city in quest of his wife, and went directly to his own house; but there, continues he, *Irruerant* Danai, et tectum omne *tenebant,* "the Greeks *had rushed in,*" that action was over and completed *before his arrival;* but the act of "possessing the whole house," *tenebant,* was not over, but still continuing.

But it is necessary that the verb should denote actions which were complete or perfect in past time, as well as those which were incomplete or imperfect. For this purpose Greek and English verbs have an aorist, a præter-perfect, and a plusquam-perfect. Of these the Latin has only the two last. The præter-perfect in that language sustains a twofold character; it performs the office of the Greek and English aorist, as well as that of the præter-perfect properly so called; that is, it denotes a finished action at some indefinite past time, as well as at some time which is both past and definite.

In attempting to analyse the signification of complex terms, by which we here mean words that include in their signification a variety of particulars, it is of great advantage to have these particulars separately expressed by different words in another language. Now the English has resolved the tenses, which in the Greek and Latin languages are denominated the aorist and the præter-perfect, by means of what are commonly called auxiliary verbs, expressing the former by the verb *did,* and the latter by the verb *have.* In examining therefore the aorist and præter-perfect, it will be of use to inquire into the import of these verbs.

Did is evidently the aorist of the verb *to do;* a verb of the most general signification, as it denotes action of every kind. It expresses the finished performance of some action, the completion of which must of course have taken place in some portion of *past time:* "*I* DID *write,* or *I wrote* (these expressions being equivalent) yesterday, a month, a year ago." But the import of *did* being so very general, it can convey no determinate meaning without being limited by the addition of some particular action; and this addition, however expressed, is to be considered in the same light as an accusative case, governed by the active verb *did;* for it produces exactly the same effect. Ἔγραψα, *scripsi,* I *did* WRITE; that is, "at some past time I performed the *action* of *writing,* and *finished it.*"

The verb *have,* which is included in the præter-perfect, is plainly a verb of the present tense denoting possession, But a man may possess one thing as well as another; and therefore *have* requires limitation, for the very same reason that *did* requires it, namely, because its signification is perfectly general. Now this limitation, whatever it is, must be conceived as the thing possessed; and in instances where *have* is limited by a noun, this is obvious, and universally acknowledged. "I *have* a gold watch," means "I *possess* a gold watch." But to annex the same meaning to the word *have,* when used as an anxiliary verb, is an idea we believe not common, and which may perhaps be thought whimsical; yet what other meaning can be affixed to it? To suppose that words have not each a radical and determinate signification, is to suppose language a subject incapable of philosophical investigation; and to suppose, with Mr Harris, that there are words entirely devoid of signification, is at once to render all inquiries into the principles of grammar nugatory and ridiculous. We conceive, then, that each of the phrases, γεγραφα ἐπιστολην, *scripsi epistolam,* I HAVE *written a letter,* is equivalent to the phrase, "I *possess* at present the *finished action* of writing a letter." Such an expression may sound harsh to the ear, because it is not in use; but we often employ expressions, to the precise and proper meaning of which we do not attend; and if the above be attentively considered, however awkward it may at first appear, nothing will be found in it either improper or absurd.

The aorist, then, we conceive to state an action as performed and finished in some past portion of time; whilst the præter-perfect represents the past performance and completion of that action as *now* possessed. And here we may hazard a conjecture why *have,* when used as an auxiliary verb, is always joined with a past participle; whereas *did* is joined to a word expressing the simple action of the verb, or, as it is called, present infinitive. Of the expression, "I *have* WRITTEN a letter," *one* part, namely, the verb *have,* denotes *present time;* the other part, viz. *written,* must denote past time, to give notice that the action is performed and finished. *Did,* on the other hand, implying past time, has no occasion for the past part of another verb to give notice of this circumstance; for "I *did* WRITE a letter," is equivalent to, "at some past time I performed and finished the simple action of writing a letter."

The principal distinction in practice between the aorist and præter-perfect (for the difference seems little in their real import) consists in the time by which the performance of the action admits of being particularly specified. The præter-perfect is always joined with a portion of time which includes the present *now* or *instant;* for otherwise it could not signify, as it always does, the present possession of the finishing of an action. But the aorist, which signifies no such possession, is as constantly joined with a portion of past time which excludes the present *now* or *instant.* Thus we not only say, "I *have written* a letter *this* day, *this* week," but "I *wrote* a letter *yesterday*, last week;" and to interchange these expressions of time in Greek and English, where the aorist and præter-perfect have different forms, would be improper. In Latin, indeed, where they have but one form, the impropriety does not appear.

Besides the tenses already examined, which are expressive of past time, in most languages the verb has another tense called the *plusquam-perfect*, in which, however, no difficulty occurs to detain our attention. What the præter-imperfect is to the present tense, that the plusquam-perfect is to the præter-perfect. The verb *had*, by which it is resolved in English, being evidently the past time of *have*, sufficiently explains its meaning and relation to the other tenses. "I *had* written a letter," is equivalent to the phrase, "I *possessed* at some *past time* the finished action of writing a letter." It is justly observed by Dr Beattie, that the imperfect and plusquam-perfect are very useful, and may be the sources of much elegant expression; and that if one were not taught to distinguish, in respect of meaning as well as of form, these tenses from each other, and the præterite from both, one could not pretend to understand, far less to translate, any good classic author.

Having considered the tenses which imply present and past time, it now remains that we examine the import of those which are expressive of time *future.* In Latin and English there are two tenses for this purpose, of which the first represents an action in point of time as *not yet existing*, but as about to exist at some period to come; but it does not bring the completion of the action into view. The other asserts the *futurity* of an action together with its completion. *Scribam*, "I shall be writing," denotes *future* time and *incomplete action;* for it does not say whether I am to write for a long or for a short time, or whether I shall finish what I promise to begin. This part of the verb, therefore, to which the Greek γϱαψω corresponds, is an imperfect future, or, in other words, indefinite. The futurity of any action, it should seem, may always be computed from the time of speaking; for every action must be future with respect to the time at which its futurity is declared: but the time of its futurity may be more precisely specified by fixing upon some other future time to which to refer it: "I shall be writing after he shall have departed." *Shall* or *will* refers to future time indefinitely; and *write* or *writing* refers to an action which is indeed to *begin* and so far to proceed, but of which nothing is said concerning the completion.

On the other hand, *scripsero*, "I shall have written," is a perfect future denoting complete action; for *shall* denotes future time; *written*, finished action; and *have*, present possession. So that the meaning of the whole assertion is, that "at some future period of time I shall possess the finished action of writing." The completion of the action, together with the possession of it, is always future with respect to the time of assertion; but, with respect to some other time expressed or understood, the completion of the action is to be past: *Promittis te scripturum si rogavero*, "you promise to write if I shall have asked you." In this sentence the action of asking is future with relation to the time of promising, but it is past with relation to that of writing. This tense the Latin grammarians call the future of the subjunctive mode, but very improperly. The notice which it communicates respects not the power or liberty of acting, which, as will be seen by and by, is the characteristic of that mode; but only the action itself. It ought, therefore, to be ranked among the tenses of the indicative mode; for *scripsero* is, in every sense, as really indicative as *scribam* or *scripturus ero.*

These are all the tenses, essentially different from each other, which have place in the indicative mode (or mood) of any language with which we are acquainted;[1] but as there are tenses in the mode called *subjunctive*, which bear the same names with those already examined, and which have yet a different import, it will be necessary to consider them before we dismiss the subject of tenses. Of *modes* in general something will be said hereafter; at present we shall only observe, that the mode with which we are now concerned is not very properly distinguished by the name assigned to it by the Latin grammarians. They call it the *subjunctive*, because it is often subjoined to another verb, and forms the secondary clause of a sentence; but the mode called *indicative* frequently appears in the same circumstances. The difference between these two modes appears to us to consist in this, that the indicative asserts something directly concerning the action, and the subjunctive, something concerning the power or liberty of the agent to perform it; for that the latter asserts as well as the former, admits not of dispute.

The present tense of the *subjunctive mode*, in the learned languages, answers to the English auxiliaries *may* and *can.* Let us consider these a little. *May* is evidently a verb of the present tense denoting *liberty.* When I assert that I MAY *write*, I give notice that I am under no *compulsion* to *abstain* from writing; that there is no impediment from without by which I am restrained from writing. *Can* is also a verb of the present tense, expressive of internal power or skill. "I *can* write" is equivalent to such an expression as this: "There is nothing in myself which incapacitates me for performing the operation of writing." This verb seems originally to have denoted knowledge or skill, and to have been afterwards extended to signify power or ability of any kind. There is little doubt of its being the same with the old English verb *to con*, which signifies *to know*. The difference between the import of these two verbs, *may* and *can*, will be best perceived in a familiar example. Suppose we say to any one, "You *may* write a treatise on grammar," to which he returns for answer, "I *cannot*;" our assertion evidently supposes him at liberty to write the treatise; his answer implies that he is unable or unskilled to do it. We may conclude, then, that the present tense of this mode contains a declaration of present liberty, ability, or skill; and its other tenses will be found to have reference to the same capacities.

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[1] "It will perhaps occur," says an elegant and ingenious writer, "that there are two Greek tenses of which I have given no account; namely, the *second aorist* and the *second future.* The truth is, that I consider them as unnecessary. Their place, for any thing I know to the contrary, might at all times be supplied by the *first aorist* and the *first future.* Some grammarians are of opinion that the first aorist signifies time past in general, and the second indefinite time past; and that the first future denotes a nearer, and the second a more remote, futurity. But this, I apprehend, is mere conjecture, unsupported by proof; and therefore I incline rather to the sentiments of those who teach that the second future and the second aorist have no meaning different from the first future and the first aorist; and that they are the present and imperfect of some obsolete theme of the verb; and when the other theme came into use, happened to be retained for the sake of variety perhaps, or by accident, with a preterite and future signification. Be this as it will, as these tenses are peculiar to the Greek, and have nothing corresponding to them in other tongues, we need not scruple to overlook them as superfluous." (Beattie on the *Theory of Language*, part ii. chap. 2.) To these judicious observations we have nothing to add, except that they acquire no small degree of confirmation from the circumstance that there are many Greek verbs which have no second future, and which are yet employed to denote every possible modification of future time. Of the *paulo-post-futurum* of the Greeks we have taken no notice, because it is found only in the passive voice; to which, if it were necessary, it is obvious that it would be necessary in *all* voices, as a man may be about to *act* as well as to *suffer* immediately.

The observation is here to be repeated which was enlarged upon when treating of the present of the indicative. The liberty or ability signified by this tense is always represented as present, but the time of this presence is indefinite. If no particular time be specified, we generally refer it to the time of speaking; but another point may be given from which we are to compute. "When he shall have finished, you *may* then proceed as you propose." Here the liberty of proceeding is stated as present, not at the time of speaking, but at the time of his finishing, which is future to the time of speaking. But though the liberty, ability, or skill, denoted by this tense, be represented as present, the action itself is stated as *contingent*; for it is not necessary that a man should perform an action because he has the capacity to perform it.

From this idea of the present of the subjunctive some of its most peculiar uses seem capable of being explained. And, in the first place, it appears to have a near affinity with the future of the indicative, insomuch that in many instances they may be used promiscuously. Without materially altering the effect of the expression, we may say, "Dico me facturum esse quæ *imperet*," or "quæ *imperabit*." The reason of this, perhaps, may be, that with respect to us, *futurity* and *contingency* are in most cases nearly the same, both being involved in equal obscurity; and therefore it is often of little consequence which mode of expression we employ.

Secondly, the present of the subjunctive is used to denote the right of which a person is possessed. "*I may*, or *can*, sell this book." This application, which Dr Priestley considers as the primary signification of the tense, is easily deduced, or rather it follows immediately from the foregoing account of its import. For if one be under no restraint, either external or internal, to prevent him from performing an action, he has surely a right to perform it.

Thirdly, the present of the subjunctive is often used to signify command or request; as when one says, "You *may give* my compliments to such a person." This use of the tense under consideration seems to have arisen from a desire to soften the harshness of a command, by avoiding the appearance of claiming superiority. When a man utters the above sentence, he certainly utters no command, but only asserts that the person to whom he speaks has liberty or power to do him a favour. This assertion, however, may contain no new information; and therefore the person addressed, reflecting upon the intention of the speaker in making it, infers that it indicates a *wish* or *desire* that his compliments should be made to such a person.

Of the subjunctive as well as of the indicative, the præter-imperfect is evidently the past time of the present. As the latter asserts liberty or ability to perform some action, as existing at present, the former asserts the same liberty or ability to have existed in time past; but the precise portion of time past in which these capacities existed must be specified by other words, or it will remain unknown. Thus, in the following sentence, "Dixi me facturum esse quæ *imperaret*," the time of *imperaret* is referred to that of *dixi*; the person having the right to command is supposed to have had it at the time when the other said that he would obey. This tense, as well as the present, states the action as going on and incomplete; and also as future with respect to the liberty or ability to perform it. It is rendered into English by the verbs *could* or *might*, of which the first is the past time of *can*, and the second of *may*. From the near affinity which the present of the subjunctive has to the future of the indicative, the tense now under consideration appears in many instances as the past time of the latter as well as the former. Thus, *Dixi me facturum quæ imperaret*, may be rendered "I said that I would do whatever he might, or whatever he *should*, command."

Of the præter-perfect it is sufficient to observe, that as the present states the agent as at *liberty* to be performing an unfinished action, so this tense states him as at liberty to perform the action considered as finished. "I *may be writing* a letter when you come;" that is, "I *am at liberty to be writing* a letter when you come." "I *may have written* a letter when you come;" that is, "I *am at liberty to be in possession of the finished action* of writing a letter when you come." It is a common mode of expression to say, "I may have done such or such a thing in my time," when he who speaks can have little doubt whether he has done the thing or not. In that case, the words *may have done*, cannot be considered as the præter-perfect of the subjunctive of the verb *do*; for it is nonsense to talk of liberty with respect to the performance of an action, which at the time of speaking is supposed to be past and completed. What, then, is the import of the phrase? We are persuaded that it is elliptical, and that the word *say* or *affirm* is understood: "I may (say that I) have done such or such a thing in my time;" for liberty or contingency can relate to actions only as they are conceived to be present or future.

Of all the tenses, the most complex is the plusquamperfect of this mode. It combines a past and a future time with a finished action. It may be considered as the past time both of the perfect future and the præter-perfect of the *subjunctive*; for it represents an action, future and contingent at some *past time*, as *finished before* another *period specified*; which period, therefore, though past at the time of speaking, was itself future with respect to the time when the futurity or contingency of the action existed. "Promisisti te scripturum fuisse si *rogassem*;" "You promised that you would write, if I should have asked you." Here the futurity of the action of *asking*, which is represented as complete and finished, is stated as *co-existing* with the *past promise*; but the action itself must be *posterior* to that promise. It is however supposed to be past with respect to the action of writing, which is also posterior to the promise.

Before we dismiss the subject of tenses, it may not be improper just to mention number and person; for these have place in every tense of the verb in the learned languages, and in many tenses even of the English verb. They cannot, however, be deemed essential to the verb; for affirmation is the same, whether it be made by you, by me, or by a third person, or whether it be made by one man or by a thousand. The most that can be said is, that verbs in the more elegant languages are provided with a variety of terminations which respect the number and person of every substantive, that we may know with more precision, in a complex sentence, each particular substance, with its attendant verbal attributes. The same may be said of sex with respect to adjectives. They have terminations which vary as they respect beings male or female, though it is past dispute that substances alone are susceptible of sex. We therefore pass over these matters, and all of like kind, as being rather amongst the elegancies of particular languages, and therefore to be learned from the particular grammar of each tongue, than amongst the essentials of language; which essentials alone are the subject of inquiry in a treatise on universal grammar.

Besides tenses, number, and person, in every tongue with which we are acquainted, verbs are subject to another variation, which grammarians have agreed to call *modes* or *moods*. Of modes, as of tenses, it has been warmly disputed whether or not they be essential to language. The truth seems to be, that the only part of the verb absolutely necessary for the purpose of communicating thought is the indicative mode; for all the others, as has been well observed by Dr Gregory, are resolvable, by means of additional verbs and a word denoting the action of the primary verb, into circuitous expressions which fully convey their meaning.[1] But such expressions continually repeated would make language very prolix and wholly devoid of animation; and for this reason the import of each of the commonly received modes is a subject worthy of the philologist's investigation. About the number of modes, whether necessary or only expedient, as well as about the import of each, the writers on grammar have differed in opinion. Mr Harris, one of the most celebrated of those writers, has enumerated four modes of the verb, besides the infinitive: viz. the *indicative* or *declarative*, to assert what we think certain; the *potential* or *subjunctive*, for the purposes of whatever we think contingent; the *interrogative*, when we are doubtful, to procure us information; and the *requisitive*, to assist us in the gratification of our volitions. The requisitive, too, according to him, appears under two distinct species; either as it is *imperative* to inferiors, or *precative* to superiors. For establishing such a variety of modes as this, there appears to be no sort of foundation whatever. The same reasoning which induced the author to give us an interrogative and requisitive mode, might have made him give us a hortative, a dissuasive, a volitive, and innumerable other modes, with which no language is acquainted. But besides perplexing his reader with useless distinctions, we cannot help thinking that Mr Harris has fallen into some mistakes with regard to the import of those modes which are universally acknowledged. According to him, *assertion* is the characteristic of the indicative, and that which distinguishes it from the subjunctive or potential; but this is certainly not true, for, without an assertion, the verb cannot be used in any mode. Of this the learned author indeed seems to have been aware, when he observed respecting the subjunctive mode, that it is employed "when we do not *strictly* assert," and that "it implies but a *dubious* and *conjectural* assertion." The truth is, that the assertion implied in this mode, though it is not concerning the same thing, is equally positive and absolute with that conveyed by the indicative. An example quoted by himself should have set him right as to this matter:

> Sed tacitus pasci si posset corvus, *haberet*
> Plus dapis.

Who does not feel that the assertion contained in *haberet* is as absolute and positive as any assertion whatever?

Perhaps we may be asked to define what we mean by a mode. We know not that we can define it to the satisfaction of all. Thus much, however, seems to be obvious, that those variations which are called modes do not imply *different modifications* of the *action* of the verb. *Amo*, *Amem*, *Ama*, do not signify modes of *loving;* for modes of loving are, loving *much*, loving *little*, loving *long*, loving *short*, and the like. Shall we then get over the difficulty by saying, with Mr Harris, that "modes exhibit some way or other the *soul* and its *affections?*" This is certainly true, but it is nothing to the purpose; for it does not distinguish the meaning of mode from the object of language in general, all languages being intended to exhibit the soul and its affections.

Grammatical modes of verbs have been defined by Dr Gregory to be "concise modes of expressing some of those combinations of thoughts which occur most frequently, and are most important and striking." This is a just observation; but perhaps he would have given a more complete definition had he said, that grammatical modes of verbs are concise modes of expressing some of those combinations of thoughts which occur most frequently, and of which *assertion* is an essential part.[2] This indeed seems to be the real account of the matter, especially if our notion of the nature of verb be well founded, that its essence consists in affirmation. And in this opinion we are the more confirmed, from a conviction that no man ever employs language on any occasion but for the purpose of affirming something. The speaker may affirm something directly of the action itself, something of the agent's power or capacity to perform it, or something of his own desire that it should be performed, but still he must affirm. If this be so, then are all the modes equally indicative. Some may be indicative of perceptions, and others of volitions; but still they all contain *indications.* On this idea the three foregoing modes of *amo* will be thus distinguished: When a man indicates his present *feeling* of the passion of love, he uses the first; when he indicates his present *capacity* of feeling it, he uses the second; and when he indicates his present *desire* that the person to whom he is speaking would entertain that passion, he uses the third.

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[1] The imperative, for instance, may be resolved into a verb of commanding in the first person of the present of the indicative, and a word denoting the action of the primary verb, commonly called the infinitive mode of that verb. Thus, *I nunc et versus tecum meditare canoros*, and *Jubeo te nunc ire et tecum meditari*, &c. are sentences of the very same import. The subjunctive may be resolved in the same manner by means of a verb denoting power or capacity; for *credam*, and *possum credere*, may often be used indifferently. The indicative mode, however, is not thus convertible with another verb of affirming in the first person of the present of the indicative, and a word denoting the action of the primary verb; for *Titius scribit*, "Titius writes," is not of the same import with *dico Titium scribere, quod Titius scribat*, "I say that Titius writes." The first of these sentences, as has already been shown, contains but one assertion; the second obviously contains two. *Titius writes*, is equivalent to *Titius* IS *writing; I say that Titius writes*, is equivalent to *I* AM *saying that Titius* IS *writing*. The reason why the imperative and subjunctive are resolvable into expressions into which the *indicative* cannot be resolved, will be seen when the import of each of those modes is ascertained.

[2] Every verb, except the simple verb *am*, *art*, *is*, &c. expresses without modes a combination of thoughts, namely, affirmation and an attribute. The affirmation, however, is alone essential to the verb, for the attribute may be expressed by other words. It is indeed extremely probable, that in the earliest ages of the world, the affirmation and attribute were always expressed by different words; and that afterwards, for the sake of conciseness, one word, compounded perhaps of these two, was made to express both the affirmation and the attribute; hence arose the various classes of verbs, *active*, *passive*, and *neuter*. Of a process of this kind there are evident signs in the Greek and some other tongues. But the improvers of language stopped not here. The same love of conciseness induced them to modify the compound verb itself, that it might express various combinations of thought still more complex; but in all these combinations *assertion* was of necessity included; for if the word had ceased to assert, it would have ceased to be a verb of any kind.

As to what Mr Harris calls the interrogative mode, he observes that it has a near affinity to the indicative. It has in fact not only a near affinity to it, but, as far as language is concerned, there is not between the one and the other the slightest difference. For, in written language, take away the mark of interrogation, and, in spoken language, the peculiar tone of voice, and the interrogative and indicative modes appear precisely the same. That such should be the case is extremely natural. To illustrate this, let us for once speak in the singular number, and conceive one of our readers to be present. "I assert a thing, taking the truth of it for granted; but if you know me to be wrong, I presume that you will set me right." In this case, assertion produces the same effect as interrogation. Instances of the same kind perpetually occur in common conversation. An acquaintance says to me, "You took a ride this morning." I answer yes or no, according to the case; and the same effect is produced as if he had said, "Did you take a ride this morning?" In this way simple assertions would at first be employed to procure information wanted. *Fecisti*, you did such a thing; *fecisti ne*, you did it *not;* either would produce the proper reply, and the information wanted would be gained.[1] This being observed as language improved, men would accompany such a sentence with a peculiar tone of voice, or other marks, to signify more unequivocally that they wanted information, or that such information was the only object of their speech. Further progress in refinement would lead them to alter the position of the words of a sentence when they meant to ask a question, as we do in English, saying, when we *assert*, "*You have* read Euripides," and when we *interrogate*, "*Have you* read Euripides?"

In Greek and Latin, questions are asked commonly enough by the particles ἐι and *an*. These particles we know to be exactly equivalent to the English particle *if*, at least to the sense in which that particle is commonly taken. *An fecisti*, is "*If* you did it;" and the sentence may either be an abbreviation for *dic an fecisti*, "tell me if you did it;" or *an* may perhaps be, as *if* certainly is, the imperative mode of some obsolete verb equivalent to *give;* and in that case, *an fecisti* will be a complete interrogative sentence, signifying, "you did it, *give that*." But of the interrogative mode of Mr Harris we have said enough; perhaps our readers will think too much, since it is a useless distinction not found in any language. It will, however, be proper to say something of his precative mode, as far as it is the same with the optative mode of the Greek grammarians.

And nothing, we think, can be clearer, than that the Greek optative constitutes no distinct mode of the verb, whatever meaning be annexed to the word mode. The different tenses of the optative are evidently nothing but the past tenses of the corresponding tenses of the subjunctive. Thus, pres. subj. τυπτω, I *may* strike; pres. optat. τυπτοιμι, I *might* strike, &c. This is proved to be indubitably the case by the uniform practice of the Greek writers. Examples might be found without number were one to read in search of them. The following sentence will illustrate our meaning: 'Ερχονται 'Αθηναιοι ἱνα βοηθωσι τοις Αργειοις, "The Athenians *come* that they *may assist* the Argives." Here the leading verb ἐρχονται being of the present tense, the dependent verb βοηθωσι is the present subjunctive. But change the former to the *past time*, and the latter must also be changed. 'Ηρχοντο 'Αθηναιοι ἱνα βοηθοιεν τοις 'Αργειοις, "The Athenians *came* that they *might assist* the Argives." Here it is plain that βοηθοιεν, the present of the optative, is the past time of βοηθωσι, the present of the subjunctive; and the same holds in other instances.

It is almost unnecessary to add, that when this mode is employed to denote a wish, the wish is not expressed by the verb, but is understood. Such abbreviated expressions to denote a wish are common in all languages. Thus, in Greek,

> 'Υμιν μεν θεοι δοιεν, ὀλυμπια δωματ' ἐχοντες
> 'Εκπερσαι Πριαμοιο πολιν, κ. τ. λ.

signifies, "The gods might give you (or, as we say in English, *changing* the position of the verb, *might the gods give you*) to destroy," &c. So in Latin, *Ut te omnes dii deæque perdant*, "That all the gods and goddesses may destroy you." Again, in English, "O that my head were waters, and my eyes a fountain of tears." In all these, and such like sentences, words equivalent to *I wish, I pray*, are understood. In Greek a wish is sometimes introduced by the particle ἐι or ἐιτε, *if;* as in Homer,

> 'Ειθ' ὀφελες τ'αγονος τ'ἐμεναι, ἀγαμος τ'ἀπολεσθαι.

"*If* it had been your fate not to be born, or to die unmarried." The supplement is, "It would have been fortunate for your country," or some such thing. In like manner, a poor person not uncommonly entreats a favour by saying, "Sir, *if* you would be so good." Here he stops; but the completion of his sentence is, "it would make me happy." In all these cases a wish is not formally expressed by the speaker, but inferred by the hearer. They are therefore instances of that tendency which mankind universally discover to abbreviate their language, especially in cases where the passions or feelings are interested.

The interrogative and optative modes being set aside as superfluous, it would appear from our investigation, that the real distinct modes of the verb, which are found in the most copious and varied language, are only three; the *indicative*, the *subjunctive*, and the *imperative:* And these are all that can be considered as *necessary;* the first to indicate the speaker's feeling or acting, the second to indicate his capacity of feeling or acting, and the third to indicate his desire that the person to whom he speaks should feel or act.

Here again we have the misfortune to differ in opinion from Dr Gregory, who seems to think that a greater number of modes, if not absolutely necessary, would, at any rate, be highly useful. His words are, "All languages, I believe, are defective in respect of that variety and accuracy of combination and of distinction, which we know with infallible certainty take place in thought. Nor do I know of any particular in which language is more deficient than in the expressing of those energies or modifications of thought; some of which always are, and all of which might be, expressed by the grammatical moods of verbs. Of this there cannot be a clearer proof than the well-known fact, that we are obliged to express by the same mood very different modifications or energies of thought. As, for instance, in the case of the grammatical mood called the imperative, by which we express occasionally prayer to God, command to a slave, request to a superior, advice to an equal or to any one, order as from an officer to his subaltern, supplication to one whom we cannot resist." If these be, as the author calls them, specific differences of thought, he will not surely object to their being all ranked under one genus, which may be called *desire.* That the internal feelings which prompt us to pray to God, to command a slave, to request a superior, to advise an equal, to give an order to an inferior, and to supplicate one whom we cannot resist, are all different in degree, cannot be denied. Each of them, however, is desire; and the predication by which the desire is made known to the person whom we address, is the same in all, when we utter a prayer as when we utter a command, when we request as when we supplicate. But predication alone is that which constitutes the verb; for desire by itself, however modified, can be expressed only by an abstract noun; and the mere energy of desire, when not applied to a particular agent, can be expressed only by a *participle*, or by what is commonly, though improperly, called the infinitive mode. Now it is certainly conceivable that a few shades of meaning, or a few degrees of one general energy, might be marked by corresponding variations of such verbs as combine energy with predication;[1] and there could be no great impropriety in calling those variations modes, or rather modes of modes; but that such a multiplication of modes would be an improvement in language, is by no means evident. The verb, with the modes and tenses which it has in all languages, is already a very complex part of speech, which few are able, and still fewer inclined, to analyse; and it would surely be of no advantage to make it more complex by the introduction of new modes, especially when those degrees of energy which could be marked by them are with equal and perhaps greater precision marked, in the living speech, by the different tones of voice adapted to them by nature; and, in written language, by the reader's general knowledge of the subject, and of the persons who may be occasionally introduced. If there be any particular delicacy of sentiment or energy which cannot thus be made known, it is better to express it by a name appropriated to itself, together with the simple and original verb of affirmation, than to clog the compound verb with such a multiplicity of variations as would render the acquisition of every language as difficult as is said to be that of the Chinese written characters. The indicative, subjunctive, and imperative, are therefore all the modes of the verb which to us appear to be in any degree necessary or expedient; and they are in fact all the modes that are really found in any language with which we are acquainted.

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[1] Of a question put in the form of an assertion we have a remarkable instance in the gospel of St Matthew. When Christ stood before Pilate, the governor asked him, saying, Συ ἐι ὁ βασιλευς των Ιουδαιων, "Thou art the king of the Jews." That this sentence was pronounced with a view to obtain some answer, is evident from the context; yet it is as plainly *an affirmation*, though uttered probably in a scoffing tone, as the serious confession of Nathaniel, Συ ἐι ὁ βασιλευς του Ισραηλ, "Thou art the king of Israel." Had not the question been put in this form, which *asserts* Christ to be the king of the Jews, the reply could not have been Συ λεγεις, "Thou sayest;" for without an assertion the governor would have said nothing. (See Dr Campbell's *Translation of the Gospels*, where the form used in the original is with great propriety retained in the version.)

For the *infinitive*, as has already been observed, seems on every account to be improperly styled a mode. To that name it has no title which we can perceive, except that its termination sometimes (for even this is not universally true) differs in the learned languages from the terminations of the other parts of the verb. Nay, if affirmation be, as it has been proved to be, the very essence of verb, it will follow that the infinitive is no part of the verb at all; for it expresses no affirmation. It forms no complete sentence by itself, nor even when joined to a noun, unless it be aided by some real part of a verb either expressed or understood. *Scribo, scribebam, scripsi, scripseram, scribam, scripsero,* "I am writing, I was writing, I have written, I had written, I shall write, I shall have written," contain each of them an *affirmation*, and constitute a complete sentence; but *scribere* "to write," *scripsisse* "to have written," affirm nothing, and are not more applicable to any one person than to another. In a word, the *infinitive* is nothing more than an *abstract noun*,[2] denoting the simple

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[1] Dr Gregory seems to think, that not merely a few, but a vast number, of these energies might be so marked. "*Affirming, denying, testifying*, foretelling, asking, answering, *wishing, hoping, expecting*, believing, knowing, doubting, supposing, stipulating, being able, commanding, *praying*, requesting, *supplicating*, loving, hating, fearing, despairing, being accustomed, wondering, admiring, wavering, swearing, *advising, refusing, exhorting, dissuading, encouraging*, promising, threatening, &c." says he, "all admit very readily of being combined with the general import of a verb." And he adds, that "if every one of them had been expressed in all languages by variations as striking as those of *τυπτω, τυπτοιμι*, and *τυπτε*, they must have been acknowledged as distinct moods of the verb."

If all these words denote different energies of thought, which, however, may be doubted, and if all those different energies, with many others for which, as the author justly observes, it is not easy to find names, could, like capacity and desire, be combined with the general action or energy of one verb; and if those combinations could be marked by corresponding variations of that verb; we should indeed acknowledge such variations to be distinct modes, or modes of modes, of the verb. But we doubt much if all this be possible. We are certain that it would be no improvement; for it seems to be evident, either that, in some of the modes, the radical letters of the original verb must be changed, and then it would cease to be the same verb; or that many of the modes must be expressed by words of very unmanageable length; not to mention, that the additional complication introduced by so many minute distinctions into a part of speech already exceedingly complex, would render the import of the verb absolutely unintelligible to nine tenths even of those who are justly styled the learned.

[2] In our idea of the infinitive, we have the good fortune to agree with the learned Ruddiman, whose words are, "Non inepte hic modus a veteribus quibusdam *verbi nomen* est appellatum. Est enim, si non vere ac semper, quod nonnulli volunt, nomen substantivum, significatione certe ei maxime affinis; ejusque vices sustinet per omnes casus. Et quidem manifeste substantivum videtur, cum adjectivum ei additur neutri generis; ut, Cic. *Att.* xiii. 28, *Cum vivere ipsum turpe sit nobis.* Pers. v. 53, *Velle suum cuique est.* Cic. *Fin.* i. 1, *Totum hoc displicet philosophari.* Petron. c. 52, *Meum intelligere nulla pecunia vendo.* Item, absque adjectivo, ut Ovid. *Met.* ii. 483, *Posse loqui eripitur*, id est, *potestas loquendi.* Plaut. *Bacch.* i. 2. 50, *Hic vereri perdidit*, id est, *verecundiam.* Cic. *Tusc.* v. 38, *Loquor de docto homine et erudito, cui vivere est cogitare*, id est, *cujus vita est cogitatio.*" See *Grammaticæ Latinæ Institutiones*, pars secunda, lib. i. cap. 2, where the reader will find examples of the infinitive used by the best Roman writers as a substantive noun in every case.

This opinion of Ruddiman and the ancient grammarians has been controverted with much ingenuity by Dr Gregory, who seems to think that in the infinitive alone we should look for the essence of the verb divested of every accidental circumstance, time only excepted. If this be indeed the case, almost every thing which we have said of the verb, its tenses, and its modes, is erroneous; and he who takes his principles of grammar from the Encyclopædia Britannica will fill his head with a farrago of absurdities. But it may without much difficulty be shown, that the error does not attach to the doctrine respecting the infinitive, which has been stated and illustrated in this article, but to the strange inversion of all recognised principle involved in the notion which Dr Gregory has espoused, apparently by reason of its novelty alone.

The Doctor acknowledges (*Transactions of the Royal Society of Edinburgh*, vol. ii. liter. class, p. 195), that the infinitive is most improperly called a mode, and on that account he thinks we ought to turn our thoughts exclusively to it, "when we endeavour to investigate the general import of the verb, with a view to ascertain the accident which it denotes, and be led, step by step, to form a distinct notion of what is common in the accidents of all verbs, and what is peculiar in the accidents of the several classes of them, and thereby be enabled to give good definitions, specifying the *essence* of the verb," &c. It may be true, that to the infinitive exclusively we should turn our attention when we wish to ascertain the accident denoted by a particular verb or class of verbs; that is, the kind of action, passion, or state of being, of which, superadded to affirmation, that verb or class of verbs is expressive; but in accidents of this kind it may be doubted if there be any thing that with propriety can be said to be common to all verbs. There seems indeed to be nothing common to all verbs but that which is essential to them, and by which they are distinguished from every other part of speech; but every kind of action, passion, and state of being, may be completely expressed by participles and abstract nouns, and therefore ergy of the verb, in conjunction with time; and is not mode as far as we can conceive of any thing. Thus, *cire tuum nihil est*, is the same with *Scientia tua nihil est*; nd "*Death* is certain," is identical with "*To die* is cer- in."

Before we dismiss the subject of modes, it may not be improper to take notice of the connection which Mr Harris, after Apollonius, has found between commanding and futurity. "Intreating and commanding," he says, "have a necessary respect to the future only. For what have they to do with the present and the past, the natures of which are immutable and necessary?" This is surely con-

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such accidents we cannot find the essence of the verb, because such accidents distinguish it not from other parts of speech. Were man called upon to specify the essence of verse or metre, he would not say that it consists in the meaning of the words, or in the ing of these words according to the rules of syntax. In every kind of verse where words are used, they have indeed a meaning, and all good verses they are grammatically constructed; but this is likewise the case in prose, and therefore it cannot be the essence verse. The essence of verse must consist in something which is not to be found in prose, namely, a certain harmonic succession of unds and number of syllables; and the essence of the verb must likewise consist in something which is not to be found in any other rt of speech, and that is nothing but affirmation. But if affirmation be the very essence of the verb, it would surely be improper, hen we endeavour to ascertain the general import of that part of speech, to turn our thoughts exclusively to a word which implies affirmation; for what does not affirm, cannot in strictness of truth be either a verb or the mode of a verb.

In the same page it is said that "the infinitive denotes that kind of thought or combination of thoughts which is common to all the er modes." In what sense this is true we are unable to conceive; it denotes indeed the same accident, but certainly not the same ought or combination of thoughts. In the examples quoted, *Non est* VIVERE, *sed* VALERE *vita*, the infinitives have evidently the ect of abstract nouns, and not of verbs; for though *vivere* and *valere* express the same states of being with *vivo* and *valeo*, they by means express the same combination of thoughts. *Vivo* and *valeo* affirm that *I* AM *living*, and that *I* AM *well*; and he who utters ese words must think not of life and health in the abstract, but of life and health as belonging to himself. *Vivere* and *valere*, on the er hand, affirm nothing; and he who utters them thinks only of the states of living and of being in health, without applying them any particular person.

The learned author of *The Origin and Progress of Language* having said that the infinitive is used either as a noun, or that it serves connect the verb with another verb or noun, and so is useful in syntax, the doctor combats this opinion, and infers that the infi- ive is truly a *verb*, because "the thought expressed by means of it may be expressed in synonymous and convertible phrases, in ferent languages, by means of other parts or moods of the verb." Of these synonymous and convertible phrases he gives several amples, the first of which is taken from Hamlet's soliloquy. "*To be* or *not to be*, that is the question," he thinks equivalent in eaning to, "The question is, *whether we shall be or shall not be*." But we are persuaded he is mistaken. "Whether we shall be or all not be," involves a question, whether we shall exist at some future and indefinite time; but the subject of Hamlet's debate th himself was not, whether, if his conscious existence should be interrupted, it would be afterwards at some future and indefinite e restored, but whether it was to continue uninterrupted by his exit from this world. This, we think, must be self-evident to ery reader of the soliloquy. It is likewise obvious that the word "question" in this sentence does not signify interrogatory, but *ject of debate*, or *matter to be examined*; and that the word "that" serves no other purpose than to complete the verse, and give addi- nal emphasis, perhaps, to an inquiry so important. "*To be* or *not to be*, that is the question," is therefore equivalent in all respects "The continuance or non-continuance of my existence is the matter to be examined;" and the infinitive is here indisputably used an abstract noun in the nominative case. Should it be said that the doctor may have taken the sentence by itself, unconnected th the subject of Hamlet's soliloquy, we reply, that the supposition is impossible; for, independently of the circumstances with ich they are connected, the words "*To be* or *not to be*" have no perfect meaning. Were it not for the subject of the soliloquy, m which every reader supplies what is wanting to complete the sense, it might be asked, "*To be* or *not to be*"—*what?* A coward, a rderer, a king, or a corpse? Questions all equally reasonable, and which in that case could not be answered.

With the same view, to prove that the infinitive is truly a *verb*, the doctor proceeds to remark upon the following phrases, *Dico, edo, puto, Titium existere, valere, jacere, cecidisse, procubuisse, projecisse Mævium, projectum fuisse a Mævio*; which, he says, have the ry same meaning with *dico, quod Titius existat, quod jaceat, quod ceciderit*, &c. He adds, that "the infinitives, as thus used, acquire any further meaning, in addition to the radical import of the verb with tense, like the proper moods; but the subjunctives after *d* lose their peculiar meaning as moods, and signify no more than bare infinitives." In the sense in which this observation is de by the author, the very reverse of it seems to be the truth. The infinitives, as thus used, acquire, at least in the mind of the der, something like the power of affirmation, which they certainly have not when standing by themselves; whereas the subjunc- es neither lose nor acquire any meaning by being placed after *quod*. *Dico, credo, puto, Titium existere, valere, jacere*, &c. when trans- ed literally, signify, *I say, believe, think, Titius to exist, to be well, to lie along*; a mode of speaking which, though now not elegant, s common with the best writers in the days of Shakspeare, and is frequently to be found in the writings of Warburton at a much er period. *Dico, credo, puto, quod Titius existat, quod jaceat*, &c. signifies literally, *I say, believe, think, that Titius may exist, may lie along*, &. Remove the verbs in the indicative mode from the former set of phrases, and it will be found that the infinitives had acquired eaning, when conjoined with them, which they have not when left by themselves; for *Titium existere, jacere*, "Titius to exist, to along," have no complete meaning, because they affirm nothing. On the other hand, when the indicative verbs are removed, to- her with the wonder-working *quod*, from the latter set of phrases, the meaning of the subjunctives remains in all respects as it was ore the removal; for *Titius existat, jaceat*, &c. signify, *Titius may exist, may lie along*, as well when they stand by themselves as en they form the final clauses of a compound sentence. Every one knows that *quod*, though often called a conjunction, is always fact the relative pronoun. *Dico, credo, puto, quod Titius existat*, must therefore be construed thus: *Titius existat (est id) quod dico, do*, &c. "Titius may exist—is that thing, that proposition, which I say, believe, think." In the former set of phrases, the infi- ives are used as abstract nouns in the accusative case, denoting, in conjunction with *Titium*, one complex conception, the *existence, of Titius: Dico, credo, puto*, "I say, believe, think;" and the object of my speech, belief, thought, is *Titium existere*, "the existence Titus."

In confirmation of the same idea, that the infinitive is truly a *verb*, Dr Gregory quotes from Horace a passage, which, had we ought quotations necessary, we should have urged in support of our own opinion:

Nec quicquam tibi prodest
Aërias *tentasse* domos, animoque rotundum
Percurrisse polum, morituro.

our apprehension, nothing can be clearer than that *tentasse* and *percurrisse* are here used as nouns; for if they be not, where ll we find a nominative to the verb *prodest?* It was certainly what was signified by TENTASSE *aërias domos, animoque rotundum* RCURRISSE *polum*, that is said to have been no advantage to Archytas at his death. This, indeed, if there could be any doubt out it, would be made evident by the two prose versions which the professor subjoins to these beautiful lines. The first of them as follows: *Nec quicquam tibi prodest quod aërias domos* TENTAVERIS, *et animo* PERCURRERIS *polum*; which must be thus constructed: NTAVERIS *aërias domos, et* PERCURRERIS *animo polum (est id) quod nec quicquam tibi prodest*. This version, however, is not perfectly urate; for it contains two propositions, whereas Horace's lines contain but one. The second, which, though it may be a crabbed l inelegant sentence, expresses the poet's sense with more precision, is in these words: *Nec quicquam tibi prodest morituro tua* TEN- TIO *domuum aëriarum, et* CURSUS *tuus circa polum*. Having observed, with truth, that this sentence has the very same meaning h the lines of Horace, Dr Gregory asks, "why are not *tentatio* and *cursus* reckoned verbs as well as *tentasse* and *percurrisse?*" Let se answer this question who believe that any of these words are truly verbs; for they are surely, as he adds, all very near akin; eed so near, that the mind, when contemplating the import of each, cannot perceive the difference. Meanwhile, we beg leave in founding commands with the execution of commands. But the learned writer proceeds to informs us, that "it is from the connection of futurity with commands that the future of the indicative is sometimes used for the imperative mode." The connection of which he speaks appears to us entirely imaginary; for futurity has nothing to do with commands, though it may with the execution of them. The present time is the time of commanding, the future of obeying. But supposing the connection real, it would not account for the future tenses being used imperatively. For although it were true, as it is evidently false, that commands are future, it would not follow that the relation is convertible, or that employing the future should imply a command. The principle upon which such expressions as, *Thou shalt not kill*, come to have the force of a command, seems to be this: When a person, especially one possessed of authority, asserts that an action depending on the will of a free agent, and therefore in its own nature contingent, shall or shall not actually take place; what are we to conclude from such an assertion? Why, surely it is natural to conclude that it is his will, his command, that his assertion be verified. The English word *shall*, if we be well informed, denoted originally obligation; a sense in which its past tense *should* is still commonly employed. In English, therefore, the foregoing process of inferring a command from an assertion of futurity seems to have been reversed; and the word *shall*, from denoting a command or obligation, has come to denote futurity simply.

Having considered the verb in its essence, its tenses, and its modes, we might seem to have exhausted the subject; but there is still something more to be done. Grammarians have distinguished verbs into several species; and it remains with us to inquire upon what principle in nature this distinction is made, and how far it proceeds. Now it must be obvious, that if predication be the essence of verbs, all verbs as such must be of the same species; for predication is the same in every proposition, under every possible circumstance, and by whomsoever it is made. But the greater part of verbs contain the predicate as well as the predication of a proposition; or, to speak in common language, they denote an attribute as well as an affirmation. Thus, *lego* is "I am *reading*," *ambulo*, "I am *walking*," *sto*, "I am *standing*," *verbero*, "I am *striking*," *verberor*, "I am *stricken*." But the attributes expressed by these verbs are evidently of different kinds; some consisting in action, some in suffering, and some in a state of being which is neither active nor passive. Hence the distinction of verbs, according to the attributes which they denote, into *active*, *passive*, and *neuter*. *Lego*, which is an assertion that I am employed in the act of reading, is an active verb; *verberor*, which is an assertion that I am suffering under the rod, is a passive verb, because it denotes a passion; and *sto*, which is an assertion that I am standing still, is said to be a neuter verb, because it denotes neither action nor passion. But it is self-evident that there cannot be action without an agent, nor passion without a passive being; neither can we make a predication of any kind, though it denote neither action nor passion, without predicating of something. All verbs, therefore, whether active, passive, or neuter, have a necessary reference to some noun expressive of the substance of which the attribute denoted by the verb is predicated. This noun, which in all languages must be in the nominative case, is said to be the nominative of the verb; and in those languages in which the verb has person and number, it must in these respects agree with its nominative.

Of action, and consequently of verbs denoting action, there are obviously two kinds. There is an action which passes from the agent to some subject upon which he is employed, and there is an action which respects no object beyond the agent himself. Thus *lego* and *ambulo* are verbs which equally denote action; but the action of *lego* refers to some external object as well as to the agent; for when a man is reading, he must be reading something, a book, a newspaper, or a letter, whereas the action of *ambulo* is confined wholly to the agent; for when a man is walking he is employed upon nothing beyond himself, his action produces no effect upon any thing external. These two species of verbs have been denominated transitive and intransitive; a designation extremely proper, as the distinction which gave rise to it is philosophically just. Verbs of both species are active; but the action of those only which are called transitive respects an external object; and therefore in those languages of which the nouns have cases, it is only after verbs which are transitive as well as active, that the noun denoting the subject of the action is put in the accusative or objective case. Verbs which are intransitive, though they be really active, are in the structure of sentences considered as neuter, and govern no case.

So much, then, for that most important of all words, the verb. We proceed now to the consideration of participles, adjectives, and adverbs, which, as they have a near relation to one another, we shall treat of under one head or division.

V.—*Of Participles, Adjectives, and Adverbs.*

1. *Of Participles.*

The nature of verbs being understood, that of *participles* is not of difficult comprehension. Every verb, except that which is called the substantive verb, is expressive of an attribute, of time, and of an assertion. Now if we take away the assertion, and thus destroy the verb, there will remain the attribute and the time; and these combined make the essence of that species of words called *participles*. Thus, take away the assertion from the verb γραφει, *writeth*, and there remains the participle γραφων, *writing*, which, without the assertion, denotes the same attribute and the same time. In the same manner, by withdrawing the assertion, we discover γραψας, *written*, in εγραψε, *wrote*; γραψων, *about to write*, in γραψει, *shall be writing*. This is the doctrine of Mr Harris respecting participles; and, in our opinion, it is equally elegant, perspicuous, and just. But as it has been controverted by an author of some note in the republic of letters, we should perhaps be wanting in duty to our readers were we to pass his objections wholly unnoticed.

It is acknowledged by Dr Beattie, the writer to whom we allude, that the view which we have taken is the most convenient in which the participle can be considered in universal grammar; but he affirms that present participles do not always express present time, nor preterite participles past time; nay, that participles have often no connection with time at all. He thus exemplifies his assertion in Greek, in Latin, and in English:

"When Cebes says, Ετυγχανομεν περιπατουντες ἐν τῳ του Χρονου ἱερῳ, 'We *were walking* in the temple of Saturn,' the participle of the present *walking* is, by means of the verb

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our turn to ask, Why are not *tentasse* and *percurrisse* reckoned abstract nouns as well as *tentatio* and *cursus*? To this question it is not easy to conceive what answer can be returned upon the doctor's principles. In his theory there is nothing satisfactory; and what has not been done by himself, we need scarcely expect from any of his followers. On the other hand, our principles furnish a very obvious reason for excluding *tentatio* and *cursus* from the class of verbs; it is, because these words express no predication. *Tentasse* and *percurrisse* indeed denote predication no more than *tentatio* and *cursus*; and therefore upon the same principle we exclude them likewise from a class to which, if words are to be arranged according to their import, they certainly do not belong.

ere, applied to time past, and therefore of itself cannot be nderstood to signify any sort of time." Again, after ob- rving, that in English we have but two simple participles, ch as *writing* and *written*, of which the former is gene- lly considered as the present and the latter as the past, e doctor adds, but " the participle *writing*, joined to a rb of different tenses, may denote either past or future tion; for we may say not only, *I* AM *writing*, but also, *I* AS *writing* yesterday, and *I* SHALL BE *writing* to-morrow;" d hence he infers that *no time whatever* is denoted by e present participle. But this is obviously a hasty infe- nce, drawn from the doctrine of absolute time and a defi- te present, which we have already shown to be ground- ss and contradictory. When we speak simply of an action present, we must mean that it is present with respect to mething besides itself, or we speak a jargon which is un- telligible; but we do not ascertain the time of its pre- nce. From the very nature of time, an action may be esent now, it may have been present formerly, or it may present at some future period; but the precise time of presence cannot be ascertained even by the present of e indicative of the verb itself; yet who ever supposed at the present of the indicative denotes no time? The rticiple of the present represents the action of the verb going on; but an action cannot be going on without ing present in time with something. When, therefore, ebes says, " We were walking in the temple of Saturn," represents the action of the verb walking as present with mething; but by using the verb expressive of his asser- on in a past tense, he gives us to understand that the ac- on was not present with any thing at the period of his eaking, but at some portion of time prior to that period; d what that portion of time was, must be collected from e subsequent parts of his discourse. The same thing may so be said of the phrases *I was writing yesterday*, and *I all be writing to-morrow*. They indicate that the action the verb *write* was present with me yesterday, and will ain be present with me to-morrow. The action and the ne of action are denoted by the participle; that action affirmed to belong to me by means of the verb; and the ne at which it belonged to me is pointed out by the nses of that verb, *am*, *was*, and *shall be*. All this is so ain, that it could not have escaped Dr Beattie's penetra- on, if he had not hastily adopted the absurd and contra- ctory notion of a definite present.

Of the truth of his assertion respecting past participles gives a Greek and a Latin example. The former is ken from St Mark, viz. ὁ πιστευσας σωθησεται; and the lat- r is that which is commonly called the perfect future of e passive verb *amor, amatus fuero*. In the first instance, says that the participle, though belonging to the aorist the past time, must be rendered either by the indefinite esent, " he *believeth*;" or by the *future*, " he who *ll* believe;" and the reason which he gives for this ren- ring of the word is, that " the believing here spoken of considered as posterior in time to the enunciation of the omise." This is indeed true, but it is not to the purpose; with the enunciation of the promise the time of the rticiple has no manner of concern. The time of πιστευσας pends entirely upon the time of σωθησεται, with respect which it must undeniably be past. Our Lord is not re asserting, that he who shall believe at the day of final tribution shall be saved, but that he who shall on that y be found to *have believed* in time past shall be saved; d if the participle had not been expressive of a finished tion and a past time, the whole sentence would have con- yed a meaning not friendly to the interests of the gospel. like manner, the time of *amatus* is referred, not to the ne of speaking, but to the time of *fuero*, with respect to ich, who sees not that it is past? The two words, taken gether, contain a declaration, that he who utters them shall, at some time posterior to that of speaking, *have* BEEN *loved*; the expression *shall have been loved* denotes two times, both future with respect to the time of speaking; but when the time denoted by *shall have* comes to be present, that of the participle *loved* must be *past*, for it is declared that the action of it shall *then* be complete and finished.

Adjectives.

We conclude, then, that it is essential to a participle to express both an attribute and time; and that such words as denote no time, though they may be in the *form* of participles, as *doctus*, " learned," *eloquens*, " eloquent," &c. belong to another part of speech, which we now proceed to consider.

2. *Of Adjectives.*

The nature of verbs and participles being understood, that of *adjectives* becomes easy. A verb implies, as we have said, an attribute, time, and an assertion; a participle implies only an attribute and time; and an *adjective* implies only an attribute as belonging to some substance. In other words, an *adjective* has no assertion, and it denotes only such an attribute as has not its essence either in motion or its privation. Thus, in general, the attributes of quantity, quality, and relation, such as *many, few, great, little, black, white, good, bad, double, treble*, and the like, are all denoted by *adjectives*.

To understand the import and the use of this species of words, it must be observed that every adjective is resolvable into a substantive and an expression of connection equivalent to *of*. Thus, a *good man* is a *man of goodness;* where we see the attribute denoted by the adjective fully expressed by an abstract noun. But it is evident that the noun *goodness* does not express the *whole meaning* of the adjective *good;* for every adjective expresses not only an attribute, but also the connection between the attribute and its substance; whereas in the abstract noun, the attribute is considered as a substance unconnected with any other substance.

In the next place, it is to be observed, that the connection expressed by adjectives, like that expressed by *of*, is of a nature so general and indefinite, that the particular kind of connection must, in some languages, be inferred from our previous knowledge of the objects between which it subsists, or it will for ever remain unknown. This might be proved by a variety of examples, but will perhaps be sufficiently evident from the following: *Color salubris* signifies colour that *indicates* health; *exercitatio salubris*, exercise that *preserves* health; *victus salubris*, food that *improves* health; *medicina salubris*, medicine that *restores* health. In all these examples the connection expressed by the adjective form of *salubris* is different; and though it may be known from previous experience, there is nothing in any of the expressions themselves by which it can be ascertained. Thus, adjectives are each significant of an attribute and connection; but the particular kind of connection is ascertained by experience. The usual effect of adjectives in language, is to modify or particularize a general term, by adding some quality or circumstance which may distinguish the object meant by that term, from the other objects of the same species. I have occasion, for example, to speak of a particular man, of whose name I am ignorant. The word *man* is too general for my purpose, it being applicable to every individual of the human species. In what way then do I proceed, in order to particularize it, so as to make it denote that very man whom I mean to specify? I annex or conjoin to it such words as are significant of objects and qualities with which he is connected, and which are not equally applicable to others from whom I mean to distinguish him. Thus I can say, *a man of prudence* or a *prudent man*, a *wise man*, a *good man*, a *brave man*, and so on. By means of these additions the general term *man* is limited or modified, and can be applied only to certain men to whom belong the attributes expressed by the adjectives *prudent*, *wise*, *good*, and *brave*. If it be still too general for my purpose, I can add to it other qualities and circumstances, till I make it so particular as to be applicable to but one individual man in the universe.

This is the way in which adjectives are commonly used, but this is not the only way. Instead of being employed to modify a substantive, they sometimes appear as the principal words in the sentence, when the sole use of the substantive seems to be to modify the abstract noun, contained under the adjective to which that substantive is joined. In order to understand this, it will be necessary to attend to the following observations.

It may be laid down as a general proposition, that when any term or any phrase is employed to denote a complex conception, the mind has a power of considering, in what order it pleases, the simple ideas of which the complex conception is composed. To illustrate this observation by an example: The word *eques* in Latin denotes a complex conception, of which the constituent simple ideas are those of a man and a horse; with this connection subsisting between them, that the man is conceived as on the back of the horse. In the use of this word, it is well known that the idea first in order, as being the principal subject of the proposition, is commonly the *man* on the back of the horse; but it is not always so, for the mind may consider the *horse* as the principal object. Thus, when Virgil says,

> Fræna Pelethronii Lapithæ gyrosque dedere,
> Impositi dorso; atque *equitem* docuere sub armis
> *Insultare solo*, et *gressus glomerare superbos*—

the energies attributed to the object signified by *equitem* make it evident that the horse, and not the man, is meant; for it is not the property of a man, *insultare solo, et gressus glomerare superbos*.

The same observation holds true where the *complex object* is denoted by two or more words; an adjective, for instance, and a substantive. Thus in the phrase *summus mons se inter nubila condit*, the words *summus mons* represent a complex conception, of which the constituent ideas are those of *height* and *mountain*, connected together by the adjective form of *summus*. Either of these ideas may be the subject of the proposition; and the expression will accordingly admit of two different significations. If *mons* be made the subject of the proposition, the meaning will be, "the highest mountain hides itself amongst the clouds." If the substantive included in the radical part of *summus* be made the subject of the proposition, the expression will signify, "the summit, or highest part, of the mountain, hides itself amongst the clouds." The latter is the true import of the sentence.

From these observations and examples, we shall be enabled to understand the two uses of the adjective. It is either employed, as has been already observed, to restrict or modify a general term; or the abstract substantive contained in the adjective is modified by the noun, with which, in the concrete or adjective form, that abstract substantive is joined. The first may be called the *direct*, the second the *inverse*, acceptation of adjectives.

The inverse acceptation of adjectives and participles, for both are used in the same manner, has scarcely been noticed by any grammarian excepting Dr Hunter of St Andrews; yet the principle is of great extent in language. In order to explain it, we shall produce a few examples, which on any other principle it is impossible to understand. Livy, speaking of the abolition of the regal authority at Rome, says, *Regnatum est Romæ ab* URBE CONDITA *ad* LIBERATAM *annos ducentos quadraginta quatuor*, "Monarchy subsisted at Rome (*not* from the *city built*, which would convey no meaning, but) from the *building of the city* to its *deliverance*." Both the participles *condita* and *liberatam* are here used inversely; that is, the abstract substantives contained in *condita* and *liberatam* are modified or restricted by the substantives *urbe* and *urbem*, with which they unite. Again, Ovid, speaking of the contest between Ajax and Ulysses for the arms of Achilles, has these lines:

> Qui, licet eloquio fidum quoque Nestora vincat,
> Haud tamen efficiet, *desertum* ut *Nestora crimen*
> Nullum esse rear.———

Here also the adjective or participle *desertum* is taken inversely, and the general notion of *desertion* contained in it is modified or rendered particular by being joined with the substantive *Nestora*. The meaning of the passage is, "I will never be induced to believe that the *desertion of Nestor* was not a crime." Were *desertum* to be taken directly as an adjective modifying its substantive, the sentence must be translated, "I cannot believe that *Nestor deserted* was not a crime." But it is evident that this is nonsense; as *Nestor*, whether deserted or not deserted, could not be a crime.

It were easy to produce many more examples of adjectives taken inversely; but these may suffice to illustrate the general principle, and to show, that without attending to it, it is impossible to understand the ancient authors. We shall produce one instance of it from Shakspeare, to evince that it is not confined to the ancient languages, though in these it is certainly more frequent than in the modern:

> Freeze, freeze, thou bitter sky,
> Thou canst not bite so nigh
> As *benefits forgot;*
> Though thou the waters warp,
> Thy sting is not so sharp
> As *friends remember'd not.*

Here it is evident that the adjective *forgot* is taken inversely; for it is not a benefit, but the *forgetting* of a benefit, which bites more than the bitter sky; and therefore, in this passage, the adjective serves not to modify the noun, but the noun *benefits* is employed to modify the abstract substantive contained in the adjective *forgot*, which is the subject of the proposition, and the principal word in the sentence.

Had Mr Harris attended to this principle, and reflected upon what he could not but know, that all adjectives denote substances; not indeed subsisting by themselves, as those expressed by nouns, but concretely, as the attributes of other substances; he would not have classed adjectives with verbs, or have passed so severe a censure upon the grammarians for classing them with nouns. It matters very little how adjectives are classed, provided their nature and effect be understood; but they have at least as good a title to be ranked with nouns as with verbs, and in our opinion a better. To adopt Mr Harris's language, they are homogeneous with respect to nouns, as both denote substances; they are heterogeneous with respect to verbs, as they never do denote assertion.

Besides original adjectives, there is another class, which is formed from substantives. Thus, when we say, *the party of Pompey*, *the style of Cicero*, *the philosophy of Socrates*; in these cases the *party*, the *style*, and the *philosophy* spoken of, receive a stamp and character from the persons whom they respect; and those persons, therefore, perform the part of attributes. Hence they actually pass into attributives, and assume as such the form of adjectives. It is thus we say, the *Pompeian party*, the *Ciceronian style*, and the *Socratic philosophy*. In like manner, for a trumpet *of brass*, we say a *brazen* trumpet, and for a crown *of gold*, a *golden* crown, &c. Even pronominal substantives admit a similar mutation. Thus, instead of saying the book *of me*, and *of thee*, we say *my* book, and *thy* book;

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nd instead of saying the country *of us* and *of you*, we y *our* country and *your* country. These words, *my*, y, *our*, *your*, &c. have therefore been properly called ronominal adjectives.

It has been already observed, and must be obvious to l, that substances alone are susceptible of sex; and that herefore substantive nouns alone should have distinctons respecting gender. The same is true with respect o number and person. An *attribute* admits of no change its nature, whether it belong to *you* or to *me*, to a *man* a *woman*, to *one man* or to *many*; and therefore the ords expressive of attributes ought on all occasions, and every situation, to be fixed and invariable. For as the ualities *good* and *bad*, *black* and *white*, are the same, whether they be applied to a man or a woman, to many or to w; so the word which expresses any one of these attriutes ought in strictness to admit of no alteration, with hatever substantive it may be joined. Such is the orer of nature, and that order, on this as on other occaons, the English language most strictly observes; for e say equally, *a good man* or *a good woman*; *good men* *good women*; *a good house* or *good houses*. In some nguages, indeed, such as Greek and Latin, of which the ouns admit of cases, and the sentences of an inverted ructure, it has been found necessary to endow adjectives th the threefold distinction of gender, number, and rson; but as this is only an accidental variation, occaoned by particular circumstances, and not in the least ssential to language, it belongs not to our subject, but to e particular grammars of these tongues.

There is, however, one variation of the adjective, which s place in all languages, is founded in the nature of ings, and properly belongs to universal grammar. It is casioned by comparing the attribute of one substance th a similar attribute of another, and falls naturally to explained under the next section.

3. *Of Adverbs, and the Comparison of Adjectives.*

As adjectives denote the attributes of substances, so ere is an inferior class of words which denote the mofications of these attributes. Thus, when we say, "Cicero and Pliny were both of them *eloquent;* Statius d Virgil both of them *wrote*;" the attributes expressed the words *eloquent* and *wrote* are immediately referred Cicero, Virgil, &c.; and as denoting the attributes of bstances, these words, the one an adjective, and the her a verb, have been both called *attributives of the first der*. But when we say, "Pliny was *moderately* eloent, but Cicero *exceedingly* eloquent; Statius wrote *infferently*, but Virgil wrote *admirably;*" the words *morately*, *exceedingly*, *indifferently*, and *admirably*, are not ferrible to substantives, but to other attributes; that is, the words *eloquent* and *wrote*, the signification of which ey modify. Such words, therefore, having the same efct upon adjectives that adjectives have upon substanves, have been called *attributives of the second order*. grammarians they have been called *adverbs;* and if we ke the word *verb* in its most comprehensive signification,[1] including not only verbs properly so called, but also ery species of words which, whether essentially or accintally, are significant of the attributes of substances, we all find the name *adverb* to be a very just appellation, as noting *a part of speech, the natural appendage of such rbs*. So great is this dependence in grammatical syntax, at an adverb can no more subsist without its verb, that is, without some word significant of an attribute, than a verb or adjective can subsist without its substantive. It is the same here as in certain natural subjects. Every colour, for its existence, as much requires a superficies, as the superficies for its existence requires a solid body.

Amongst the attributes of substance are reckoned quantity and quality; thus we say a *white garment*, a *high mountain*, and the like. Now some of these quantities and qualities are capable of intension or remission; or, in other words, one substance may have them in a greater or less degree than another. Thus we say, *a garment* EXCEEDINGLY *white*, *a mountain* TOLERABLY OR MODERATELY *high.* Hence, then, one copious source of secondary attributes or *adverbs* to denote these two, that is, intension and remission; such as *greatly*, *tolerably*, *vastly*, *extremely*, *indifferently*.

But where there are different intensions of the same attribute, they may be compared together. Thus, if the garment A be EXCEEDINGLY *white*, and the garment B be MODERATELY *white*, we may say, the garment A is MORE *white* than the garment B. This paper is *white*, and snow is *white*; but snow is MORE *white* than this paper. In these instances the adverb *more* not only denotes intension, but relative intension; nay, we stop not here, as we not only denote intension merely relative, but relative intension than which there is none greater. Thus we say, Sophocles was *wise*, Socrates was MORE *wise* than he, but *Solomon* was the MOST *wise* of men. Even verbs, properly so called, which denote an attribute as well as an assertion, must admit both of simple and of comparative intensions; but the simple verb *to be* admits of neither the one nor the other. Thus, in the following example, *Fame he* LOVETH MORE *than riches, but virtue of all things he* LOVETH MOST; the words *more* and *most* denote the different comparative intensions of the attribute included under the verb *loveth;* but the assertion itself, which is the essential part of the verb, admits neither of intension nor remission, and is the same in all possible propositions.

From this circumstance of quantities and qualities being capable of intension and remission, arise the *comparison* of adjectives, and its different *degrees*, which cannot well be more than the two species above mentioned; one to denote simple excess, and one to denote superlative. Were we indeed to introduce more degrees than these, we ought perhaps to introduce an infinite number, which is absurd. For why stop at a limited number, when in all subjects susceptible of intension, the intermediate excesses are in a manner infinite? Between the first simple *white* and the superlative *whitest* there are infinite degrees of *more white*; and the same may be said of *more* great, *more* strong, *more* minute, and so on. The doctrine of grammarians about *three* such degrees of comparison, which they call the *positive*, the *comparative*, and the *superlative*, must be absurd; both because in their positive there is no comparison at all, and because their superlative is a comparative as much as their comparative itself. Examples to evince this may be met with everywhere. *Socrates was the* MOST WISE *of all the Athenians*; *Homer was the* MOST SUBLIME *of all poets.* In this sentence Socrates is evidently compared with the Athenians, and Homer with all other poets. Again, if it be said that *Socrates was* MORE WISE *than any other Athenian, but that Solomon was the* MOST WISE *of men*, is not a comparison of Solomon with mankind in general, as plainly implied in the last clause of the sentence, as a comparison of Socrates with the other Athenians in the first?

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[1] Aristotle and his followers called every word a verb which denotes the predicate of a proposition. This classification was certnly absurd; for it confounds not only adjectives and participles, but even substantives, with *verbs;* but the authority of Aristotle as great; and hence the name of adverb, though that word attaches itself only to an adjective or participle, or a verb significant of attribute, and does not attach itself to the pure verb.

But if both imply comparison, it may be asked, in what consists the difference between the comparative and superlative? Does the superlative always express a greater excess than the comparative? It does not; for though Socrates was the *most* wise of the Athenians, yet is Solomon affirmed to have been *more* wise than he; so that here a higher superiority is denoted by the comparative *more* than by the superlative *most.* Is this then the difference between these two degrees, that the superlative implies a comparison of *one with many,* whilst the *comparative* implies only a comparison of *one with one?* No, this is not always the case neither. The Psalmist says, that "he is *wiser* (or *more wise*) than all his teachers;" where, though the comparative is used, there is a comparison of one with many.

The real difference between these two degrees of comparison may be explained thus:—When we use the superlative, it is in consequence of having compared individuals with the species to which they belong, or one or more species with the genus under which they are comprehended. Thus *Socrates was the* MOST WISE *of the Athenians, and the Athenians were the* MOST ENLIGHTENED *of ancient nations.* In the first clause of this sentence, Socrates, although compared with the Athenians, is at the same time considered as one of them; and in the last the Athenians, although compared with ancient nations, are yet considered as one of those nations. Hence it is that in English the superlative is followed by the preposition *of,* and in Greek and Latin by the genitive case of the plural number; to show that the object which has the pre-eminence is considered as belonging to that class of things with which it is compared. But when we use the comparative degree, the objects compared are set in direct opposition; and the one is considered not as a part of the other, or as comprehended under it, but as something altogether distinct and belonging to a different class. Thus, were any one to say, "Cicero was *more eloquent* than the Romans," he would speak absurdly; because every body knows, that of the class of men expressed by the word *Romans,* Cicero was one, and such a sentence would affirm that orator to have been more eloquent than himself. But when it is said that "Cicero was *more eloquent* than all the *other* Romans, or than *any other* Roman," the language is proper, and the affirmation true; for though the persons spoken of were all of the same class or city, yet Cicero is here set in contradistinction to the rest of his countrymen, and is not considered as one of the persons with whom he is compared. It is for this reason that in English the comparative degree is followed by a noun governed by the word of contradistinction *than,* and in Latin by a noun in the ablative case governed by the preposition *præ*[1] either expressed or understood. We have already observed, that the ablative case denotes concomitancy; and therefore when an adjective in the comparative degree is prefixed to a noun, that noun is put in the ablative case, to denote that two things are compared together in company; but by means of the preposition, expressed or understood, that which is denoted by the comparative adjective is seen to be preferred before that which is denoted by the noun.

We have hitherto considered the comparative as expressed by the words *more* and *most;* but the authors or improvers of language have contrived a method of retrenching the use of these adverbs, by expressing their force by an inflexion of the adjective. Thus, instead of *more fair,* they say *fairer;* instead of *most fair, fairest;* and the same method of comparison takes place both in the Greek and Latin languages; with this difference, however, between the genius of these languages and ours, that we are at liberty to form the comparison either in the one method or in the other; whereas in those languages the comparison is seldom or never formed by the assistance of the adverb, but always by the inflexion of the adjective. Hence this inflexion is by the Greek and Latin grammarians considered as a necessary accident of the adjective; but it has reached no further than to adjectives, and participles sharing the nature of adjectives. The attributes expressed by verbs are as susceptible of comparison as those expressed by adjectives; but they are always compared by means of adverbs, the verb being too much diversified already to admit of more variations without perplexity.

It must be confessed, that comparatives, as well the simple as the superlative, seem sometimes to part with their relative nature, and to retain only their intensive. Thus in the degree denoting simple excess,

> *Tristior,* et lacrymis oculos suffusa nitentes.—*Virg.*

Tristior means nothing more than that Venus was very sad. In the degree called the superlative this is more usual. Phrases extremely common are, *Vir doctissimus, vir fortissimus,* "a most learned man, a most brave man;" that is, not the bravest and most learned man that ever existed, but a man possessing those qualities in an eminent degree. In English, when we intimate that a certain quality is possessed in an eminent degree, without making any direct comparison between it and a similar quality, we do it by the intensive word *very,* more commonly than by *most;* as, Cicero was *very* eloquent, the mind of Johnson was *very* vigorous. This mode of expression has been called the superlative of eminence, to distinguish it from the other superlative, which is superlative upon comparison. Yet it may be said, that even in the superlative of eminence something of comparison must be remotely or indirectly intimated, as we cannot reasonably call a man *very* eloquent, without comparing his eloquence with the eloquence of other men. This is indeed true; but we cannot therefore affirm that comparison is more clearly intimated in this superlative than in the simple adjective *eloquent;* for when we say that a man is eloquent, we mark between his eloquence and that of other men a distinction of the same kind, though not in the same degree, as when we say that he is very eloquent.

In English we distinguish the two superlatives, by prefixing to the one the definite article *the,* to show that something is predicated of the object expressed by it, which cannot be predicated of any other object; and by subjoining the preposition *of,* to show that the objects with which it is compared are of the same class with itself; as, "Solomon was *the* wisest *of* men; Hector was *the* most valiant *of* the Trojans." To the other superlative[2] we only prefix

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[1] See Ruddiman, *Grammaticæ Institutiones,* pars secunda, lib. i. cap. 2. Although it is certainly true, that when we use the superlative, we ought in propriety to consider the things compared as of the same class; and when we use the comparative, as of different classes; yet this distinction is not always attended to by the best writers in any language. In Latin and Greek the comparative is sometimes used, where in English we should use the superlative; as *dextra est fortior manuum;* and in the Gospel it is said, that "a grain of mustard-seed is the *smaller* (μικροτερος) of all seeds, but when grown up it is the *greater* (μειζων) of herbs." Even in English, the custom of the language permits us not to say, "he is the *tallest* of the two," it must be the *taller* of the two; but we cannot say "he is the *taller* of the *three,*" it must be the *tallest.* For these and other deviations from the general rule no reason is to be found in the nature of things; they are errors made proper by use.

[2] In English, the termination *est* is peculiar to the superlative of comparison, to which the definite article is prefixed. Thus we may say, "Homer was the *sublimest* of poets;" but we cannot say, "Homer was a sublimest poet." Again, we may say, "Homer was *a very* sublime poet;" but not, "Homer was *the very* sublime poet."

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the indefinite article *a;* as, "he was *a very* good man; he was *a most* valiant soldier."

As there are some qualities which admit of comparison, so there are others which admit of none; such, for example, are those which denote that quality of bodies arising from their figure, as when we say, a *circular* table, a *quadrangular* court, a *conical* piece of metal, and the like. The reason is, that a million of things participating the same figure, participate it equally, if they do it at all. To say, therefore, that whilst A and B are both quadrangular, A is *more* or *less* quadrangular than B, is absurd. The same holds true in all attributives denoting definite quantities of whatsoever nature; for as there can be no comparison without intension or remission, and as there can be no intension or remission in things always definite, therefore these attributives can admit of no comparison. By the same method of reasoning, we discover the cause why no substantive is susceptible of these degrees of comparison. A mountain cannot be said *more to be* or *to exist* than a mole-hill; but the *more* or *less* must be sought for in their quantities. In like manner, when we refer many individuals to one species, the lion A cannot be called *more* a lion than the lion B; but if more any thing, he is *more* fierce, *more* swift, or exceeding in some such attribute. So, again, in referring many species to one genus, a crocodile is not *more* an animal than a lizard; nor a tiger more than a cat; but, if any thing, the crocodile and tiger are *more* bulky, *more* strong, &c. than the animals with which they are compared; the excess, as before, being derived from their attributes.

Of the adverbs or secondary attributives already mentioned, those denoting intension and remission may be called *adverbs of quantity continuous*, as *greatly*, *vastly*, *tolerably*, &c. *once*, *twice*, *thrice*, &c.[2] are *adverbs of quantity discrete*, as *more* and *most*, *less* and *least*, to which may be added *equally*, *proportionally*, &c. are *adverbs of relation*. There are others of *quality;* as when we say, *honestly* industrious, *prudently* brave; they fought *bravely*, he painted *finely*.

And here it may be worth while to observe, how the same thing, participating the same essence, assumes different grammatical forms from its different relations. For example, suppose it should be asked, How differ *honest*, *honestly*, and *honesty?* The answer is, they are in essence the same; but they differ in as much as *honest* is the attribute of a noun; *honestly*, of a verb or adjective; and *honesty* being divested of these its attributive relations, assumes the power of a noun or substantive, so as to stand by itself.

The adverbs hitherto mentioned are common to verbs of every species; but there are some which are confined to verbs properly so called, that is, to such verbs as denote motions or energies with their privations. All motion and rest imply time and place as a kind of necessary coincidence. Hence, when we would express the place or time of either, we have recourse to adverbs formed for this purpose; of *place*, as when we say, he stood *there*, he went *hence*, he came *hither;* of time, as when we say, he stood *then*, he went *afterwards*, he travelled *formerly*. To these may be added the adverbs which denote the intensions and remissions peculiar to *motion*, such as *speedily*, *hastily*, *swiftly*, *slowly*, &c.; as also adverbs of place made out of prepositions, such as *upwards* and *downwards*, from *up* and *down*. It may, however, be doubted whether some of these words, as well as many others, which do not so properly modify attributes, as mark some remote circumstance attending an attribute or our way of conceiving it, are truly adverbs, though so called by the grammarians. The simple affirmative and negative *yes* and *no* are called adverbs, though they surely do not signify that which we hold to be the very essence of the adverb, a modification of attributes. "Is he learned? No." "Is he brave? Yes." Here the two adverbs, as they are called, signify not any modification of the attributes *brave* and *learned*, but a total negation of the attribute in the one case, and in the other a declaration that the attribute belongs to the person spoken of.

Adverbs are indeed applied to many purposes; and their general nature may be better understood by reading a list of them, and attending to their etymology, than by any general description or definition. Many of them seem to have been introduced into language in order to express by one word the meaning of two or three, and are mere abbreviations of nouns, verbs, and adjectives. Thus, the import of the phrase, *in what place*, is expressed by the single word *where;* to what place, by *whither;* from this place, by *hence;* in a direction ascending, by *upwards;* at the present time, by *now;* at what time, by *when;* at that time, by *then;* many times, by *often;* not many times, by *seldom;* and so of others.

Mr Horne Tooke has, with great industry and accuracy, traced many of the English adverbs from their origin in the ancient Saxon and other northern tongues, and shown them to be either corruptions of other words or abbreviations of phrases and sentences. He observes, "that all adverbs ending in *ly*, the most prolific branch of the family, are sufficiently understood; the termination being only the word *like* corrupted, and the corruption so much the more easily and certainly discovered, as the termination remains more pure and distinguishable in the other sister languages, in which it is written *lick, lyh, lig, ligen*." He might have added, that in Scotland the word *like* is, at this day, frequently used instead of the English termination *ly;* as for a *goodly figure*, the common people say a *good-like* figure. Upon this principle the greater part of adverbs are resolved into those parts of speech which we have already considered, as *honestly* into *honest-like*, *vastly*, into *vast-like*, &c.; so that when we say of a man he is *honestly industrious*, we affirm that he is *honest-like industrious*, or that his industry has the appearance of being honest. Adverbs of a different termination the same acute writer resolves thus; *aghast* into the past participle *agazed;*

> The French exclaimed, the Devil was in arms.
> All the whole army stood *agazed* on him.—*Shaksp.*

Ago, into the past participle *agone* or *gone*. *Asunder* he derives from *asundered*, separated; the past participle of the Anglo-Saxon verb *asundrien*, a word which, in all its varieties, is to be found in all the northern tongues, and comes originally from *sond*, that is, sand. *To wit*, from *wittan*, to know; as *videlicet* and *scilicet*, in Latin, are abbreviations of *videre-licet* and *scire-licet*. *Needs*, he resolves into *need is*, used parenthetically; as, "I must *needs* do such a thing." "I must (need is) do such a thing;" that is, "I *must* do it, there *is need* of it." *Anon*, which our old authors use for *immediately*, *instantly*, means, he says, *in one*, that is, *in one instant*, *moment*, *minute*. As,

> And right *anon* withouten more abode.
> *Anon* in all the haste I can.

Alone and *only* are resolved into *all one*, and *one-like*. In the Dutch, *een* is one; and *all een* alone; and *all-een-like*, only, anciently *alonely*. *Alive* is on live, or in life. Thus, in Chaucer,

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[1] When Pope says of a certain person, that he is "a tradesman, meek, and *much a liar*," the last phrase is the same with *much given* to lying, the word *liar* having the effect of an attributive.

[2] These words were anciently written *one's*, *twie's*, *thrie's*, and are merely the genitives of *one*, *two*, *three*, the substantive *time* or *turn* being omitted. Thus, *How often did you write?* Answer, *Once*, that is, *one's time*. (See Horne Tooke's *Diversions of Purley*).

Christ eterne *on live.*

Aught or *ought; a whit* or *o whit; o* being formerly written for the article *a*, or for the numeral *one;* and *whit* or *hwit*, in Saxon, signifying a small thing, as a *point* or *jot*. *Awhile*, which is usually classed with adverbs, is evidently a noun with the indefinite article prefixed; *a while*, that is, *a time*. *Whilst*, anciently and more properly *whiles*, is plainly the Saxon *hwilees, time that*. *Aloft* was formerly written *on-loft*. As, in Chaucer,

And ye, my mother, my soveregne pleasance
Over al thing, *out take* Christ *on lofte.*

Now, says Mr Horne Tooke, *lyft*, in the Anglo-Saxon, is the air or the clouds, as, *in lyfte cummende*, coming in the clouds (St Luke). In the Danish, *luft* is air; and "at spronge i *luften*," to blow up into the air, or *aloft*. So in the Dutch, *de loef hebben*, to sail before the wind; *loeven*, to ply to windward; *loef*, the weather gage, &c. From the same root are our other words, *Loft, lofty*, to *luff, lee, leeward, lift*, &c. It would be needless, as the ingenious author observes, to notice such adverbs as, *afoot, adays, ashore, astray, aslope, aright, abed, aback, abreast, afloat, aloud, aside, afield, aground, aland*, &c. These are at first view seen for what they are. Nor shall we follow him through the analysis which he has given of many other adverbs, of which the origin is not so obvious as of these. Of the truth of his principles we are satisfied; and have not a doubt, but that upon those principles a man conversant with our earliest writers, and thoroughly skilled in the present languages, may trace every English adverb[1] to its source, and show that it is no part of speech separate from those which we have already considered. The adverbs, however, of affirmation and negation, are of too much importance to be thus passed over; and as we have never seen an account of them at all satisfactory, except that which has been given by Mr Horne Tooke, we shall transcribe the substance of what he says concerning *aye, yea, yes*, and *no*. To us these words have always appeared improperly classed with adverbs, upon every definition which has been given of that part of speech. Accordingly, our author says, that *aye* or *yea* is the imperative of a verb of northern extraction; and means *have, possess, enjoy*. And *yes* is a contraction of *ay-es*, have, possess, enjoy, *that*. Thus, when it is asked whether a man be learned, if the answer be by the word *yes*, it is equivalent to *have that, enjoy that* belief or that proposition.

The northern verb of which *yea* is the imperative, is in Danish *ejer*, to possess, have, enjoy. *Eja*, aye or yea; *eje*, possession; *ejer*, possessor. In Swedish it is *ega*, to possess, of which the imperative is *ja*, aye, yea; *egare*, possessor. In German, *ja* signifies aye or yea; *eigener*, possessor, owner; *eigen*, own. In Dutch, *eigenen* is to possess; *ja*, yea. Greenwood derives *not* and its abbreviate *no* from the Latin; Minshow, from the Hebrew; and Junius, from the Greek. Our author very properly observes, that the inhabitants of the north could not wait for a word expressive of dissent till the establishment of those nations and languages; and adds, that we need not be inquisitive nor doubtful concerning the origin and signification of *not* and *no;* since we find that, in the Danish *nodig*, in the Swedish *nodig*, and in the Dutch, *noode, node*, and *no*, mean averse, unwilling. So that when it is asked whether a man be brave, if the answer be *no*, it is a declaration that he who makes it is averse from or unwilling to admit that proposition.

Most writers on grammar have mentioned a species of adverbs, which they call adverbs of interrogation, such as *where, whence, whither, how*, &c. But the truth is, that there is no part of speech which, of itself, denotes interrogation. A question is never asked otherwise than by abbreviation, by a single word, whether that word be a noun, a pronoun, a verb, or an adverb. The word *where* is equivalent to in what place; *whence*, to from what place; and *how*, to in what manner, &c. In these phrases, *in* what place, *from* what place, and *in* what manner, the only word that can be supposed to have the force of an interrogative, is *what*, which is resolvable into *that which*. But we have already explained, under the head of Pronouns, the principles upon which the relative is made to denote interrogation; and the same reasoning will account for the adverbs *where, whence, whither, how*, &c. being employed as interrogatives. When we say, "Where were you yesterday? whence have you come? whither are you going? how do you perform your journey?" we merely use so many abbreviations for the following sentences: "Tell us, or describe to us, *the place where* (or in which) you were yesterday; *the place whence* (or from which) you have come; *the place to which* you are going; *the manner in which* you perform your journey? And so much for adverbs. We now proceed to those parts of speech which are usually called prepositions and conjunctions, and of which the use is to connect the other words of a sentence, and to combine two or more simple sentences into one compound sentence.

VI.—*Of Prepositions, Conjunctions, and Interjections.*

It has been observed, that a man whilst awake is conscious of a continued train of perceptions and ideas passing in his mind, which depends little upon his own will; that he cannot to the train add a new idea; and that he can but very seldom break its connection. To the slightest reflection these truths must be apparent. Our first ideas are those which we derive from external objects making impressions on the senses; but all the external objects which fall under our observation are linked together in such a manner as indicates them to be parts of one great and regular system. When we take a view of the things by which we are surrounded, and which are the archetypes of our ideas, their inherent qualities are not more remarkable than the various relations by which they are connected. Cause and effect, contiguity in time or place, high and low, prior and posterior, resemblance and contrariety, with a thousand other relations, connect things together without end. There is not a single thing which appears solitary and altogether devoid of connection. The only difference is, that some are intimately and some slightly connected, some nearly and some at a distance. That the relations by which external objects are thus linked together must have great influence in directing the train of human thought, so that not one perception or idea can appear to the mind wholly unconnected with all other perceptions or ideas, will be admitted by every man who

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[1] The same resolution might probably be made of the Greek and Latin adverbs, were we as intimately acquainted with the sources of those tongues as Mr Horne Tooke is with the sources of the English language. "Many of the Latin adverbs," says Ruddiman, "are nothing else but adjective nouns or pronouns, having the preposition and substantive understood; as *quo, eo, eodem*, for *ad quæ, ea, eadem (loca)* or *cui, ei, eidem (loco);* for of old these datives ended in *o*. Thus, *qua, hac, illac*, &c. are plainly adjectives in the ablative singular feminine, the word *via*, "a way," and the preposition *in*, being understood. Many of them are compounds; as, *quomodo*, i. e. *quo modo; quemadmodum*, i. e. *ad quem modum; quamobrem*, i. e. *ob quam rem; quare*, i. e. *(pro) qua re; quorsum*, i. e. *versus quem (locum); scilicet*, i. e. *scire licet; videlicet*, i. e. *videre licet; ilicet*, i. e. *ire licet; illico*, i. e. *in loco; magnopere*, i. e. *magno opere; nimirum*, i. e. *ni (est) mirum; hodie*, i. e. *hoc die; postridie*, i. e. *postero die; pridie*, i. e. *præ die*. *Perfecto, certe, sane, male, bene, plane*, are obviously adjectives. *Forte* is the ablative of *fors;* and if we had leisure to pursue the subject, and were masters of all the languages from which the Latin is derived, we doubt not but we should be able to resolve every adverb into a substantive or adjective.

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lieves that his senses and intellect represent things as they are.

This being the case, it is necessary, if the purpose of language be to communicate thought, that the speaker be furnished with words, not only to express the ideas of substances and attributes which he may have in his mind, but also to indicate the order in which he views them, and to point out the various relations by which they are connected. In many instances all this may be done by the parts of speech which we have already considered. The closest connection which we can conceive, is that which subsists between a substance and its qualities; and in every language with which we are acquainted, that connection is indicated by the immediate coalescence of the adjective with the substantive; as we say, *a good man, a learned man; vir bonus, vir doctus.* Again, there is a connection equally intimate, though not so permanent, between an agent and his action; for the action is really an attribute of the agent; and therefore we say, the *boy reads*, the *man writes;* the noun coalescing with the verb so naturally, that no other word is requisite to unite them. Moreover, an action and that which is acted upon being contiguous in nature, and mutually affecting each other, the words which denote them should in language be mutually attractive, and capable of coalescing without external aid; as, he *reads a book*, he *builds a house*, he *breaks a stone.* Further, because an attribute and its modifications are inseparably united, an adjective or a verb is naturally connected with the adverb which illustrates or modifies its signification; and therefore, when we say, he *walks slowly*, he is *prudently brave*, it is plain that no other word is necessary to promote the coalescence of the attributes "walking" and "bravery" with their modifications of "slowness" and "prudence." The agreement between the terms of any proposition which constitutes truth is absolutely perfect; but as either of the terms may agree with many other things besides its correlate, some word is requisite in every proposition to connect the particular predicate with the particular subject; and that is the office of the simple verb *to be;* as, the three angles of every triangle *are* equal to two right angles.

Thus we see that many of the relations subsisting between our ideas may be clearly expressed by means of nouns, adjectives, verbs, and adverbs; and in those languages of which the nouns have cases, there is perhaps no relation of much importance which might not be thus pointed out, without being under the necessity of employing the aid of any additional part of speech. In English, however, the case is otherwise; for were we to say, "He rode Edinburgh, went the parliament-house, walked his counsel the court met," we should speak unintelligibly; as in these expressions there is either a total want of connection, or such a connection as produces falsehood and nonsense. In order to give meaning to the passage, the several gaps must be filled up by words significant of the various relations by which the different ideas are connected in the mind; as, "He rode *to* Edinburgh, went *to* the parliament-house, *and* walked *with* his counsel *till* the court met." Of these *connecting* words, *to* and *with* are called *prepositions*, *and* and *till* are usually called *conjunctions.* Although these prepositions and conjunctions are not so absolutely necessary in Greek and Latin as they are in English, yet as there is no language wholly without them, nor any language in which it is not of importance to understand their force, they well deserve a place in universal grammar.

The sole use of conjunctions and prepositions in language is to connect either sentences or other words; but the theory of these connectives themselves has certainly never been understood, unless Mr Horne Tooke has at last hit upon the truth. Mr Harris writes about them and about them, quoting passages from Greek and Latin authors, and produces at last no information. His definitions of both, as parts of speech void of signification, are highly absurd; and even the principal distinction which he makes between them seems not to be well founded. Prepositions and conjunctions denote the relations subsisting between the ideas expressed by those words or sentences which they serve to connect; and as relations are contemplated by the mind as well as positive ideas themselves, the words which denote these relations cannot be insignificant. The essential difference between the conjunction and preposition, according to the same author, consists in this, that the former connects sentences, and the latter words; but the fact is often otherwise. An obvious example occurs where the conjunction *and* connects not sentences but words. "A man of wisdom *and* virtue is a perfect character." Here it is not meant to be asserted, "that the man of *wisdom* is a perfect character, *and* that the man of *virtue* is a perfect character;" for both these assertions would be false. This sentence therefore (and many such will occur) is not resolvable into two; whence it follows, that the conjunction *and* does not always connect sentences; and the same is frequently the case with other conjunctions.

Mr Horne Tooke's idea of prepositions and conjunctions is, that they do not form distinct classes of words, but are merely abbreviations of nouns and verbs; and, with respect to the English language, he has been remarkably successful in proving his position. But though such be undeniably the case in English, it would be rash to conclude *a priori* that it is so in all other tongues. To establish this general conclusion would require a long and tedious deduction in each particular language; and how much language, leisure, industry, and acuteness, such an undertaking would require, even in one tongue, it is not easy to determine. In the languages with which we are best acquainted, many conjunctions, and most prepositions, have the appearance at least of original words; and though this most acute grammarian, from his knowledge of the northern tongues, has been able to trace the most important of those in English to very plausible sources, the same thing would be difficult in other languages of which the sources are obscure, and absolutely impossible in those of which they are wholly unknown. It is, however, a strong presumption in favour of his opinion, that grammarians have never been able to assign any general characteristic of those species of words, which, did they constitute distinct parts of speech, one would think could not have so long remained undiscovered. It is a further presumption in his favour, that many words in Greek and Latin, as well as in English, which have been called conjunctions, are obviously resolvable upon his principles, and indeed discover their meaning and origin upon mere inspection. We shall therefore content ourselves with retailing the common doctrine respecting these parts of speech so far as it is intelligible, subjoining at the bottom of the page the analysis given by Mr Horne Tooke, of the most important English conjunctions and prepositions; and requesting our readers, who would understand the subject, to attend more to the relations between their various ideas, than to the frivolous distinctions which, in compliance with custom, we are compelled to lay before them. We shall treat first of the *conjunction.*

1. *Of Conjunctions.*

A conjunction is a part of speech of which, as its name indicates, the use is to connect either two or more words in a sentence, or to make of two simple sentences one compound sentence. It is usually said that conjunctions never connect words, but sentences only, and that this is the circumstance which distinguishes them from *prepositions.* We

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have already given one example which proves this distinction to be ill founded; we shall now give from Mr Horne Tooke one or two more, which will place its absurdity in a still clearer light: Two *and* two are four; John *and* Jane are a handsome couple; AB *and* BC *and* CA form a triangle. Are *two four?* Is *John* a *couple* and *Jane* a *couple?* Does *one straight line* form a *triangle?* It appears indeed that *and* may connect any two things which can be connected, as it signifies addition.[1]

Conjunctions connecting sentences sometimes connect their meaning, and sometimes not. For example, let us take these two sentences, "Rome was enslaved, Cæsar was ambitious," and connect them together by the conjunction *because;* "Rome was enslaved *because* Cæsar was ambitious." Here the meanings, as well as the sentences, appear to be connected by that natural relation which subsists between an effect and its cause; for the enslaving of Rome was the effect of Cæsar's ambition. That particular relation therefore is that which is denoted by the conjunction *because*,[2] which would be improperly used to connect two sentences between which the relation of an effect to its cause exists not. But if it be said, "manners must be reformed, *or* liberty will be lost;" here the conjunction *or*, though it joins the sentences, yet as to their meaning is a perfect disjunctive. Between the reformation of manners and the loss of liberty there is certainly a natural relation; but it is not the relation of contiguity or similitude, or of cause and effect, but of contrariety. The relation of contrariety therefore is the signification of the word *or*.[3] And thus it appears, that though all conjunctions may combine sentences, yet, with respect to the sense, some are *conjunctive* and others *disjunctive*.

Those conjunctions which conjoin both sentences and their meanings are either *copulatives* or *continuatives*. The principal copulative in English is *and*, which we have already considered. The continuatives are much more numerous; *if, an, because, therefore, wherefore, hence*, &c. The difference between them is this: The copulative does no more than barely couple words or sentences, and is therefore applicable to all subjects of which the natures are not incompatible.[4] The relation which it denotes is that of juxtaposition, or of one thing added to another. Continuatives, on the contrary, by a more intimate connection, consolidate sentences into one continuous whole; and are therefore applicable only to subjects which have an essential relation to each other, such as that of an effect to its cause, or of a cause to its effect. For example, it is no way improper to say, "Lysippus was a statuary, *and* Priscian a grammarian; the sun shineth, *and* the sky is clear;" because these are things that can co-exist, and yet imply no absurdity. But it would be absurd to say, "Lysippus was a statuary *because* Priscian was a grammarian;" though not to say, "the sun shineth *because* the sky is clear." With respect to the first, the reason is, that the word *because* denotes the relation which an effect bears to its cause; but the skill of Priscian in grammar could not possibly be the cause of Lysippus's skill in statuary; the coincidence between the skill of the one and that of the other, in arts so very different, was merely accidental. With respect to the shining of the sun and the clearness of the sky, the case is widely different; for the clearness of the sky is the *cause* of the sun's shining, at least so as to be seen by us.

As to the continuatives, they are either *suppositive*, such as *if, an;* or *positive*, such as *because, therefore, as*, &c. Take examples of each: "You will live happily *if* you live honestly; you live happily *because* you live honestly; you live honestly, *therefore* you live happily." The difference between these continuatives is this: The suppositives denote connection, but do not assert actual existence; the positives imply both the one and the other.[5]

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[1] *And* is a Saxon word, being, according to Mr Horne Tooke, an abbreviation of ANAD, the imperative of the verb ANANAD, *to add to* or *heap up*. So that when we say *two* AND *two are four*, we only declare that *two* ADDED TO *two are four*.

[2] *Because* is compounded of the Saxon BE, *by*, and *cause;* and by some of our most ancient authors it was written BY CAUSE. "*Rome was enslaved* BECAUSE *Cæsar was ambitious*," is therefore equivalent to, "*Rome was enslaved by the cause* CÆSAR WAS AMBITIOUS;" taking the phrase, "Cæsar was ambitious," as an abstract noun in concord with the other noun cause.

[3] *Or* seems to be a mere contraction of the Saxon ODER, which signifies *other*, that is, something different and often contrary. So that the conjunction *or* must always denote diversity, and very often contrariety.

[4] As *day* and *night, heat* and *cold;* for we cannot say of the same portion of time, *it is day* AND *it is night;* or of the same body, it is both *hot* AND *cold*.

[5] The reason of all this will be apparent from the analysis given by Mr Horne Tooke of those words which we have called suppositive conjunctions. *If* and *an* may be used mutually and indifferently to supply each other's place; for they are both verbs, and of the same import. *If* is merely the imperative of the Gothic and Anglo-Saxon verb GIFAN, *to give;* and in those languages, as well as in the English formerly, this supposed conjunction was pronounced and written as the common imperative GIF. Thus,

> My largesse
> Hath lotted her to be your brother's mistresse,
> *Gif* shee can be reclaimed; *gif* not, his prey. *Sad Shepherd.*

Gawin Douglass almost always uses *gif* for *if*, as the common people in some counties of Scotland do even at this day; and it is obvious, that our *if* has always the signification of the English imperative *give*, and no other. So that the resolution of the construction in the sentence, "IF *you live honestly you will live happily*," is simply this, "GIVE *you live honestly* (taking *you live honestly* as an abstract noun) *you will live happily*." Your living *happily* is declared to depend upon your living *honestly* as the *condition;* but *give that*, and your happiness is positively asserted. In like manner may such sentences be resolved as,

> I wonder he can move! that he's not fixed!
> IF THAT his feelings be the same with mine.

Thus, "His feelings be the same with mine, *give that*, I wonder he can move," &c. And here we cannot forbear giving our assent to the truth of Mr Horne Tooke's observation, that when the datum upon which any conclusion depends is a sentence, the article *that*, if not expressed, may always be inserted. We do not, however, think the insertion at all times absolutely necessary to complete the syntax; for active verbs govern whole sentences and clauses of sentences as well as substantive nouns. Instances of this occur so frequently in the Latin classics, that they can have escaped no man's notice who has ever read Horace or Virgil with attention. We agree likewise with this most ingenious author, that where the datum is not a sentence, but some noun governed by the verb *if* or *give*, the article *that* can never be inserted. For example, if we be asked how the weather will dispose of us to-morrow, we cannot say: "*If that* fair, it will send us abroad; *if that* foul, it will keep us at home;" but "*if* fair, it will send us abroad," &c. The reason is obvious. The verb in this case directly governs the noun; and the resolved construction is, "*give* fair weather, it will send us abroad; *give* foul weather, it will keep us at home."

An, the other suppositive conjunction mentioned, is nothing else than the imperative of the Anglo-Saxon verb ANAN, which likewise means *to give* or *to grant*. As, "*An* you had an eye behind you, you might see more detraction at your heels than fortune before you;" that is, "*Grant* you had an eye behind you, you might see," &c. This account of the two conditional conjunctions in English is so rational and satisfactory, that we are strongly inclined to believe that all those words which are so called, are in all languages to be accounted for in the same manner. Not indeed that they must all mean precisely *to give* or *grant*, but some word equivalent; such as, *be it, suppose, allow, permit;* which meaning is to be sought for in the particular etymology of each respective language.

The positives above mentioned are either *causal*, such as *because, since, as*, &c.;[1] or *collective*, such as *therefore, wherefore*, &c. The difference between them is this: The causals subjoin causes to effects; as, "the sun is in eclipse, *because* the moon intervenes:" the collectives subjoin effects to causes; as, "the moon intervenes, *therefore*[2] the sun is in eclipse." We therefore use causals in those instances where, the effect being conspicuous, we seek for its cause; and collectives, in demonstration and science, properly so called, where the cause being first known, by its help we discern effects.

As to causal conjunctions, we may further observe, that there is not one of the four species of causes which they are not capable of denoting. For example, the *material* cause; "The trumpet sounds *because* it is made of metal." The *formal;* "The trumpet sounds *because* it is long and hollow." The *efficient;* "The trumpet sounds *because* an artist blows it." The *final;* "The trumpet sounds *that* it may raise our courage." It is worth observing, that the first three causes are expressed by the strongest affirmation; because if the effect actually be, these must be also. But this is not the case with respect to the last, which is only affirmed as a thing that may happen. The reason is obvious; for whatever may be the end which set the artist first to work, that end it may still be beyond his power to obtain; as, like all other contingents, it may either happen or not. Hence also it is connected by a particular conjunction, *that*,[3] absolutely confined to this cause.

We come now to the *disjunctive conjunctions*, a species of words which bear this contradictory name, because whilst they *conjoin* the sentences, they *disjoin* the sense; or, to speak a language more intelligible, they denote relations of *diversity* or *opposition*.

That there should be such words, whether called conjunctions or not, is extremely natural. For as there is a principle of *union* diffused throughout all things, by which *this whole* is kept together and preserved from dissipation; so is there in like manner a principle of *diversity* diffused throughout all, the source of distinction, of number, and of order. Now it is to express in some degree the modifications of this diversity, that those words called *disjunctive conjunctions* are employed.

Of these disjunctives some are *simple* and some *adversative:* Simple, as when we say, "*either* it is day or it is night;" adversative, as when we say, "it is not day, *but* it is night." The difference between these is, that the simple express nothing more than a relation of *diversity;* the adversative express a relation not barely of diversity, but also of *opposition*. Add to this, that the adversatives are *definite*, the simple *indefinite*. Thus, when we say, "the number three is not an even number, *but*[4] an odd," we not only disjoin two opposite attributes, but we definitely af-

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[1] Of the causal conjunctions mentioned in the text, *because* has been already considered; and some account must be given of the two words *since* and *as*. The former of these, according to Mr Horne Tooke, is a very corrupt abbreviation, confounding together different words and different combinations of words. To us it appears to be compounded of SEAND, *seeing*, and ES, *that* or *it;* or of SIN, *seen*, and ES. *Seand* and *sin* are the present and past participles of the Anglo-Saxon verb SEON, *to see*. In modern English *since* is used four ways; two as a preposition affecting words, and two as a conjunction affecting sentences. When used as a preposition, it has always the signification of the past participle SEEN joined to THENCE (that is, *seen and thenceforward*), or else the signification of the past participle *seen* only. When used as a conjunction, it has sometimes the signification of the present participle *seeing*, or *seeing that;* and sometimes the signification of the past participle *seen*, or *seen that*. We shall give examples of all these significations. 1*st*, As a preposition signifying SEEN *and thenceforward:* "A more amiable sovereign than George III. has not swayed the English sceptre SINCE *the conquest*." That is, "*The conquest seen* (or at the completion of the sight of the conquest), and thenceforward, a more amiable sovereign than George III. has not swayed the English sceptre." *Since*, taken in this sense, seems rather to be a corruption of *siththan* or *sithence*, than a compound of *seand* and *es*. 2*dly*, As a preposition signifying SEEN simply: "Did George II. reign *before* or SINCE that example?" 3*dly*, As a conjunction, *since* means *seeing that:* as, "If I should labour for any other satisfaction but that of my own mind, it would be an effect of frenzy in me, not of hope; SINCE (or *seeing that*) it is not truth, but opinion, that can travel through the world without a passport." 4*thly*, It means *seen that* or *that seen;* as, "*Since* death in the end takes from all whatsoever fortune or force takes from any one, it were a foolish madness in the shipwreck of worldly things, when all sinks but the sorrow, to save that;" that is, "Death in the end takes from all whatsoever fortune or force takes from any one; *that seen*, it were a foolish madness," &c.

As, the other *causal* conjunction mentioned in the text, is an article meaning always *it*, or *that*, or *which*. Take the following example:

She glides away under the foamy seas
As swift AS darts or feather'd arrows fly.

That is, "She glides away (with) *that* swiftness (with) *which* darts or feathered arrows fly." In German, where *as* still retains its original signification and use, it is written *es*. *So* is another conjunction of the same import with *as*, being evidently the Gothic article *sa* or *so*, which signifies *it* or *that*.

[2] As Mr Harris has called *therefore, wherefore*, &c. collective conjunctions, we have retained the denomination, though perhaps a more proper one might be found. It is indeed of little consequence what name any class of words be called, provided the import of the words themselves be understood. *Wherefore* and *therefore* evidently denote the relation of a cause to its effects. They are compounds of the Saxon words HWÆR and THÆR with FOR or VOOR; and signify *for which, for those*, or *for that*. It is worthy of remark, that in some parts of Scotland the common people even at this day use *this* for *these*.

[3] We have already considered the word *that*, and seen that it is never a conjunction, but uniformly a definite article. "The trumpet sounds (for) *that* it may raise our courage;" taking the clause "it may raise our courage" as an abstract noun in concord with *that* and governed by *for*. Or the sentence may be resolved thus: "The trumpet may raise our courage (for) that (purpose) it sounds."

[4] Mr Horne Tooke has favoured us with some ingenious remarks on the two different derivations of the word BUT, when used in the two acceptations which are usually annexed to it, viz. that which it bears in the beginning of a sentence, and that which it has in the middle. He has given it as his opinion, that this word, when employed in the former way, is corruptly put for BOT, the imperative of the Saxon verb BOTAN, *to boot, to superadd, to supply*, &c. and that when used in the latter it is a contraction of BE-UTAN, the imperative of BEON-UTAN, *to be out*. Our ancient writers made the proper distinction between the orthography of the one word and that of the other. Gawin Douglass, in particular, although he frequently confounds the two words, and uses them improperly, does yet abound with many instances of their proper use; and so contrasted, as to awaken, says our author, the most inattentive reader. Of the many examples quoted by him, we shall content ourselves with the two following:

BOT thy worke shall endure in laude and glorie,
BUT spot or fault condigne eterne memorie.

BOT gif the fates, BUT pleid,
At my pleasure suffer it me life to leid.

If this derivation of the word BUT from BOTAN, *to superadd*, be just, the sentence in the text, "the number three is not an even number, BUT an odd," will be equivalent to "the number three is not an even number, superadd (it is) an odd number;" and if so, the opposition is not marked (at least directly) by the word *but*, but by the adjectives *even* and *odd*, which denote attributes in their own nature opposite. It is only when BUT has this sense that it answers to *sed* in Latin, or to *mais* in French. In the second line of the quotation from Gawin Douglass's Preface the word BUT is evidently a contraction of BE-UTAN, and has a sense very different from

Conjunctions.

firm the one to belong to the subject, and deny the other. But when we say, "the number of the stars is *either*[1] even *or* odd," though we assert one attribute to be, and the other not to be, yet the alternative is notwithstanding left indefinite.

As to adversative disjunctives, it has been already said, after Mr Harris, that they imply *opposition;* but the truth seems to be, that they only unite in the same sentence words or phrases of opposite meanings. Now it is obvious, that opposite attributes cannot belong to the same subject; as when we say, "Nereus was beautiful," we cannot *superadd* to this sentence that he was ugly; we cannot say, "he was beautiful *but* ugly." When there is opposition, it must be either of the same attribute in different subjects; as when we say, "Brutus was a patriot, *but* Cæsar was not;" or of different attributes in the same subject, as when we say, "Georgius was a sophist, *but* not a philosopher;" or of different attributes in different subjects, as when we say, "Plato was a philosopher, *but* Hippias was a sophist." The conjunctions used for all these purposes have been called absolute adversatives, we think improperly, as the opposition is not marked by the conjunctions, but by the words or sentences which they serve to connect. Mr Locke, speaking of the word *but,* says, that "it sometimes intimates a stop of the mind, in the course it was going, before it came to the end of it;" to which Mr Horne Tooke replies with truth, that *but* itself is the farthest of any word in the language from intimating a stop. On the contrary, it always intimates something to follow; insomuch that when any man in discourse finishes his words with *but,* instead of supposing him to have stopped, we always ask, *but* what?

Besides the adversatives already mentioned, there are two other species, of which the most important are *unless* and *although.* For example, "Troy will be taken, *unless* the palladium be preserved; Troy will be taken, *although* Hector defend it." The nature of these adversatives may thus be explained. As every event is naturally allied to its cause, so by parity of reason it is opposed to its preventive; and as every cause is either adequate or inadequate (inadequate when it endeavours without being effectual), so in like manner is every preventive. Now adequate preventives are expressed by such adversatives as *unless:* "Troy will be taken, *unless* the palladium be preserved;" that is, this alone is sufficient to prevent it. The inadequate are expressed by such adversatives as *although:* "Troy will be taken, *although* Hector defend it;" that is, Hector's defence will prove ineffectual. These may be called adversatives *adequate* and *inadequate.*

Conjunctions.

Such is the doctrine of Mr Harris, which, although we can discover in it no determinate meaning, we have ventured with others to retail, from respect to our readers, who may be more perspicacious than ourselves. The author was a man of great learning, and the subject, as he has treated it, appears to be intricate. But whatever sense or nonsense there may be in what he says of causes and preventives, adequate and inadequate, we have no hesitation in affirming that he has totally mistaken the import of the words *unless* and *although.* From these being called both preventives, the one adequate and the other inadequate, an unwary reader might be led to infer that they denote the same idea or the same relation; and that the whole difference between them is, that the expression of the one is more forcible than that of the other. Nothing, however, can be further than this from the truth. The meaning of *unless* is directly opposite to that of *although. Unless*[2] and *though* are both verbs in the imperative mode; the former signifying *take away* or *dismiss,* the latter *allow, permit, grant, yield, assent.* This being the case, "Troy will be taken *unless* the palladium be preserved," is a sentence equivalent to "*Remove* the palladium be preserved (taking *the palladium be preserved* as an abstract noun, *the preservation of the palladium*) Troy will be taken." Again, "Troy will be taken, *although* Hector defend it," is the same as "Troy will be taken *allow* Hector (to) defend it." The idea, therefore, expressed by *unless* is that of the *removal* of one thing to make way for another; the idea expressed by *although*[3] is that of *allow-*

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that of BOT in the preceding line. The meaning of the couplet is, "SUPERADD (to something said or supposed to be said before) thy worke shall endure in laude and glorie, BE OUT (id est, *without*) spot or fault." In the following passage from Donne, the word BUT, although written in the same manner, is used in both its meanings: "You must answer that she was brought very near the fire, and as good as thrown in; or else, that she was provoked to it by a divine inspiration. BUT that another divine inspiration moved the beholders to believe that she did therein a noble act, this act of her's might have been calumniated." That is, "You must answer that she was brought very near the fire," &c. "Superadd (to that answer) BE OUT (or *unless* or *without,* for, as will be seen by and by, all those words are of the same import) that another divine inspiration moved," &c. To these remarks and examples it may be worth while to add, that even now BUT is often used by the illiterate Scotch for WITHOUT; as nothing is more common than to hear a clown say, "He came from home *but* his breakfast."

Having mentioned *without* as a word of the same import with *but* when distinguished from *bot,* it may not be improper to consider that word here; for though in modern English it is entirely confined to the office of a preposition, it was formerly used indifferently either as a preposition or a conjunction. *Without,* then, is nothing but the imperative WYRTHAN-UTAN, from the Anglo-Saxon and Gothic verb WEORTHAN, WITHAN, which in the Anglo-Saxon language is incorporated with the verb BEON, *esse.* According to this derivation, which is Mr Horne Tooke's, the word *without,* whether called conjunction or preposition, is the same as *be out;* and such will be its import, should it after all be nothing more than a compound of *with,* which signifies to join, and sometimes to be, and *ute,* out.

[1] *Either* is nothing more than a distributive pronoun which every body understands, and *or* we have already explained.

[2] So low down as in the reign of Queen Elizabeth, says Mr Horne Tooke, this conjunction was sometimes written *oneles* or *onelesse;* but more anciently it was written *onles* and sometimes *onlesse.* Thus, in the trial of Sir John Oldcastle in 1413, "It was not impossible for them to make whole Christes cote without seme, *onlesse* certeyn great men were brought out of the way." So, in "The image of governance," by Sir T. Elliot, 1451, "Men do fere to approache unto their sovereigne Lord *oneles* they be called." So again, in "A necessary doctrine and erudition for any Christian man, set furthe by the king's majestie of England," 1543, "*Onles* ye believe, ye shall not understande." "No man shall be crowned, *onles* he lawfully fight." "The soul waxeth feeble, *onlesse* the same be cherished." "It cannot begynne, *onelesse* by the grace of God." Now ONLES is the imperative of the Anglo-Saxon verb ONLESAN, *to dismiss* or *remove.*

LES, the imperative of LESAN, which has the same meaning as ONLESAN, is likewise used sometimes by old writers instead of *unless.* Instances might be given in abundance from Gawin Douglass and Ben Jonson; but perhaps it may be of more importance to remark, that it is this same imperative LES which, placed at the end of nouns, and coalescing with them, has given to our language such adjectives as *hopeless, restless, deathless, motionless,* &c. that is, *dismiss* hope, rest, death, motion, &c.

Mr Horne Tooke observes, that all the languages which have a conjunction corresponding to *less* or *unless,* as well as the manner in which the place of these words is supplied in the languages which have not a conjunction correspondent to them, strongly justify his derivation which we have adopted. The Greek *ειμη,* the Latin *nisi,* the Italian *se non,* the Spanish *sino,* the French *si non,* all mean *be it not.* And in the same manner do we sometimes supply its place in English by *but, without, be it not, but if,* &c. It may be proper just to add, that, according to the same author, the conjunction *lest* is a contraction of *lesed,* the past participle of LESEN; and that *lest* with the article *that,* either expressed or understood, means no more than *hoc dimisso* or *quo dimisso.*

[3] *Although* is compounded of *al* or *all,* and *tho', though, that,* or, as the vulgar more purely pronounce it, *thaf, thauf,* and *thof.* Now

Prepositions.

in one thing to *co-exist* with another, with which it is *apparently* incompatible.

Before we take leave of this subject, we might treat, as others have treated, of adverbial conjunctions, and conjunctions of various other denominations.[1] But of multiplying subdivisions there is no end; and systems in which they abound convey for the most part no information. The nature of conjunctions can be thoroughly understood only by tracing each to its original in some parent or cognate tongue; and when that shall be done in other languages with as much success as it has been done by Mr Horne Tooke in English, then, and not till then, may we hope to see a rational, comprehensive, and consistent theory of this part of speech. Then too shall we get rid of all that farrago of useless distinctions into conjunctive, adjunctive, disjunctive, subjunctive, copulative, continuative, subcontinuative, positive, suppositive, causal, collective, preventive, adequate and inadequate, adversative, conditional, illative, and the like, which explain nothing, and which serve only to veil ignorance and perplex sagacity.

That Mr Horne Tooke's principles will apply exactly to the conjunctions of every language both dead and living, is what our limited knowledge of these languages does not authorize us positively to affirm. It is, however, a strong presumption in favour of his opinion, that illiterate savages, the first cultivators of language, are little likely to have sent out their faculties in quest of words to denote the abstract relations subsisting among their ideas, when we have such evidence as his book affords, that the names of the most common substances and qualities could answer that and every other purpose, which in the ordinary intercourse of life can be answered by the faculty of speech. It is a further presumption in his favour, that in the rudest languages there are few if any conjunctions; and that even in others which are the most highly polished, such as Greek and Latin, as well as English, many of those words which have been called conjunctions are obviously resolvable into other parts of speech. Thus αλλα, translated *but*, is evidently the neuter gender of either the nominative or accusative plural of αλλος, *another*; and when used as a conjunction, it intimates that you are going to add something to what you have already said. *Cæterum* has the same meaning, and is nothing but και ἑτερον. MAIS, *but*, in French, is the Latin *majus*; *ut*, *uti*, ὁτι, *quod*, is the relative pronoun. Of *quocirca*, *quia*, *præterea*, *antequam*, *quenquam*, *quemvis*, *quantumvis*, *quamlibet*, &c. the resolution is too obvious to require being mentioned. Where such resolutions as these can be made, or when the conjunctions of any particular tongue can be traced to their origin in any other, there needs be no dispute about their true import; but when the case is otherwise, and the conjunction either appears to be an original word, or is derived from a source to which it cannot be traced, we would advise such of our readers as wish to speak or write correctly, to dismiss from their minds all consideration of copulatives, continuatives, causals, and disjunctives, with the rest of that jargon which we have already mentioned; and to inquire diligently in what manner and for what purpose the conjunction in question is used by the best writers, both ancient and modern, of the particular language which they are studying. This will indeed be found a work of labour; but it appears to us to be the only means left of discovering the precise relations which such conjunctions were intended to express; and, by consequence, of knowing what words or sentences they are fitted to connect, so as to produce a style at once accurate and perspicuous.

2. *Of Prepositions.*

By Mr Harris and his followers, a *preposition* is defined to be a part of speech devoid itself of signification, but so formed as to unite two words that are significant, and that refuse to coalesce or unite of themselves. We have already expressed our opinion of that theory which holds certain words to be devoid of signification; but its absurdity, in the present instance, is more than ever glaring. Concerning the number of *prepositions*, it is well known that hitherto authors have never been agreed. The ancient Greek grammarians admitted only eighteen, the ancient Latin grammarians above fifty; though the moderns, Sanctius, Sciopius, Perizonius, Vossius, and Ruddiman, have endeavoured to lessen the number without fixing it. Bishop

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thaf or *thauf* is evidently the imperative THAF or THAFIG of the verb THAFIAN or THAFIGAN, *to allow, permit, grant, yield, assent*; and THAFIG becomes *thah*, *though*, *thoug*, and *thoch*, as Gawin Douglass and other Scottish authors write it, by a transition of the same sort and at least as easy as that by which HAFUC becomes *hawk*. It is no small confirmation of this etymology, that anciently they often used *all be*, *albeit*, *all had*, *all were*, *all give*, instead of ALTHOUGH; and that as the Latin SI (*if*) means *be it*, and NISI and SINE, *unless* and *without*, mean *be not*, so ETSI, *although*, means *and be it*.

[1] In a work of this kind, which professes to treat of universal grammar, it would be impertinent to waste our own and our reader's time on a minute analysis of each conjunction which may occur in any one particular language. We shall therefore pursue the subject no further; but shall subjoin Mr Horne Tooke's table of the English conjunctions, referring those who are desirous of fuller satisfaction to his ingenious work entitled *The Diversions of Purley*.

IF	Are the Imperatives	GIF	Of their respective verbs	GIF	To give.
AN		AN		ANAN	To grant.
UNLESS		ONLES		ONLESAN	To dismiss.
EKE		EAC		EAKAN	To add.
YET		GET		GETAN	To get.
STILL		STELL		STELLAN	To put.
ELSE		ALES		ALESAN	To diminish.
THOUGH		THAFIG		THAFIGAN	To allow.
or		or		or	
THO'		THAF		THAFIAN	
BUT		BOT		BOTAN	To boot, or superadd.
BUT		BE-UTAN		BEON-UTAN	To be out.
WITHOUT		WYRTH-UTAN		WYRTHAN-UTAN	To be out.
AND		AN AD		ANAN AD	Dare congeriem.

LEST is the participle LESED, of LESAN, to dismiss.

SINCE	SITHTHAN	is the participle of SEON, to see.
	SYNE	
	SEAND-ES	
	SITHTHE	
	or	
	SIN-ES	

THAT is the article or pronoun THAT.

As is ES, a German article, meaning *it*, *that*, or *which*. And

So is SA or SO, a Gothic article of the same import with AS.

Wilkins thinks that thirty-six are sufficient; and Girard says that the French language has done the business effectually with thirty-two. But if prepositions be words devoid of signification, why should there be disputes respecting their numbers? or why in any language should there be more than *one* preposition, since a single unmeaning mark of connection would certainly answer the purpose as well as a thousand? The cipher, which has no value of itself, and only serves, if we may use the language of grammarians, to connote and consignify, and to change the value of figures, is not several and various, but uniformly one and the same. That "the preposition is so formed as to unite two words which refuse to coalesce or unite of themselves," is indeed true; and this union it effects, not by having no signification of its own, but by signifying the relation by which the things expressed by the *united* words are connected in nature. Prepositions are to be accounted for in much the same manner as the cases of nouns. The necessity of this species of words, or of some equivalent invention, follows from the impossibility of having in language a distinct complex term for each distinct collection of ideas which we may have occasion to put together in discourse. The addition or subtraction of any one idea to or from a collection of ideas, makes it a different collection; and if, after either of these operations, it were to be expressed by the same word as before, nothing could ensue but misrepresentation and falsehood. Now, to use in language a different and distinct complex term for each different and distinct collection of ideas, is equally impossible as to use a distinct particular term for each particular and individual idea. To supply, therefore, the place of the complex terms which are wanting in a language, are the cases of nouns and prepositions employed; by the aid of which, complex and general terms are prevented from being infinite or too numerous, and are used only for those collections of ideas which we have most frequent occasion to mention in discourse. By means of prepositions this end is obtained in the most simple manner. For, having occasion to mention a collection of ideas, for which there is no single complex term in the language, we either take that complex term which includes the greatest number, though not all, of the ideas we would communicate; or else we take that complex term which includes all and the fewest ideas more than those we would communicate; and then, by the help of the preposition, we either make up the deficiency in the one case, or retrench the superfluity in the other. For instance, having occasion to mention a house of a particular description, and knowing that the term *house* is too general for our purpose, and that the building we have in view has no appropriate name, we say, perhaps, "a house *with* a party-wall," or a "house *without* a roof." In the first instance, the complex term *house* is deficient, and the preposition directs to add what is wanting; in the second instance, the complex term is redundant, as it denotes a complete house. The preposition, therefore, directs to take away what is superfluous.

Now, considering prepositions in this the most simple light, as serving only to limit or modify general terms, it is absolutely necessary that they should have meanings of their own; for otherwise, how could we, in the instance before us, make known by them our intention, whether of adding to, or retrenching from, the same general term *house*. If, to a disciple of Mr Harris, we should say, *a house* JOIN; he would reply *join what?* But he would not contend that *join* is an indeclinable word which has no meaning of its own, because he knows that it is the imperative of a verb, of which the other parts are still in use; and its own meaning is clear, though the sentence is not completed. If, instead of *join*, we should say to him, *a house* WITH, he would still ask the same question, *with what?* But if we were to discourse with him concerning the word *with*, he would probably tell us that *with* is a preposition, an indeclinable word, which is itself devoid of signification, but so formed as to unite two words that are significant. And yet it would be evident by his question, that he felt it had a meaning of its own; which is in reality the same as *join*.[1] Indeed, so far has always been plainly perceived, that *with* and *without* are directly opposite and contradictory; and it would puzzle the most acute philosopher to discover opposition and contradiction in two words where neither of them had any signification. Wilkins, therefore, has well expressed their meaning, where he says, that *with* is a preposition "relating to the notion of social, or circumstance of society *affirmed*; and that *without* is a preposition relating to the same notion of social, or circumstance of society *denied*."

But to denote the relations of adding and taking away, is not the only purpose for which prepositions are employed. They all indeed serve to modify some general term or general affirmation, but not precisely in the same way as *with* and *without*. It has already been observed, that words significant of those things which coincide in nature, coalesce with one another in syntax, without being beholden to any auxiliary tie. For instance, an adjective coalesces with its substantive, a verb with its nominative; a noun expressing an object acted upon, with a verb de-

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[1] This account of prepositions is taken from Mr Horne Tooke, who adds, that the only difference between the two words *with* and *join*, is, that the other parts of the Gothic and Anglo-Saxon verb WITHAN, *to join* (of which *with* is the imperative), have ceased to be employed in the language. As WITH means *join*, so the corresponding French preposition *avec* means, *and have that*, or *have that also.* But though *with*, as the imperative of WITHAN, means *join*, it has sometimes a very different signification. Mr Tyrwhit in his Glossary has truly observed, that *with* and *by* are often synonymous. They certainly are so; but then *with* seems to be an abbreviation of the imperative of WYRTHAN, *to be*; as *without* is of WYRTHAN-UTAN, *to be out*. This being the case, our two instances in the text will stand thus: *a house* JOIN *a party-wall*; *a house* BE-OUT *a roof*. Nor let any one be surprised that we make no difference between the conjunction *without* and the preposition *without*. The word is the same, whether it be employed to unite words or sentences. Prepositions were originally, and for a long time, classed with conjunctions; and when first separated from them, they were only distinguished by the name of prepositive conjunctions. They are generally used to unite words, but not always; for we may say indifferently, "I came after *his departure*," or "I came after *he departed*." By the greater part of grammarians indeed, *after*, when employed as in the first sentence, is classed with the prepositions; when employed as in the second, it is classed with the conjunctions. The word, however, is the same in both sentences; its meaning is the same, and its effect precisely the same. The only circumstance of discrimination is, that in the first example it is prefixed to a noun, "his departure;" in the second, it is prefixed to a nominative and a verb, "he departed." But even the nominative and the verb, thus applied, express no more than a specifying circumstance annexed to the other proposition, "I came;" and whenever they are rightly apprehended by the mind, they are stripped of their prepositionary form, and considered abstractedly under a new phasis, "his departure." Thus then the two sentences are synonymous in every respect, excepting the apparent grammatical nature of the words "his departure," and "he departed;" and even these are reduced to one grammatical form in the mind, whenever the import of the propositions is rightly apprehended. *Without*, and many other prepositions, especially in the learned languages, are used exactly as *after* is used in the two instances which we have given. Mr Horne Tooke quotes Lord Mansfield for saying, "It cannot be read *without* the attorney-general consents to it." This, in modern English, is not the common phraseology; but it offends not against any principle of grammar. The nominative and the verb are here, as in the former instance, considered as an abstract noun. "It cannot be read WITHOUT the consent of the attorney-general."

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noting action; and an adverb with its verb. Take the following example: "*The splendid sun genially warmeth the fertile earth.*" But suppose we were desirous to modify this affirmation by the addition of other substantives, *air*, for instance, and *beams*; how would these coincide with the other words of the sentence, or under what character could they be introduced? Not as nominatives or accusatives to the verb, for both these places are already filled; the nominative by the substance *sun*, which is certainly the agent in this operation; the accusative by the substance *earth*, which is as certainly the object acted upon. Not as qualities of the *sun* and *earth*; for qualities inhering in their substances can only be expressed by adjectives, and the words air and beams are both substantives. Here then we must have recourse to prepositions; but we can employ only such prepositions as point out the relations which the *air* and the *beams* have to the sun warming the earth. In English we should say, "the splendid sun *with* his beams genially warmeth *through* the air the fertile earth." The sentence, as before, remains entire and one; the substantives required are both introduced; and not a word which was there before is detruded from its proper place. The import of *with* we have already discovered; it directs to *unite* the beams to the sun, as *jointly* with him performing the operation. But the *air* has no other connection with the operation, than as the *medium* or *passage* between the *sun* and the *earth*; and therefore the preposition *through*[1] must denote that relation which subsists between an object in motion and the medium in which it moves; nor could a preposition of a different import have been employed, without altering the meaning of the whole sentence.[2]

Mr Harris is of opinion that most, if not all, prepositions were originally formed to denote the relations of *place*. For this opinion we see not sufficient evidence. If indeed we could suppose the inventors or earliest improvers of language to have at all concerned themselves with relations as abstracted from the objects related, we must believe that those which first attracted their attention were the relations subsisting among themselves, and the various bodies with which they were surrounded. We must likewise agree with our author, that place is the grand relation which bodies or natural substances maintain at all times to one another; but we do not therefore think that it would attract the earliest notice of untaught barbarians. On the contrary, we are of opinion that mankind must have made very considerable progress in science before they attempted to abstract place from body; an attempt which, according to some of the most profound philosophers,[3] is not only difficult, but absolutely impracticable. But whatever be in this, the relations of cause and effect, of duration and motion, are in themselves as obvious, and as likely to arrest the attention and obtain names, as those of place. Amongst men totally illiterate they are evidently more so; for pain and pleasure would suggest some idea of cause and effect as matters of importance. There is, however, no probability that the inventors of any language had the least idea of abstract relations. They doubtless expressed complex conceptions by nouns and verbs, significant at once of the particular ideas and of the various relations by which they viewed those ideas as combined together in a complex conception. Afterwards, when men's minds became enlarged, and when, from the fluctuation inseparable from a living language, objects or ideas received new names, the old words, whether nouns or verbs, which were originally employed to express a particular complex conception, of which certain particular *relations* made a part, might be retained for the purpose of denoting those and all similar *relations*; and thus verbs and nouns would degenerate into particles bearing the names of prepositions and conjunctions. For instance, one Anglo-Saxon being desirous to communicate to another his own conception of a house with a party-wall, and having, we shall suppose, no such word in his tongue as a preposition, would naturally utter the word *house*, desiring his friend, at the same time, to add to that well-known sound another sound (uttering it) significant of the particular circumstance wanting to complete his complex conception, viz. a house *with* (that is *join*) a party-wall. The word *with*, as the imperative of a verb, denotes of course three ideas combined together, namely, a command or wish, an affirmation, and the idea of junction. But when the verb *withan* was dismissed from the English language, the imperative *with* was still retained; but losing its verbal and modal nature, it was thenceforth employed to denote only one of the three ideas for which it originally stood, viz. the idea of junction. And thus it is that verbs, and also nouns and adjectives, in passing from one language to another, may become prepositions[4] and conjunctions. Thus too it is that some of those prepositions come to denote the contiguous, and some the detached, relation of body. The contiguous, as when we say, "Caius walked *with* a staff;" that is, "Caius *join* a staff, walked;" "the statue stood *upon*[5] a pedestal;" that is, "the statue stood (the place of its standing) the *higher part* of a pedestal;" "the river ran

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[1] *Thorough*, *thourough*, *thorow*, *through*, or *thro'*, is no other, says Mr Horne Tooke, than the Gothic substantive DAURO, or the Teutonic substantive THURUH, and, like them, means *door*, *gate*, *passage*. So that the sentence in the text, resolved upon his principles, stands thus: "The splendid sun—*join* his beams—genially warmeth—PASSAGE *the air* (or, the air being the *passage* or *medium*)—the fertile earth." And in the same manner may we translate the preposition *through* in every instance where *through* is used in English, or its equivalent preposition in any language; as from the Latin and Italian word *porta*, in Spanish *puerta*, and in French *porte*, have come the Latin and Italian preposition *per*, the French *par*, and the Spanish *por*.

[2] If, for instance, we were to substitute *with* or *of* instead of *through*, we should in the one case alter the meaning, and in the other speak nonsense. "The sun warmeth *with* the air the fertile earth," is an affirmation that "the sun warmeth *both the air and the earth*;" whereas the original sentence affirmed nothing more than that "he warmeth the *earth*." "The sun warmeth *of* the air the fertile earth," is nonsense, as it makes the earth a *part*, or a *consequence*, of the air. So necessary is it that prepositions have a meaning, and that the meaning of each be attended to.

[3] Bishops Berkeley and Law, with Principal Campbell of Aberdeen. See *The Principles of Human Knowledge*, Law's *Notes* on King's *Origin of Evil*, and *The Philosophy of Rhetoric*.

[4] As the Italian substantive *casa*, a house, race, family, nation, &c. in passing to the French, becomes the preposition *chez*, to which there is not, so far as we know, a preposition of precisely the same import in any language. *Senza* or *senze*, in Italian, becomes *sans* in French, and means *absence*. Nor is it necessary that verbs and nouns should always pass from one language to another, in order to be converted into prepositions. The Greek preposition χωρὶς is evidently the corrupted imperative of χωρίζειν, *to sever*, *to disjoin*, *to separate*. The Latin *sine* is *sit ne*, *be not*. The German *sonder* is the imperative of *sondern*, which has the same meaning as χωρίζειν.

[5] *Up*, *upon*, *over*, *'bove*, *above*, have all, says Mr Horne Tooke, one common origin and signification. In the Anglo-Saxon, UFA, UFERA, UFEMÆST, are the adjectives *altus*, *altior*, *altissimus*. UFA or UFAN, *up*; comparative UFERA, OFERE, or OFER, *over* or *upper*; superlative UFEMÆST, *utmost* or *uppermost*. BEUFAN, BUFAN, ON BUFAN, *'bove*, *above*. If this be a just account of the origin of these words, the sentences in the text, where *upon*, *over*, and *above*, occur, will run thus: "The statue stood *on high* a pedestal;" "the river ran *higher* a sand;" "the sun is risen *on high* the hills." And here we may observe, that the mere relation between standing, running, &c. and place, is rather inferred from the verb itself, than expressed by a separate word. The reason is obvious. For if a statue stand, every one knows that it must stand on some thing as well as at some time. There is therefore no necessity, whatever elegance there may be in it, for employing any word to denote that relation, which is commonly believed to be signified by *on*; but it is

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over a sand," that is, "the river ran (the place of its running) the *higher part* of a sand." The detached relation, as when we say, "He is going to[1] Italy," that is, "He is going, *the end* (of his journey) Italy;" "the sun is risen *above* the hills," that is, "the sun is risen (the place) *the top* of the hills;" "these figs came *from* Turkey," that is "these figs came *beginning* (their journey at) Turkey."

Besides the detached relation of body, Mr Harris is of opinion that the preposition *from* denotes two other relations not less different than those of motion and rest. Thus, if we say, "That lamp hangs *from* the ceiling," the preposition *from* assumes a character of quiescence. But if we say, "That lamp is falling *from* the ceiling," the preposition in such case assumes a character of motion. But this is evidently a mistake. The detached relation in the former instance of the *figs*, as well as the motion and rest in the present instances, are expressed not by the preposition, but by the verbs, *came*, *falls*, *hangs*. The word *from* has as clear, as precise, and at all times as uniform and unequivocal a meaning, as any word in the language. *From* means merely *beginning*, and nothing else. It is simply the Anglo-Saxon and Gothic noun FRUM, *beginning*, *origin*, *source*, *fountain*, *author*.[2] Now if this meaning be applied to Mr Harris's instances, *from* will speak clearly for itself, without the assistance of the interpreting verbs, which are supposed by him to *vary its character*.

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necessary to insert, between the verb and pedestal, a word significant of place, that pedestal may not be mistaken, by an ignorant person, for a portion of time, or any thing else connected with the standing of the statue.

[1] That *to* is significant of detached relation, is the language of Mr Harris, which, though it may be allowed in a loose and vulgar sense, is certainly not philosophically just. The preposition *to*, in Dutch written *toe* and *tot*, is the Gothic substantive TAUI or TAUHTS, signifying *act*, *effect*, *result*, or *consummation*; which Gothic substantive is itself no other than the past participle TAUID or TAUIDS of the verb TAUJAN, *agere*. And it is obvious that what is done is terminated, ended, finished. In the Teutonic this verb is written TUAN or TUON; whence the modern German THUN, and its preposition *tu*. In the Anglo-Saxon, the verb is TEOGAN, and the preposition *to*. *Do*, the auxiliary verb, as it has been called, is derived from the same root, and is indeed the same word as *to*. The difference between a T and a D is so very small, that an etymologist knows by the practice of languages, and an anatomist by the reason of that practice, that in the derivation of words it is scarcely worth regarding. To support this etymon of *to*, Mr Horne Tooke gives a similar instance in the Latin tongue. The preposition *ad*, he says, is merely the past participle of *agere*, which past participle is likewise employed as a Latin substantive. He exhibits the derivation of *ad* thus:

$$\textit{Agitum—agtum}\left\{\begin{array}{ccccc}\text{AGDUM}&\text{——}&\text{AGD}&\text{——}&\text{AD}\\ \text{or}&&\text{or}&&\text{or}\\ \text{ACTUM}&\text{——}&\text{ACT}&\text{——}&\text{AT.}\end{array}\right.$$

The most superficial reader of Latin verse, he observes, knows how readily the Romans dropped their final *um*. And a little consideration of the organs and practice of speech will convince him how easily *agd* or *act* would become *ad* or *at*; as indeed this preposition was indifferently written either way by the ancients. By the later writers of Rome, the preposition was written *ad* with *d* only, in order to distinguish it from the other corrupt word called the conjunction *at*; which for the same reason was written with the *t* only, though that likewise had anciently been written, as the preposition, either *ad* or *at*. The preposition *to* and the conjunction *too* in English, are both in syntax and in meaning used exactly as the preposition *ad* and the conjunction *at* in Latin. From the specimens prefixed to Johnson's Dictionary, as a history of our language, it appears that, as late as the reign of Elizabeth, the preposition and conjunction were both written with one *o*. And it has been shown in the first volume of the Transactions of the Royal Society of Edinburgh, that *to* and *too*, as well as *ad* and *at*, are precisely of the same import. The only difference, in either language, between the preposition and the conjunction, is, that the former directs, as a modification of some previous proposition, the addition of some substantive or noun; the latter, sometimes a sentence or clause of a sentence considered abstractedly as a noun; and that, when the former is used, the preposition to which the modifying circumstance is to be added, is formally expressed, but omitted when the latter is employed. Thus Denham says,

Wisdom he has, and *to* his wisdom courage;
Temper *to* that, and *unto* all success.

In this example, every succeeding circumstance is by the preposition *to* marked as an addition to the preceding. "Wisdom he has, and courage *additional* to his wisdom." But Denham might with equal propriety have omitted the object which *to* governs, or to which it directs something to be *added*, though he must then, from the custom of the language, have employed the conjunction instead of the preposition. As,

Wisdom he has, and courage *too*.

That this mode of expression would have been more concise than, and as intelligible as, the other, "Wisdom he has, and courage *to* his wisdom," must be evident to every one.

Not only is the object governed by *to* omitted, when it is represented by a substantive in the context, but also when it is involved in a preposition; and then the conjunction, as it is called, is always used. Thus,

Let those eyes that view
The daring crime, behold the vengeance *too*.

So, "He made him prisoner, and killed him *too*." In the one example, the circumstance of beholding the vengeance is stated as an *addition* to the viewing of the crime; and in the other, the *killing him* is stated as an *addition* to the making him a prisoner. In both examples, the object governed by *too* is the amount of the preceding proposition taken abstractedly as a noun or substantive. Thus then it appears, that *to* and *too*, though classed the one with the prepositions, and the other with the conjunctions, are really one and the same word. The same is true of *ad* and *at*. Thus, "AD *hoc*, promissa barba et capilli efferaverant speciem oris," signifies "*Additional to this*, his long beard and hair had given a wildness to his aspect." But when the object governed by *ad* is not formally stated, *ad* itself is classed with the conjunctions, and written differently, *at*. Thus Terence, "*Ph.* Fac ita ut jussi, deducantur isti. *Pa.* Faciam. *Ph. At* diligenter. *Pa.* Fiet. *Ph. At* mature." By the means of *at*, the circumstances of *diligence* and *haste* are *superadded* to the action commanded. "*Ph.* It is not enough that you do it; you must do it carefully *too*. *Pa.* Well, it shall be carefully done. *Ph.* In good time *too*." *At*, taken in this sense, is most commonly employed, like the English *but*, to mark the unexpected union of incongruous objects; as, "Aulam tyranni frequentabat, *at* patriam amabat;" literally, "He frequented the court of the tyrant; joined *even to* that he loved his country." "He was a courtier and a patriot *too*." But if *ad* and *at* in Latin, and *to* and *too* in English, be derived from verbs which signify *to do* or *act*, it may be asked how they come themselves to denote *addition*. The answer is obvious. If a man should utter a sentence, and to the end of it subjoin the very general word *do*, the person to whom he spoke would naturally ask, *do* what? and this question would, of course, produce an additional sentence or clause of a sentence. Besides, it is to be observed, that *agere*, from which the Latin preposition is derived, as well as the Gothic verb, which is the source of the English particles, means not only *to do*, but also to adduce or bring; so that when we say, "he is going *to* Italy," we do nothing more than affirm that "he is going," and desire the person to whom we speak, "to *add* Italy to the journey."

From this derivation of the preposition *to*, it will be seen at once upon what principle it is employed to mark the infinitive mode. In the learned languages that mode is generally known by its termination; but in English it would be impossible, without the aid of *to*, or of some other word significant of action, to distinguish the verb *love* from the noun or substantive.

[2] This derivation is Mr Horne Tooke's; and he supports it by the following sentence: *Ne rædd ge se the on frumman worhte, he worhte wæpman and wifmen;* which is the Anglo-Saxon of St Matthew, xix. 4, "Annon legistis, quod qui eos *in principio* creavit, creavit eos marem et feminam?"

These figs *came* FROM Turkey.
That lamp *falls* FROM the ceiling.
That lamp *hangs* FROM the ceiling.

Came is a complex term for one species of motion; *falls* is a complex term for another species of motion; and *hangs* is a complex[1] term for a species of attachment. Have we occasion to communicate or mention the *commencement* or *beginning* of these motions, and of this attachment, and also the place where they commence or begin? To have complex terms for each occasion of this sort is absolutely impossible; and therefore nothing can be more natural or more simple than to add the signs of those ideas, viz. the word *beginning*, which will remain always the same, and the NAME of the *place*, which will perpetually vary. Thus,

These figs came—*BEGINNING Turkey.*
That lamp falls—*BEGINNING ceiling.*
That lamp hangs—*BEGINNING ceiling.*
That is,
Turkey the *place* of BEGINNING to come.
Ceiling the *place* of BEGINNING to fall.
Ceiling the *place* of BEGINNING to hang.

It has been said by no less a man than Bishop Wilkins, that *from* refers primarily to place, and secondarily to time. But the truth is, that *from* relates to every thing to which *beginning* relates, and to nothing else.

> *From* morn till night the eternal larum rang.

That is, the "larum rang *beginning* morning," or morning being the *time* of its *beginning*, till night.

As *from* always denotes beginning, so *to* and *till* always denote the end. There is, however, this difference between them, that *to* denotes the end of any thing; *till* the end only of time. We may say indifferently, "From morn *to* night," or "from morn *till* night, the eternal larum rang;" but we cannot say, "These figs came from Turkey *till* England." That *till* can, with propriety, be opposed to *from* only when we are talking of time, is evident; for it is a word compounded of *to* and *while*, that is, time. And as the coalescence of these two words *to-while* took place in the language long before the present superfluous use of the article *the*, the phrase, "From morn *till* night" is neither more nor less than "From morn *to time* night." When we say, "from morn *to* night," the word *time* is omitted as unnecessary.

Besides *from*, Mr Harris mentions *over* as significant sometimes of motion and sometimes of rest; and quotes as instances the two following passages from Milton:

> …………To support uneasy steps
> *Over* the burning marl.

Here, says he, *over* denotes *motion*. Again,

> …………He with looks of cordial love
> Hung *over* her enamoured.

Here *over* denotes rest. But the truth is, that *over* denotes neither motion nor rest in either of these passages. In the first quotation, indeed, *motion* is implied; but it is implied in the word *steps*, and not in *over*, which denotes only that the place of the steps was the top of the burning marl. In the second quotation, rest is implied, and that too a particular *species* of rest; but it is implied, or rather expressed, by the verb *hung*, and *over* denotes the place of that species of rest.

But though the original use of prepositions was to denote the relations of body, they could not be confined to this office only. They by degrees extended themselves to subjects incorporeal, and came to denote relations, as well intellectual as local. Thus, because in point of place he who is above has commonly the advantage of him who is below; hence we transfer *over* and *under*[2] to dominion and obedience. Of a king we say, "he ruled *over* his people;" and of a soldier, "he served *under* his general." So too we say, *with* thought; *without* attention; thinking *over* a subject; *under* anxiety; *from* fear; *through* jealousy, and the like. All which instances, with many others of a similar kind, show that the first words of men, like their first ideas, had an immediate reference to sensible objects; and that in after days, when they began to discern with their intellect, they took those words which they found already made, and transferred them by metaphor to intellectual conceptions.

Amongst the relations which may be considered rather as intellectual than corporeal, are those of cause and consequence; and for the denoting of these we have two prepositions, which sometimes *appear* in direct opposition to one another, and at other times may exchange places without injury to the sense.

"Well! 'tis e'en so! I have the London disease they call love. I am sick *of* my husband, and *for* my gallant." (Wycherley's *Country Wife.*)

Here *of* and *for* seem almost placed in opposition; at least their effects in the sentence appear to be very different; for, by the help of these two prepositions alone, and without the assistance of any other words, she expresses the two contrary affections of loathing and desire. The truth, however, is, that the author, if it had pleased him, might have used *of* where he has employed FOR, and FOR where he has put *of*. This is evident from the following quotation from the *Sad Shepherd:*

> *Marian.* Come, Amie, you'll go with us.
> *Amie.* I am not well.
> *Lionel.* She's sick *of* the young shepherd that bekist her.

In the same manner we may, with equal propriety, say, "We are sick *of* hunger;" or, "We are sick *for* hunger." And in both cases we shall have expressed precisely the same thing, with only this difference, that, in the former sentence, we declare sickness to be a *consequence;* in the latter we declare hunger to be a *cause.* But to return to the Country Wife, that poor lady seems to have had a complication of distempers; she had at least two disorders; a sickness *of loathing*, and a sickness *of love.* She was sick *for* disgust, and sick *for* love. She was

Sick *of* disgust *for* her husband.
Sick *of* love *for* her gallant.
Sick *for* disgust *of* her husband.
Sick *for* love *of* her gallant.

In the first sentence, as thus stated, sickness is declared to be the *consequence* of disgust, of which her husband is declared to be the *cause.* In the second, sickness is declared to be the *consequence* of love, of which her gallant is declared to be the *cause.* In the third sentence, disgust is declared to be the *cause* of her sickness, and the *consequence* or *offspring* of her husband. In the fourth, love is declared to be the *cause* of her sickness, and the *consequence* or *offspring* of her gallant.

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[1] These are complex terms because they are verbs. Each denotes an affirmation and time; and, combined with these, *came* and *falls* denote *motion*, and *hangs* denotes *rest.*

[2] *Under* and *beneath*, though by the sound they seem to have little connection, are yet in fact almost the same word, and may very well supply each other's place. *Under* is nothing but *on-neder*, and *beneath* is compounded of the imperative *be* and the noun *neath.* *Neath* uncompounded having slipped away from our language, would perhaps be unintelligible, had not the nouns *nether* and *nethermost* still continued in common use. *Neath*, Anglo-Saxon, *neothan, neothe;* Dutch, *neden;* Danish, *ned;* German, *niedre;* and Swedish, *neder* and *neder;* is undoubtedly as much a substantive, and has the same meaning, as the word *nadir.* In common language it denotes the bottom.

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Thus, then, it appears, that though the first two of these sentences, taken entire, convey the very same meaning with the last two, yet the import of the preposition *for* is as different from that of *of*, as *cause* is from *consequence*.[1] When two words or sentences are linked together by the former of these prepositions, the object expressed by the last word or sentence is declared to be the *cause* of that which is expressed by the preceding; when two words or sentences are linked together by the latter preposition, the object expressed by the first word or sentence is declared to be the *consequence of*, or to *proceed from*, the object expressed by the second. It is therefore a matter of perfect indifference to the sense whether we say "sickness *of* hunger," or "sickness *for* hunger;" "the man, *of* he speaks little, is wise," or "the man is wise, *for* he speaks little." By means of the preposition *of*, we declare sickness to be the *consequence* proceeding from hunger, and wisdom to be the *consequence* we infer from the man's speaking little; by means of *for*, we declare hunger to be the *cause* of sickness, and the circumstance of speaking little to be the *cause* from which we infer the man's wisdom. In the one sentence, *of* is to be considered as a noun in apposition to *sickness*; in the other, as a noun in apposition to *the man is wise* taken abstractedly as a noun. In the one sentence *for* (id est, *cause*) is to be considered as a noun in apposition to *hunger*; in the other, as the same noun in apposition to *he speaks little* taken abstractedly as a noun.

In the foregoing use of prepositions, we have seen how they are applied by way of juxtaposition; that is to say, where they are prefixed to a word without becoming a part of it. But they are used also by way of composition; that is, they are prefixed to other words so as to become real parts of them. Thus in Greek we have ἐπιστασθαι; in Latin, *intelligere;* and in English, *UNDERstand*. So also, to *FOREtell*, or *OVERact*, to *UNDERvalue*, to *OUTgo;* and in Greek and Latin other instances innumerable. In this case the prepositions commonly transfuse something of their own peculiar meaning into the word with which they are compounded. For example, if we suppose some given space, E and EX signify *out of* that space; PER, *through it;* IN, *within it;* SUB, *under it.* Hence, E and PER, in composition, augment: *Enormis* is something not simply big, but big in excess; something got out of the rule, and beyond the measure. *Dico*, "to speak;" *Edico*, "to speak out;" whence *Edictum*, "an edict," something so effectually spoken that all are supposed to hear and to obey. On the contrary, IN and SUB diminish and lessen. *Injustus, INiquus*, "UNjust, INequitable;" something that lies within justice and equity, that reaches not so far, that falls short of them. *SUBniger*, "blackish;" *SUBrubicundus*, "reddish; *tending* to black, and *tending* to red; but yet *under* the standard, and *below* perfection.

Before we dismiss this part of our subject, we shall make the same general remark upon prepositions which we formerly made on conjunctions, viz. that the precise import of each can with certainty be known only by tracing it to its source in some word of known and determinate meaning, either in the language where the preposition itself has place, or in some parent or cognate tongue. And it may be laid down as an infallible rule, that where different languages use the same or a similar particle, that language ought to be considered as its legitimate parent, in which the true meaning of the word can be found, and where its use is as common and familiar as that of any other verbs and substantives. When prepositions can be traced to such sources as these, no room can be left for disputes concerning their meaning. In carrying on this etymological pursuit, we find advantages in the nature of prepositions which conjunctions do not afford us. *With* and *without*, *from* and *to*, with many other words belonging to this class, have meanings directly opposite and contradictory to each other. If, then, by the total or partial extinction of an original language, the root of any one preposition be lost, whilst that of its opposite remains, the philosopher ought to be satisfied with reasoning from contrariety, as nothing is more evident than that the meaning of a word is known when we know with precision the meaning of its opposite. When we meet, however, with a luckless preposition of which no root is left to be dug up, and which has itself no direct opposite in the language, nothing remains but that we inquire for what purpose it is used by the best writers both ancient and modern; and if we can fix upon one meaning which will apply, however awkwardly, to all the places where it occurs, or to the greater part of them, the probability is, that we have discovered the true and original meaning of the preposition;[2] and by keeping that meaning constantly in view, we shall ourselves be enabled to use the word with perspicuity and precision.

Interjections.

3. *Of Interjections.*

Besides the above parts of speech, there is another acknowledged in all the languages of Europe, called the *interjection;* a word which cannot be comprehended under any of the foregoing classes. The genuine interjections are very few in number, and of very little importance, as they are thrown into a sentence without altering its form either in syntax or in signification. In the words of Mr Horne Tooke, the brutish inarticulate interjection has nothing to do with speech, and is only the miserable refuge of the speechless. The dominion of speech, according to the same author, is erected on the downfall of interjections. Without the artful contrivances of language, mankind would have nothing but interjections with which to communicate orally any of their feelings. "The neighing of a horse, the lowing of a cow, the barking of a dog, the purring of a cat, sneezing, coughing, groaning, shrieking, and every other involuntary convulsion with oral sound, have almost as good a title to be called parts of speech as interjections. In the intercourse of language, interjections are employed only when the suddenness or vehemence of some affection or passion returns men to their natural state, and makes them for a moment forget the use of speech; or when, from some circumstance, the shortness of speech will not permit them to exercise it." The genuine interjection, which is always expressive of some very strong sensation, such as AH! when we feel pain, does not owe its characteristical expression to the arbitrary form of articulation, but derives its whole force from the tone of voice and modification of countenance and gesture. Of consequence, these tones and gestures express the same meaning, without any relation whatever to the articulation they may assume; and are therefore universally understood by all mankind. Voluntary interjections are used in books only for embellishment, and to mark forcibly a strong emotion. But where speech can be employed, they are totally useless, and are always insufficient for the purpose of communicating thought. Dr Beattie ranks *strange*, *prodigious*, *amazing*, *wonderful*, *O dear*, *dear me*, &c. when used alone, and without apparent grammatical syntax, amongst the interjections; but he might with as much propriety have considered *hardly*, *truly*, *really*, and even many Latin verbs, as interjections; for these too are often used alone to supply the place of whole sentences. The truth is, that all men, when suddenly and violently agitated, have a strong tendency to shorten their discourse by employing a single word to express a sentiment. In such cases, the word employed, whether noun, adjective, or verb, would be the principal word of the sentence, if that sentence were completed; and the agitation of the speaker is such, and the cause of it so obvious, that the hearer is in no danger of mistaking the *sense*, and can himself supply the words which are wanting. Thus, if a person, after listening to a romantic narrative, were to exclaim, *strange!* would any man of common sense suppose, that the word *strange*, because uttered alone, had lost the power of an adjective and become an interjection? No, surely; every one sees that the exclamation is equivalent to, "that is *strange*," or "that is a *strange* story." Real interjections are never employed to convey truth of any kind. They are not to be found amongst laws, in books of civil institutions, in history, or in any treatise of useful arts or sciences; but in rhetoric and poetry, in novels, plays, and romances, where in English, so far from giving pathos to the style, they have generally an effect that is disgusting or ridiculous.

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[1] Junius derives *for* from the Greek προ; Skinner from the Latin *pro;* but I believe, says Mr Horne Tooke, that it is no other than the Gothic substantive FAIRINA, *cause*. He imagines also that *of*, in the Gothic and Anglo-Saxon *af*, is a fragment of the Gothic and Saxon words AFARA and AFORA, *posteritas, proles*. In a word, he considers *for* and *of* as nouns or substantives; the former always meaning *cause*, the latter always meaning *consequence*, *offspring*, *successor*, *follower*, &c. If this account of these words be just, and we have no doubt of it, the prepositions *for* and *of* are in syntax to be considered as nouns in apposition with other nouns, or with sentences taken abstractedly as nouns.

[2] For instance, let us suppose that Mr Horne Tooke's derivation of *for*, from the Gothic substantive FAIRINA, is fanciful and ill founded; yet there can be little doubt but *cause* is its true and original meaning, when it is found, that of sixteen examples brought by Greenwood and forty-six by Johnson, of different significations of the word *for*, there is not one where the noun *cause* may not be substituted instead of the preposition *for;* sometimes indeed awkwardly enough, but always without injury to the sense. Even where *for* seems to be *loco alterius*, which Lowth asserts to be its primary sense, it will be found to be *cause*, and nothing else. Thus, "He made considerable progress in the study of the law before be quitted that profession *for* this of poetry;" that is, "before he quitted that profession, this of poetry" being the *cause* of his quitting it.

Having now analysed every part of speech which can be necessary for the communication of thought, or which is acknowledged in any language with which we are acquainted, we shall dismiss the subject, after annexing an abstract, which may present at one view the several classes and subdivisions of words. Of the different modes of dividing the parts of speech, as well as of the little importance of systematic classifications, we have already declared our decided opinion; but for the sake of those who may think differently from us, we shall in the abstract subjoined adopt Mr Harris's classification as far as it is intelligible; after informing our readers that Mr Horne Tooke admits only three parts of speech, the article, the noun, and the verb, and considers all other words as corruptions or abbreviations of the two last of these.

GRAMMATICAL ABSTRACT,

Exhibiting a Systematic View of Words, as they are commonly arranged into distinct Classes, with the Subdivisions under each Class.

All language is composed of words, each of which may be defined, a sound significant of some idea or relation. These words may be arranged into four general divisions, namely,

I. SUBSTANTIVES; which are all those words that are expressive of things which exist, or are conceived to exist, of themselves, and not as the energies or qualities of any thing else. These may be divided into two orders, viz.

1. Nouns, properly so called, being the names of all those things which exist, or are conceived to exist. These may be divided into three kinds, each of which admits of the subdivisions after mentioned, viz.

Abstract.

Natural, or those which are used as the names of natural substances; such are (genus) *animal*; (species) *man*, *dog*; (individual) *Alexander*, *Cyrus*, *Cerberus*, *Argus*.

Artificial, or the several names of artificial objects; such as, (genus) *edifice*; (species) *house*, *church*; (individual) *Vatican*, *St Peter's*, *St Paul's*.

Abstract, or those which are the names of qualities considered as abstracted from their substances; such as, (genus) *motion*; (species) *flight*, *course*; (individual) the *falcon's flight*, the *greyhound's course*.

Nouns of all kinds admit of the following accidents, viz.

Gender, which is a certain affection of nouns denoting the sex of those substances of which they are the names. For as in nature every object is either male or female, or neither the one nor the other, grammarians, following this idea, have divided the names of beings into three classes. Those which denote males are said to be of the *masculine* gender; those which denote females, of the *feminine* gender; and those which denote neither the one nor the other, of the *neuter* gender. The English is the only language of which the nouns are, with respect to sex, an exact copy of nature.

Number. As there is no object in nature single and alone, and as by far the greater part of nouns are the names of whole classes of objects, it is evident that every such noun ought to have some variation, to denote whether it is one individual of the class which is meant, or more than one. Accordingly we find, that in every language nouns have some method of expressing this. If one be mentioned, the noun is used in that form which is called the *singular* number; if more than one, it is used in a different form, which is called the *plural* number.

Cases. All nouns, excepting proper names, are general terms; but it is often necessary to use those general terms for the purpose of expressing particular ideas. This can be done only by connecting the general term with some word significant of a quality or circumstance peculiar to the individual intended. When that quality or circumstance is not expressed by an adjective, it is in English and most modern languages commonly connected with the noun by the intervention of a preposition; but in the Greek and Latin languages the noun has cases to answer the same, and even in English the noun has, besides the nominative, one case to denote possession.

2. Pronouns, which are a species of word invented to supply the place of nouns in certain circumstances. They are of two kinds, viz.

First, the prepositive; so called because they are capable of leading a sentence. These are divided into three orders, called the pronouns of the

First person. The pronoun of this person, in English *I*, denotes the speaker as characterized by the present act of speaking, in contradistinction to every other character which he may bear. It is said to be of the first person, because there must necessarily be a speaker before there can be a hearer; and the speaker and hearer are the only persons employed in discourse.

Second person. The pronoun of this person, in English *thou*, denotes the person addressed as characterized by the present circumstance of being addressed. It is said to be of the second person, because in discourse there cannot be a hearer till there be a speaker. The pronouns of the first and second persons have number and cases, for the same reason that nouns have these accidents; but in no language have they any variation denoting gender. The reason is, that sex, and all other properties and attributes whatever, excepting those just mentioned as descriptive of the nature of these pronouns, are foreign from

Abstract.

the mind of the speaker when he utters *I* or *thou* in discourse.

Third person. The pronouns of this person, *he, she, it,* are employed to denote any object which may be the subject of discourse different from the speaker and the hearer. They are improperly said to be of any person; for there can be but two persons employed in discourse, the speaker and the party addressed. They are, however, pronouns; since they stand by themselves, and are the substitutes of nouns. *He* is the substitute of a noun denoting a male animal; *she,* of a noun denoting a female animal; and *it,* of a noun denoting an object which has no sex. All these, like the pronouns personal, admit of number and cases; but there is this peculiarity attending them, that though in every case of the singular number the distinction of gender is carefully preserved, in the plural it is totally lost; *they, theirs,* and *them,* being the nominative, possessive, and accusative cases of *he,* of *she,* and of *it.*

Secondly, the subjunctive; so called, because they cannot lead a sentence, but only serve to subjoin a clause to another previously enunciated. Of this kind are

Which and *who.* This subjunctive pronoun may be substituted in the place of any noun whatever, whether it be expressive of a genus, a species, or an individual; as, the animal *which,* the man *who,* Alexander *who,* &c. Nay, it may even become the substitute of the personal pronouns themselves; as when we say, I *who* now write, you *who* now read, thou *who* readest, he *who* wrote, she *who* spoke; where it is observable, that the subjunctive *who* adopts the person of that prepositive pronoun which it represents, and affects the verb accordingly. *Who* and *which,* therefore, are real pronouns, from substitution; and they have this peculiarity besides, that they have not only the power of a pronoun, but also of a connective of the same import with that which in English is expressed by the preposition *of.* The word *that* is now used indifferently for *who* or *which,* as a subjunctive pronoun; but it was originally used only as a definitive, and as such it ought still to be considered in philosophical grammar.

II. ATTRIBUTIVES; which are those words that are expressive of all such things as are conceived to exist, not of themselves, but as the attributes of other things. These are divided into,

1. Verbs, or those words which are expressive of an attribute and an assertion; as, *I wrote.*

The attributes expressed by verbs have their essence in motion or its privation; and as motion is always accompanied by time, therefore verbs are liable to certain variations called tenses, viz.

The *present,* which represents the action of the verb as going on, and as contemporary with something else; as, *I write,* or *I am writing,* either just now, or when you are reading. The *præter-imperfect,* which represents the action of the verb as having been going on but not finished in some portion of past time; as, *I was writing,* no matter when, yesterday, last week, or last year. The *aorist of the past,* which represents the action of the verb as finished in some indefinite portion of past time; as, *I wrote,* or *did write,* yesterday, or last week. The *præter-perfect,* which represents the action of the verb as just *now* finished, or as finished in some portion of time within which the present instant is comprehended; as, *I have written* this day or this week. The *plusquam-perfect,* which represents the action of the verb as having been finished in some portion of time within which a determinate past instant was comprehended; as, *I had written* last week before I saw you. The *first future,* which represents the action of the verb as to be going on at some indefinite future time; as, *I shall write* or *be writing* to-morrow, or next week. The *second future,* which represents the action of the verb as to be completed at some definite future time; as, *I shall have written* when you come to-morrow, next week, next month, or next year.

Abstract.

Affirmation is the essence of every verb, insomuch that all verbs may be resolved into the substantive verb *is,* and another attributive. But a man may affirm something of the action of the verb directly, something of his liberty or capacity to perform that action, or something of his wish that another should perform it. To denote these several kinds of affirmation, all verbs have what grammarians call modes, viz. the *indicative,* to denote the first kind of affirmation; as, *I write:* the *subjunctive,* to denote the second; as, *I may* or *can write:* the *imperative,* to denote the third; as, *write thou,* or *do thou write.* Besides these, grammarians have given to every verb a mode, called the *infinitive;* as, *to write.* But this seems on every account to be improperly styled a mode. Nay, if affirmation be the essence of verb, the infinitive cannot be considered as any part of the verb at all, for it expresses no affirmation. It is indeed nothing more than an abstract noun denoting the simple energy of the verb in conjunction with time.

Verbs have likewise been distinguished into the following kinds, according to the nature of the attribute of which they are expressive, namely, 1*st, Active-transitive,* or those which denote an action that passes from the agent to some external object; as Cæsar *conquered* Pompey: 2*d, Active-intransitive,* or those which express that kind of action which has no effect upon any thing beyond the agent himself; as, Cæsar *walked:* 3*d, Passive,* or those which express not action but passion, whether pleasing or painful; as, Portia *was loved,* Pompey *was conquered:* 4*th, Neuter,* or those which express an attribute that consists neither in action nor in passion; as, Cæsar *stood.*

2. Participles, or those words which are expressive of an attribute combined with time. In English there are only two participles; the present, as *writing,* which expresses the action of the verb *to write,* as going on; and the past, as *written,* which expresses the action of the same verb as finished, and therefore past in time. In Greek and Latin there is a future participle, by which the attribute is represented as being in a state of exertion at some future time; as, *γραψων, scripturus,* about to write.

3. Adjectives, or those words which express as inhering in their substances the several qualities of things, of which the essence consists not in motion or its privation; as, *good, bad, black, white, large, small,* and the like. As attributes are the same whether they belong to males or females, to one object or to many, adjectives ought in strictness to admit of no variation respecting sex or number; and in English they actually admit of none. Some qualities, however, are of such a nature, that one substance may have them in a greater degree than another; and therefore the adjectives denoting these qualities admit in most languages of a variation which grammarians call the degrees of comparison. Thus Plato was *wise,* Socrates was *wiser* than he, but Solomon was *the wisest* of men. There is a species of adjectives derived from nouns, and even from pronouns; for we say, *the Pompeian* party, *a brazen* trumpet, and *my* book, which are phrases equivalent to "the party of Pompey, a trumpet of brass, and the book of me."

4. Adverbs, or those words which, as they denote the attributes of attributes, have been called *attributives of the second order,* to distinguish them from verbs, participles, and adjectives, which denote the attributes of substances, and are therefore called *attributives of the first order.* Adverbs are divided into two kinds, viz.

First, Those which are common to all attributives of the first order, that is, which coalesce equally with verbs, with participles, and with adjectives. These may be divided into adverbs of *intension* and *remission,* or of *quantity continuous;* as *moderately, vastly, exceedingly,* &c. These, like adjectives of a similar nature, admit of the diferent degrees of comparison. Of *quantity discrete ;* as, *nce, twice, thrice,* &c. These are not, in strictness of peech, adverbs, being in reality the possessive cases of ne, two, three, &c. Of *relation ;* as *more, most, less, east, equally, proportionally,* &c.

Second, Those which are confined to verbs properly so alled, and which are of the following kinds: Of *time ;* as, *hen, when, afterward, now,* &c.: of *place ;* as, *here, there, here, hence, whence,* &c.; and also adverbs derived from repositions; as, *upward, downward,* &c.: of *intensions* nd *remissions peculiar to motion ;* as, *speedily, hastily, slow-y,* &c. We have given adverbs a place amongst the parts f speech necessary for the communication of thought; ut it may be doubted whether they be entitled to this istinction. English adverbs at least seem to be nothing ore than corruptions of nouns, adjectives, and verbs.

III. DEFINITIVES; which are all those words that erve to define and ascertain any particular object or ob-ects as separated from others of the same class. These re commonly called Articles, which are divided into vo kinds, viz.

1. Indefinite, as *a* or *an*, which is prefixed to a noun r general term, to denote that but one individual is meant f that genus or species of which the noun is the common ame. This article, however, leaves the individual itself uite indeterminate. Thus, *man* is the general name of e whole human race; *a* man is one individual, but that dividual is unknown. *Any* is prefixed to a noun either the singular or plural number, when it is indifferent as to e truth of the proposition what individual or individuals e supposed; thus, "*any* man will be virtuous when temptation is away." *Some* is prefixed to nouns in the plural umber, to denote that only part of the species or genus is eant, leaving that part undetermined; thus, "*some* men e great cowards."

2. Definite, as *the*, which is prefixed to a noun, to de-ote one individual of the species of which something is redicated that distinguishes it from every other individual. hus, "*the* man that hath not music in himself is fit for easons." It is used before nouns in both numbers, and for e same purpose; for we may say, "*the men* who have not usic in themselves are fit for treasons." *This*, prefixed to noun in the singular number, denotes an individual as resent and near at hand; as, "*this* man beside me." *That*, refixed to a noun in the singular number, denotes an dividual as present but at a little distance; as, "*that* an in the corner."[1]

Besides these, there are many other articles both definite d indefinite.

IV. CONNECTIVES, or those words which are em-oyed to connect other words, and of several distinct arts to make one complete whole. These may be divid-d into two kinds, viz.

1. Conjunctions, by which name are distinguished all ose connectives which are commonly employed to con-in sentences. These have been divided into two kinds, lled *conjunctives*, or those words which conjoin sentences d their meanings also; and *disjunctives*, or those words hich, at the same time that they conjoin sentences, dis-in their meanings. Each of these general divisions has en again subdivided; the former into copulatives and ontinuatives, the latter into simple disjunctives and ad-ersative disjunctives. But the general division is absurd, d the subdivisions are useless. Conjunctions never dis-in the meaning of sentences, nor have any other effect an to combine two or more simple sentences into one compound sentence. If those simple sentences be of opposite meanings before their combination, they will continue so after it, whatever conjunction be employed to unite them. In nature, different truths are connected, if they be connected at all, by different relations; and therefore, when the sentences expressive of those truths are connected in language, it must be by words significant of those natural relations. Thus, accidental addition is expressed by the conjunction *and ;* as when we say, "Lysippus was a statuary, *and* Priscian was a grammarian." The unexpected junction of contrary truths is expressed by *but ;* as, "Brutus was a patriot, *but* Cæsar was not." The relation of an effect to its cause is expressed by *because ;* as, "Rome was enslaved *because* Cæsar was ambitious." The relation of an effect to a cause of which the existence is doubtful, is expressed by *if ;* as, "you will live happily *if* you live honestly:" the relation of a cause to its effect, by *therefore*; as, "Cæsar was ambitious, *therefore* Rome was enslaved." The idea of simple diversity is expressed by *either* and *or ;* "*either* it is day *or* it is night." Contrariety between two affirmations, which, though each may be true by itself, cannot both be true at once, is expressed by *unless ;* as, "Troy will be taken *unless* the Palladium be preserved." Coincidence of two affirmations apparently contrary to each other is expressed by *although ;* as, "Troy will be taken *although* Hector defend it."

2. Prepositions, or those connectives of which the common office is to conjoin words which refuse to coalesce; and this they can do only by signifying those relations by which the things expressed by the united words are connected in nature. The first words of men, like their first ideas, had an immediate reference to sensible objects; and therefore there can be no doubt but that the original use of prepositions was to denote the various relations of body. Afterwards, when men began to discern with their intellect, they took those words which they found already made, prepositions as well as others, and transferred them by metaphor to intellectual conceptions.

Prepositions viewed in this light are

Either *proper*, or those which literally denote the relations subsisting amongst the objects of sense, such as the accidental junction of two things between which there is no necessary connection; as, "a house *with* a party wall." The separation of two things which we should expect to find united; as, "a house *without* a roof, a man *without* hands." The relation subsisting between any thing and that which supports it; as, "the statue stands *upon* a pedestal." The relation of higher and lower; as, "the sun is *above* the hills," "to support uneasy steps *over* the burning marl," "the sun is set *below* the horizon," "the shepherd reclines *under* the shade of a beech tree." The relation between any thing in motion and that in which it moves; as, "the rays of light pass *through* the air." The relation between any thing continued, whether motion or rest, and the point of its beginning; as, "the rays of light proceed *from* the sun," "these figs came *from* Turkey," "that lamp hangs *from* the ceiling." The relation between any thing continued and the point to which it tends; as, "he is going *to* Italy," "he slept *till* morning." The relation between an effect and its cause; as, "I am sick *of* my husband and *for* my gallant."[2]

Or *metaphorical.* For as those who are above others in place have generally the advantage over them, the prepositions which denote the one kind of superiority or inferiority, are likewise employed to denote the other. Thus we say of a king, " he ruled *over* his people ;" and of a soldier, " he served *under* such a general."

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[1] These two articles have plurals; *these* is the plural of *this*, and *those* the plural of *that.*

[2] Conjunctions and prepositions are indeed employed only to connect sentences and words; but it may be doubted whether they parts of speech distinct from nouns, verbs, and adjectives.

INTERJECTIONS are a species of words which are found perhaps in all languages on earth, but which cannot be included in any of the classes above mentioned ; for they are not subject to the rules or principles of grammar, as they contribute nothing to the communication of thought. They may be called a part of that natural language with which man is endowed, in common with other animals, to express or allay some very strong sensation ; such as, *ah !* when he feels pain. In this view the interjection does not owe its characteristical expression to the arbitrary form of articulation, but to the tone of voice, and the modifications of countenance and of gesture, with which it is uttered ; it is therefore universally understood by all mankind. In discourse interjections are employed only when the suddenness or vehemence of some affection returns men to their natural state, and makes them for a moment forget the use of speech. In books they are thrown into sentences without altering their form either in syntax or in signification ; and in English this is generally done with a very bad effect, though the writer no doubt employs them with a view to pathos or embellishment.

Unwilling to interrupt the continuity of the foregoing article, or to interpolate any additions, however necessary in themselves, which might have the effect of disturbing the logical sequence of the compiler's expositions and illustrations, we have thought it in many respects preferable to annex, under separate heads, such further explanations on several points as may appear to be requisite for their more complete elucidation, and also to supply some defects, particularly on the subjects of the relative pronoun, of comparison, and of the verb, which the learned reader will scarcely fail to detect in this elaborate treatise, notwithstanding its great and acknowledged merits. And,

1. *Of the Relative Pronoun.*

This subject has been pretty fully treated in the preceding article, and the general principles there stated are clearly and correctly unfolded. But whilst these principles are not always pursued to their consequences, and some important views have been omitted, there are also not a few points which seem to require a more ample development, and which may probably be rendered more distinct by a little diversity of illustration. In endeavouring to accomplish these objects, however, we shall freely avail ourselves of the ingenious speculations of one who has done more than any other philologist of this age, or even of the last, excepting perhaps Mr Horne Tooke, to introduce the principles of a sound philosophy into grammatical investigations ; and to ourselves it is a source of no ordinary gratification to think that we are enabled to do so with his own entire consent and approbation, though of course without any responsibility upon his part for errors which may be committed by us in attempting an exposition of his views.[1]

In the learned languages the antecedent is not unfrequently repeated along with the relative. In such expressions as, " Erant omnino *itinera* duo *quibus itineribus* domo exire possent,"[2] " *Urbem quam* statuo vestra est,"[3] "‘ΟΥΣ δ' εν τῳ πολεμῳ ΣΥΜΜΑΧΟΥΣ ἐκτησαμεθα, ἐιϱηνης ὀυσης, ἀπολωλεκασιν αυτοι,"[4] the antecedent is repeated along with the relative, which agrees with it in the same manner as any adjective agrees with its substantive. The relative, therefore, must be an adjective, expressing an attribute of its antecedent, and representing it in some way or other. Again, the application of the relative is universal. There is no object whatsoever to which, in use, the relative may not refer, and which it may not represent. We may say, the animal *which*, the man *who ;* the thing *which*, wisdom *which ;* George *who*, I *who*, thou *who*, he *that ;* and so in innumerable other instances. The attribute expressed by the relative is therefore extremely general, such indeed as may belong to any object whatsoever. The first matter for inquiry, then, is to endeavour to ascertain what the attribute in question really is, or, in other words, to determine the signification of the relative pronoun.

On this branch of the subject, however, it is not necessary to enlarge, after what has already been said respecting it. The analytical solution proposed by Mr Harris, on the authority of Apollonius *De Syntaxi*,[5] namely, into the prepositive pronoun and the conjunction *and*, has already been noticed and refuted. The equation, as stated by him, and also by Dr Beattie, who adopts his view, does not consist of equivalents, either logical or grammatical. The solution is not, therefore, as it ought to be, of universal application. In some instances, indeed, it may appear to have the same effect in a sentence as the copulative conjunction and prepositive pronoun ; but in others, and by far the greater number, it will be found that the effect produced by the substitution of the alleged equivalents is altogether different. Thus, if the sentence, " Light is a body *which* moves with great celerity," be resolved into, " Light is a body, *and it* moves with great celerity," as proposed by Mr Harris, the result is *two* distinct predications respecting light, viz. first, that " it is a body," and, secondly, that " it moves with great celerity ;" whereas, in the original sentence, " Light is a body *which* moves with great celerity," there is but *one* predication made concerning " light," namely, that " it is a body of *great or astonishing velocity.*" It is also to be observed, that the prepositive pronoun in the one sentence, and the relative pronoun in the other, refer to different antecedents. Thus, in the sentence, " The magnet is a stone, *and it* attracts iron," *magnet* is the antecedent to *it ;* but in the sentence, " The magnet is a stone *which* attracts iron," *stone*, and not *magnet*, is the antecedent to *which*. Nor is this all. There are many instances where the resolution proposed, by introducing a double instead of a single predication, would produce either nonsense or falsehood. We can say with perfect truth, that " Legendre was the first mathematician *who* remarked the coincidence of symmetrical magnitudes ;" but if this be converted into " Legendre was the first mathematician, *and he* remarked the coincidence of symmetrical magnitudes," we obtain two propositions, the former of which contains an affirmation erroneous in point of fact. In like manner, if the expression, "Solomon was not the son of David *who* rebelled against his father," be resolved into "Solomon was not the son of David, *and he* rebelled against his father," we have one negative proposition which is historically true, converted into two propositions, the one negative and the other affirmative, but both of them historically false. Mr Harris subjoins as a specious confirmation of his theory, "that the Latins in the structure of the relative seem to have well represented its compound nature, of part pronoun and part connective, in forming their *qui* and *quis* from *que* and *is*, or, as Scaliger would have it, from και and ὁς, και and ὁ:" But, whatever there may be in this, the foregoing examples prove that the relative has often an effect very different indeed from that which is produced by combining a connective with the prepositive pronoun.

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[1] Fateamur profecto oportet, simulque nos delectat fateri, quod nihil est hocce tentamen nisi prolatio, exigua quidem, prælectionum doctissimi atque πολυθϱυλλητου Joannis Hunter, LL. D. in Academia Andreapolitana Litterarum Humaniorum Professoris.

[2] Cæsar. *Comment.* lib. i. c. 6.

[3] Virgil. *Æn.* lib. i. l. 573.

[4] Demosth. *Olynth.* B.

[5] From his extensive acquaintance with classical literature, and the philosophical bent of his mind, Mr Harris was certainly a man eminently capable of making important philological discoveries, had he chosen, like Mr Horne Tooke and Dr Hunter, to think boldly for himself, instead of esteeming it a sort of heresy to differ from the opinions of the ancient grammarians. Of these, Apollonius was no doubt one of the most learned and acute, as we shall have occasion afterwards to show ; and in a question of *fact*, his authority is not to be disputed. But the case is very different in regard to a *theory*, the truth or falsehood of which must be established by *evidence*, derived not from the *dicta* of grammarians, but from the principles and usages of language. It is an excessive and misplaced deference to authority, however, which has led Mr Harris to crowd his *Hermes* with a multiplicity of uncouth terms and unnecessary distinctions, which, though they give an air of learned precision to many of his propositions, have an obvious tendency to darken rather than elucidate the subject which he professes to explain.

If, however, the connective (which is nothing but an arbitrary interpolation) be kept out of view, and the relation between the different pronouns be carefully considered, it will, on examination, be found that the relative is merely a particular explanation of the demonstrative pronoun. That the article is really a demonstrative pronoun, cannot be denied by any one who has attentively considered its true nature and import. The common application of ὁ μεν, ὁ δε, and το μεν, το δε, in Greek, renders this sufficiently obvious; and, besides, direct evidence may be produced to establish the fact. In the expression TOI μεν δαιμονες ἐισι,[1] "*illi* quidem sunt dæmones," ὀυτοι might have been used instead of τοι; and again, in the sentence, ΕΙ ΤΟ και ΤΟ ἐποιησεν ἀνθρωπος ὀυτος ὀυκ ἀν ἀπεθανεν,[2] "If this man had done *that* and *that* (such and such things), he would not have been dead," τουτο might have been used instead of το. Nor is this confined to Greek alone. In English also the article is used as a demonstrative pronoun. Thus, when Nathan said unto David, "Thou art *the* man," the expression is the same as if the warning minister of heaven had said, "Thou art *that* man." And the same practice likewise obtains in the Gothic and in the Anglo-Saxon, where, according to Manning, the article put demonstratively has the same signification as *hic, hæc, hoc; is, ea, id; ille, illa, illud.*[3]

Relative Pronoun.

But not only is the article employed as a demonstrative pronoun; in the more ancient Greek writers, particularly in Homer and Herodotus, it is frequently used as a relative pronoun. This has already been shown, and need not be further illustrated by examples, which might be produced in any number required. Θεοι ΤΟΙ Ολυμπον ἐχουσι[4] is manifestly the same as Θεοι ʿΟΙ Ολυμπον ἐχουσι. And, conversely, the relative is sometimes used as an article. "Imo, inquit Vigerus, absolute ʿΟΣ pro ʿΟ nonnunquam usurpatur. ʿΩν (λογου και πλουτου) τῳ μεν ορθως ἀει χρωμενος, αφ᾽ ʿΟΥ δε τοις δεομενοις ἐπαρχων 'quorum altero recte semper utens, altero indigentibus abunde subveniens;' ubi αφ᾽ ʿΟΥ pro απο ΤΟΥ."[5] Anciently the article was used as the relative pronoun in English as well as in Greek. The Lord's Prayer, in its older form, commenced thus: "Our father *the* art in heaven," where *the* is obviously used as a relative pronoun. And the same thing obtains in the Gothic and Anglo-Saxon, in which last, according to Manning, THE put after pronouns of all the persons signifies *qui*, who; as Ic THE, Ego *qui*, I *who*. The same author adds, "Apud Gothos similiter *articulus*, per omnes casus, vicem gerit *pronominis relativi;* ut SA IN HIMINAM, '*qui* in cœlis.'" Again, the demonstrative pronoun *that*, in English, is used indiscriminately with the relative. Thus we say indifferently, "The man *that* endureth to the end," or, "The man *who* endureth to the end;" "The messenger *that* Alexander sent to Darius," or, "The messenger *whom* Alexander sent to Darius;" "The mountain *that* overhangs the lake," or, "The mountain *which* overhangs the lake;" and so universally. Upon the whole, therefore, it may be concluded that the relative is merely a particular application of the demonstrative pronoun; or, in other words, that the *signification* of the relative is radically the same with that of the demonstrative pronoun.

But what, it may be asked, is the precise signification of the demonstrative pronoun? When it is said, "Cæsar Dumnorigem cepit atque interfecit *eum*," it is evident that the *eum* refers to and represents Dumnorix. A question however arises, namely, under what character does it represent him? Cæsar took Dumnorix; but *eum* does not represent him as a prisoner, and there is no other circumstance connected with Dumnorix which the pronoun can suggest to the mind, except the previous mention of his name. From the reason of the thing, therefore, independently of any induction, it may be concluded that *eum* can only be equivalent to the *said* or *before-mentioned;* and, accordingly, it will upon trial be found that, wherever the demonstrative pronoun occurs, some such expression as *said* or *before-mentioned* may be substituted in its stead. And this view is confirmed by the etymology of the demonstrative pronoun in as far as it can be traced either in Greek or in any other language.

For example, the Greek pronoun αὐτος, corresponding to the Latin *ipse* or *idem*, and often to *hic*, appears to be the past participle of the old verb αὐω, *clamo* or *dico*, formed upon the same analogy with the Latin past participle;[6] so

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[1] Hesiod. [2] Demosthenes. [3] Manning, *Grammat. Anglo-Sax. et Mæso-Goth.* [4] Odyss. Ξ.

[5] But Vigerus, though aware of the fact that ὁς is sometimes used for ὁ, does not seem to have observed that the article ὁ is merely the relative pronoun ὁς, the ancient form of which was τος (whence το, του, τον, την, &c.), with the final ς elided. In Xenophon (*Memorabilia*, cap. 4) we find this expression: Και ʿΟΣ λεξον ἡμιν, ἐφη, τα ὀνοματα αὐτων, where ὁς, though it may be called a pronoun of the third person, is plainly nothing but the article, and where, also, it appears that the demonstrative, used in a particular way, is in reality the relative pronoun.

[6] The universal practice of the Latins in terminating their past participle in TUS, creates a strong presumption that such formerly was also the practice of the Greeks; seeing that, at a remote period, the Latin language was unquestionably a dialect, or, at least, little else than a dialect, of the Greek. And this presumption, joined with the actual existence in Greek of a numerous class of verbal adjectives in ΤΟΣ, having a passive signification, puts it almost beyond a doubt that these verbals in ΤΟΣ are just the old past participles of the verbs to which they respectively belonged. Several of these may indeed have undergone some change of signification, but their consequent or secondary meaning may easily be traced to their primary import, in other words, to that of the past participle. Thus Εραω, *amo*, forms the old past participle ἐρατος, *amatus*, "that *hath* been loved," and consequently "that *may be* loved," or, *amabilis;* Γελαω, *rideo*, forms the past participle γελαστος, *risus*, "that *hath been* laughed at," consequently "that *may be* laughed at," and, by inference, "that is *capable of exciting* laughter," or, in other words, *ridiculus;* and so of the rest. The following examples, selected from many which might be produced, will be sufficient to indicate the analogy upon which these verbals are formed, and to show the propriety of regarding them as the past participles of their respective verbs:

VERBS.		PAST PARTICIPLES.		VERBS.		PAST PARTICIPLES.	
ʿΑγαπαω,	Diligo,	ΑγαπηΤΟΣ,	dilectus.	Δερω,	Excorio,	δαρΤΟΣ,	excoriatus.
ʿΑλοω,	Capio,	ἁλωΤΟΣ,	captus.	Διδασκω,	Doceo,	διδακΤΟΣ,	doctus.
ʾΑσκεω,	Exerceo,	ἀσκηΤΟΣ,	exercitatus.	Γλυφω,	Sculpo,	γλυπΤΟΣ,	sculptus.
Βαπτω,	Tingo,	βαπΤΟΣ,	tinctus.	Ζευγω,	Jungo,	ζευκΤΟΣ,	junctus.

that αὐτος, the Greek demonstrative pronoun, is in fact nothing but *dictus* or *said.* Another familiar instance is the use of the word *ditto* in book-keeping; as when it is said "paid *ditto* in full." *Ditto,* as everybody knows, is the Italian *detto,* formed from the Latin *dictus,* in the same manner as *fatto* from *factus, ritto* from *rectus;* and hence the expression, "paid *ditto* in full," is "paid *said* person in full," or, more simply, "paid *him* in full." Again, in our own language, Mr Horne Tooke has satisfactorily traced the pronoun *it,* anciently written *hit,* and still so pronounced in many parts of the country, to the past participle of the Anglo-Saxon verb HAITAN, *dicere, nominare;* whence it follows that *it* or *hit* signifies *said* or *named.*[1] It may, therefore, with some confidence be concluded that *said* was the original import of the demonstrative pronoun; and, as the relative pronoun has been shown to be only a particular application of the demonstrative, the signification of the former must, *ex paritate rationis,* be identical or synonymous with that of the latter, and, consequently, equivalent to *said* or *named.*

In a learned essay, to which Dr Gray's prize was adjudged, on the import and application of the relative pronoun, the author, Mr H. Carmichael, shows that the apparent etymology of this pronoun, in the Gothic language, affords the strongest possible corroboration of the truth of the above conclusion; inasmuch as the Gothic relative is merely, with a slight change of the aspirate into sigma,[2] the past participle of the verb signifying *dicere,* to say. And the admitted connection traceable between the Gothic and the ancient dialects of the Greek language suggests another conjecture, which serves to strengthen the probability of the preceding etymology, and also to confirm the truth of the general proposition above enunciated. The observation of Mr Horne Tooke, that Anglo-Saxon verbs, having I as their characteristic letter, change that letter, in the formation of their past tense, into A broad, is equally applicable to Mæso-Gothic verbs; thus QUIMAN makes QUAM, QUITHAN QUATH, and so on. But as different persons pronounced differently, and also used different written characters as representatives of their sounds, this change of the characteristic letter was exhibited either by A broad, or by O, or by U; and hence it may be inferred from analogy that QUATH would also be pronounced QUOTH, which accordingly is still met with in the colloquial dialect of several districts in Scotland. It would also appear that QUOTH was sometimes pronounced and written QUOD; thus, in Chaucer, "Sir Knight (*quod* he), my maister and my lord." QUOD and QUOTH have therefore been in use. But, in Anglo-Saxon, QUID, *dictum,* frequently occurs; and from the same analogy we may infer that QUITH was also in use at one period. It follows, then, that QUOTH and QUITH are in reality the past tense or past participle of the verb QUITHAN, *dicere.* But as the old form of the Greek relative pronoun was ϰος, different parts of which, as ϰου, ϰη, ϰως, occur frequently in Herodotus, it may not unreasonably be conjectured that the Gothic QUOTH formed the Greek ϰος (the *th* becoming ς in the same manner as δοθι, in the imperative of the second aorist, becomes first δοθ, and then δος), and that QUID formed the Greek ϰις, afterwards written τις, and the Latin *quis.* Further, it has been observed, that in the Mæso-Gothic, SAEI, *qui,* and the article SA corresponding sometimes to the Greek ὁ, and sometimes to οὑτος, bear the strongest appearance of having formed part of a Gothic verb corresponding to the Anglo-Saxon SAEHAN, *dicere;* a circumstance which serves to confirm the truth of the position, that the real signification of the relative pronoun is *said* or *named.*

From this induction, which appears to be conclusive, we now proceed to consider the uses of this pronoun in language, and at the same time to inquire whether, in the different examples produced, the relative corresponds, in effect, to the signification which we have assigned to it. The principal uses of the relative are, *first,* when it renders the clause in which it stands, in some respect or other, descriptive of its antecedent, or, in other words, when the relative is equivalent to an *adjective noun;* and, *secondly,* when it intimates that the amount of the clause to which it is prefixed is to be taken as a *substantive noun.*

1. With regard to the first of these uses; namely, when the relative clause can be expressed by a single term, every one must perceive that it describes or qualifies the antecedent, and is therefore equivalent to an adjective noun. Thus, in the sentence "vir sapit qui pauca loquitur," the relative clause, *qui pauca loquitur,* may be expressed by the term *pauciloquus,* and "vir *pauciloquus* sapit" is therefore exactly the same as "vir sapit *qui pauca loquitur;*" that is, *qui pauca loquitur* is precisely equivalent to *pauciloquus,* or, in other words, the relative clause is equivalent to an adjective noun. But the relative is by no means restricted, in its application, to those cases where the clause which it introduces may be expressed by a single term; on the contrary, the latter may be as long and as complex as the writer or speaker may chuse, although there be no single term in the language expressive of the same combination of ideas. When, for instance, we say, "He is the happy man, who, at any moment of his existence, can reflect on a life which has been spent in the conscientious discharge of his duty;" the clauses, "who can reflect on a life," and "which has been spent in the conscientious discharge of his duty," may not be expressible by single terms; but if they were, these terms would

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VERBS.		PAST PARTICIPLES.	
Ορυλλω,	Susurro,	πολυ-θρυλληΤΟΣ,	multum celebratus.
Καλεω,	Voco,	ϰληΤΟΣ,	vocatus.
Κλειω,	Celebro,	ϰλειΤΟΣ,	celebratus.
	Claudo,	ϰλεισΤΟΣ,	clausus.
Κοσμεω	Orno,	ϰοσμηΤΟΣ,	ornatus.
Λεγω,	Lego,	λεϰΤΟΣ,	lectus.
Λ σσομαι	Supplico,	τρι-λισΤΟΣ,	ter-supplicatus.
Μιγω,	Misceo,	μιϰΤΟΣ,	mistus.
Μναω,	Nuptias ambio,	μνησΤΟΣ,	desponsatus.
Ορεγω,	Porrigo,	ορεϰΤΟΣ,	porrectus.
Πεμπω,	Mitto,	πεμπΤΟΣ,	missus.
Πηγω,	Pango,	πηϰΤΟΣ,	pactus.
Ποθεω,	Opto,	τρι-ποθηΤΟΣ,	ter-optatus.
Ρεω,	Dico,	ῥηΤΟΣ,	dictus.
Ρωω,	Roboro,	ἐυ-ρωσΤΟΣ,	robustus.
Σϰεπαζω,	Tego,	σϰέπασΤΟΣ,	tectus.
Στιγω-ζω,	Pungo,	στιϰΤΟΣ,	punctus.
Τασσω,	Ordino,	ταϰΤΟΣ,	ordinatus.
Τεγγω,	Tingo,	τεγϰΤΟΣ,	tinctus.
Τρεω,	Perforo,	τρηΤΟΣ,	perforatus.
Υφαινω,	Texo,	ὑφανΤΟΣ,	textus.
Ωνεομαι,	Emo,	ὠνηΤΟΣ,	emptus.
Πνιγω,	Suffoco,	πνιϰΤΟΣ,	suffocatus.
Ποιεω,	Facio,	ποιηΤΟΣ,	factus.
Ραινω,	Aspergo,	ῥανΤΟΣ,	aspersus.
Φρυγω,	Torreo,	φρυϰΤΟΣ,	tostus.
Χριω,	Ungo,	χρισΤΟΣ,	unctus.
Ψαυω,	Tango,	ΨαυσΤΟΣ,	tactus.
Α῎ΥΩ,	Dico,	’ΑΥΤΟΣ,	DICTUS.

[1] In legal phraseology *said* is itself used as a demonstrative pronoun; as "*said* city" and "*said* seisin" for "*that* city" and "*that* seisin."

[2] This change, natural in itself, is of frequent occurrence; thus ha*th* becomes ha*s*, see*th* becomes see*s*, doe*th* becomes doe*s*, speake*th* becomes speak*th* and speak*s*, and sende*th* becomes send*th*, send*s*.

universally be denominated adjective nouns. And this leads us to observe that there are two ways by which the relative qualifies the antecedent; the first, when the relative clause is merely descriptive of the antecedent; and the second, when it ascertains to what particular class or species the antecedent belongs. Thus, in the sentence, "The emperors, glorying in nothing but oppression and cruelty, issued many tyrannical edicts, which, as might be expected, fomented discontent and excited rebellion, instead of enforcing submission to their authority;" it must be obvious that the whole of the clause introduced by the relative is equivalent to a compound adjective descriptive of "tyrannical edicts;" and that if the word *said* were substituted instead of *which* (the noun "edicts" being understood), the sense and effect of the sentence would remain unaltered. Again, in the sentence, "homo, qui sapientia caret, nil profuit hominibus," the relative clause *qui sapientia caret*, qualifies *homo* by ascertaining to what particular class or species *this* "homo" belongs. But though, in the former examples, it will readily be allowed that the word *said* may, with perfect propriety, supply the place of the relative pronoun, yet they who have not been accustomed to make the substitution may scruple to admit it in others, or to agree that the sentence "A man, who is destitute of wisdom, is a cipher in society," is exactly equivalent to "A man, said (man) is destitute of wisdom, is a cipher in society." Still the equivalence is undoubted; for the subject of the proposition, "a man," is, in both cases, qualified by words which have precisely the same effect in ascertaining to what class of men he belongs; and although, in the latter case, the relative clause assumes the form of a parenthetical sentence or interjected affirmation, yet if, in pronunciation, the word *said* be slurred over unemphatically, or articulated in the very same manner as the relative *who*, every one must be sensible that these two sentences are, in effect, identical. To prevent the appearance of violence in the substitution, it is necessary to repeat the antecedent along with *said;* but this arises solely from our not being accustomed to use *said* disjoined from its substantive, as we have long been accustomed to use the relative pronoun.

2. The second use of the relative pronoun is, when it intimates that the clause to which it is prefixed is to be regarded as the equation of a substantive noun; as in the sentence, "That you are disappointed, gives me pain," where the clause "that you are disappointed" is evidently the nominative to the verb "gives," and perfectly equivalent to "your *disappointment*." It is true that when the relative occupies this position, grammarians have been accustomed to call it a *conjunction;* but nothing, surely, can be more unphilosophical, or better calculated to produce needless perplexity and destroy the primitive simplicity of language, than to class the same word in different categories of speech according to its position and effect in a sentence. Such a mode of procedure, whilst it is but a clumsy method of screening ignorance, tends to retard a fair investigation into the real meaning of words, by deceitfully substituting a technical name instead of a rational explanation; and it insidiously attempts to wrest from etymology the right of stamping upon terms their genuine signification. In opposition to the commonly received notion, however, it may safely be affirmed that, in all known languages, the neuter of the relative pronoun is prefixed to a nominative and a verb, and that the sentence thus formed is, in amount, equivalent to a *substantive noun.* Thus, when Homer says, Λευσσετε γαρ Τογε παντες Ὁ μοι γερας ἐρχεται αλλῃ, "for you all perceive this at last, *that my prize is going away to another*," Ὁ μοι γερας ἐρχεται αλλῃ is evidently the *object* or *thing* perceived by all; and hence, if this sentence could be expressed by a single term, it would be universally denominated a noun substantive, and would be in the accusative case governed by λευσσετε. The same observations are, *mutatis mutandis*, applicable to the following sentence:

……………………………………………Διομηδης
Γιγνωσκων Ὁ οἱ αὐτος ὑπειρεχε χειρας Ἀπολλων.

where Ὁ οἱ αὐτος ὑπειρεχε χειρας Ἀπολλων is a complete substantive governed in the accusative by γιγνωσκων. Again, ὁτι, the neuter of the relative pronoun ὁστις (compounded of ὁς, *quis*, and τις), is universally employed in the same manner. Thus, in the sentence, Ἀρκει σοι μισθος, ἐφη, τουτο και μονον, ὋΤΙ ἐκ λυκου στοματος και ὀδοντων ἐξηρες καραν σωαν, "even this alone, *that you have taken your head safe and sound out of the mouth of a wolf*, is sufficient reward for you," if ὋΤΙ ἐκ λυκου στοματος και ὀδοντων ἐξηρες καραν σωαν could be represented by a single word, every one would regard it as a substantive noun, and as the nominative to the verb ἀρκει.

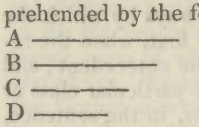
In the Latin language, *quod*, the neuter of the relative, and *ut*, which is just the Greek ὁτι, are used in precisely the same manner. Thus, in the passage, "Hæc nunciantes orabant, *ut* opem ferret, hostemque haud dubium Romanis terra aut maritimis viribus arceret; qui ob nullam aliam causam, nisi *quod* imminerent Italiæ, peterentur:" it is obvious that "*ut* opem ferret" and "*ut* hostem arceret" are compound substantives governed in the accusative by "orabant," and also that "*quod imminerent*" may be considered as a substantive under the regimen of *ob*, and expressed thus: "Qui (scilicet *Oricini*) ob nullam aliam causam, nisi (ob) *imminentiam* Italiæ, peterentur." It is evident, therefore, that *quod*, when thus prefixed to a nominative and a verb, is not a conjunction, but only the neuter of the relative pronoun; that when so used, the sentence is, in amount, equivalent to a substantive noun; that no *real assertion* is intended to be made by the relative clause; and that, on the contrary, the nominative and verb are merely an explanation of the relative which precedes them. In the expression, "I know *that* you are disappointed," *that* enunciates indefinitely the *object* known, and may apply to any object of knowledge whatsoever; but when the clause "you are disappointed" is subjoined, it limits the knowledge to a particular object, namely, *your disappointment.* It hence appears that, in making the words which explain *that* contain a real assertion, Mr Horne Tooke has admitted a fallacy into his ingenious resolution of the relative pronoun when thus employed; for, in such expressions as "I do not assert *that* you are disappointed," or, "I do not believe *that* you are disappointed," it would surely be absurd to maintain that I *assert* your disappointment, when I expressly say that I *do not assert* it, and do not even *believe* it. Upon the whole, then, it seems evident that, in this use of the relative, the pronoun itself is merely a *general enunciative* of the proposition which follows; and that this proposition being the equation of a substantive noun, or an explanation of the pronoun, is to be taken abstractedly, or, in other words, to be considered not as containing a formal assertion, but merely as something said or enunciated.

Comparison.

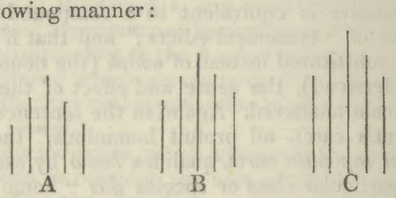
2. *Of Comparison.*

Comparison, *comparatio*, is derived from *comparo*, to put together, a word literally intimating the mode in which one thing is compared with another, namely, by collocation or juxtaposition; and hence, in all languages, this process is expressed in nearly the same manner. The degrees of comparison are commonly said to be three; the positive, comparative, and superlative. But the positive can scarcely be denominated a degree, as it simply states the epithet, and employs no comparison whatever; thus, *albus*, white, *pulcher*, fair. The comparative states a comparison between two objects only; the superlative between more than two. It is impossible, however, to express by different terms, or single words, the gradations or shades of difference which may exist between objects, as, for instance, in colours; and hence necessity obliged the framers of language to invent means by which these various gradations or qualities might be generally expressed. With respect to those words which admit of comparison, two things seem to be necessary; first, that they represent general ideas; and, secondly, that they represent objects which are capable of increase or decrease. In this view even nouns substantive, or generic terms, may be compared. Thus it may be said of a person possessing in an eminent degree those qualities which constitute a hero, that he is *more* a hero than another less liberally endowed in this respect; and, upon the same principle, we find in Greek *βασιλευς*, *βασιλευτερος*, *βασιλευτατος*. But the names of individuals, or, in other words, proper names, do not admit of comparison, because no individual can be another, and consequently no man can be more himself than another. The same observation extends to the personal pronouns, which, although in themselves general, do not admit of comparison, because they are particular in their application. Numbers, too, are the most general of all words; yet, as they do not admit of any addition or diminution, they are not susceptible of comparison; for, if we suppose two sets of any thing, each consisting of six, the one set cannot be *more* six than the other. Verbs, however, may admit of comparison, thus, *amat magis*, he loves *more;* and so also may participles as partaking of the nature of verbs. It is commonly objected, indeed, that the latter then become adjectives; but this is extremely incorrect; for, in such words as *servans, servantior; amans, amantior;* the meaning is not "loving," "more observant of love," but "loving *at present*," "more observant of love *at present*." Adverbs may also be compared; thus, *convenienter, convenientius, convenientissime; eleganter, elegantius, elegantissime.* Prepositions, being a species of adjectives, and oblique cases of nouns, are likewise susceptible of comparison; thus we have in Greek *πρω*, *πρωτατος* now *πρωτος*, and, in English, *before, further, foremost; hind, hindmost.* Interjections, if they be signs significant of ideas or emotions of the mind, may, in like manner, be used in degrees of comparison. The repetition of the same word denotes a comparison, as *alas, alas;* and the expression *ter quaterque beati*, indicates a degree of comparison, perhaps the highest. Among the Hebrews the repetition of the same word, as *good good*, is employed to express the superlative, and hence becomes synonymous with *optimus*, very good or best; and children make use of the same method to express the degrees of comparison. Of conjunctions nothing positive can be said in this respect, as their nature has not yet been satisfactorily ascertained.

But there is a much more refined and less obvious view of the subject of comparison, namely, that the comparative may be recompared, and so also may the superlative; in other words, if language were fitted to express it, there may be an ascending or descending series of successive comparisons of comparatives and superlatives. Without attempting any thing of this sort, however, it may be shown that from one comparative another may be formed, and from one superlative another comparative and superlative, and so on to almost any extent whatever. Suppose three persons, John, James, and Peter: John is tall, James is taller, and Peter is tallest; but, instituting a second comparison, Peter is *more* taller than John than James is; that is, as Peter is the tallest of the three, and as James is taller than John, Peter, with reference to John, the common object, must be taller to a *greater* extent or degree than James, the intermediate subject of comparison, is. But this, which it is difficult to state intelligibly in words, may be better comprehended by the following simple diagram.



Here D is tall, and C is taller than D, but B is *more* taller than D than C is; and of the three, A, B, C, it is obvious that A is *most* the taller than D. In the first case, when we said that B is *more* taller than D than C is, we formed a new comparative of which the former comparative C is the positive; and, in the second case, we formed a new superlative, of which the former comparative was the positive. This may be visibly represented in the following manner:



Here we have three distinct groups or classes of objects, and A, B, and C are each the tallest of its respective class or group; yet these three in their relative excess may again be recompared. Thus B may be *more* the tallest of its group than A is of its group, and of the three, A, B, and C, C may be *most* the tallest of its group. This process, it is obvious, might be carried to any length, and we might form a triple, quadruple, quintuple, sextuple, &c. comparison; nor is there any logical incongruity in the expressions which we have employed, when these are properly applied and understood.

No limit is set to comparison in nature; the only boundary fixed is by our confined faculties. If we were to advance beyond the first, or at most the second step, we would become involved in relations so complicated that it would be impossible to conceive them; and convenience, therefore, obliges us to stop short. In English, we generally express such comparison by circumlocution. Thus, instead of saying that B is *more* greater than D than C is, we commonly say, that B exceeds D more than C does. But instances of the former are sometimes met with even in that language, and not unfrequently in Latin. "The Romans," says Mr Hume, in his *History of England*, "were *more* inferior to the Greeks in eloquence than in military glory;" that is, the Romans were *inferior* to the Greeks both in eloquence and in military glory; but they were *more* inferior in eloquence than they were inferior in military glory. The language of the historian, therefore, is both logically and grammatically correct, though its accuracy has been impeached by persons ignorant of the principle on which the comparison is made. Priscian the grammarian appears to have perfectly understood the *rationale* of such expressions; but Ruddiman, with all his ingenuity and erudition, seems to have been altogether in the dark respecting it, as is evident from the manner in which he speaks, in his *Grammatica Major*, of the instances of double comparisons quoted from Priscian. The resolution of all such examples, however, is, according to the principle here stated, equally certain and obvious. Thus, "Achilles Æneâ *magis* fortior quam justior fuit;" that is, Achilles was *more* braver than Æneas, than he was juster than Æneas; in other words, Achilles *exceeded* Æneas both in bravery and in justice, but he exceeded him *more* in the one (bravery) than in the other (justice). The expression, therefore, is perfectly classical, and consistent with itself. Again, "Ajax est *magis* fortior Ulysse quam Diomede;" that is, Achilles is braver than Ulysses, and he is also braver than Diomede, but he is *more* braver than Ulysses, than he is braver than Diomede, or, in other words, he exceeds Ulysses *more* in bravery than he does Diomede. There is a passage in the historian Florus, a writer of a vigorous imagination, and whose writings accordingly exemplify that characteristic, which, by reason of a double comparison, has been completely misunderstood. It is to be found in lib. iv. c. 46, of his history, and is as follows: "Sed nec *minus* admirabilior fuit illius exitus belli." In none of the editions of Florus is any notice taken of this passage; and upon consulting Clarke's translation it will be found that he has simply rendered *minus admirabilior* "less admirable," just as if it had been *minus admirabilis.* But it is not from the words themselves that we are enabled to make out the passage; it is from the context. Throughout the whole of it there is a train of closely-connected comparisons going on in the mind, and, in particular, three circumstances are mentioned, each having a tendency to create wonder in a greater degree, viz. 1*st*, "Nunquam ullo loco tantum virium populus Romanus vidit," the forces were *more* numerous than at other times; 2*d*, "Nunquam imminentis ruinæ manifestiora prodigia," the presages of impending ruin were *more* striking than at other times; and, 3*d*, "Nunquam *acrior* neque *alacrior* exercitus Cæsaris," the army was *keener*, and evinced *greater alacrity*, than on ordinary occasions. The circumstance, therefore, which led the author to use the expression "Sed nec *minus* admirabilior fuit illius exitus belli," was his having previously mentioned the three things first stated as *more wonderful* than at any other time. There is therefore a double comparison here, *Sed nec* MINUS *admirabilior*, &c. "But no *less* (or, in no less a degree) more wonderful was the issue of this war," viz. *than the issue of other wars.* The three particulars above stated were *more wonderful* than at any other time, and this was *no less* more wonderful. Without the double comparatives the real meaning of the author could not have been expressed. But for the same reason that it was "*minus* admirabilior," it might have been "*magis* admirabilior," *more* more wonderful. *Magis*, however, though used as a comparative, is in truth only a positive of which *major* is the comparative, and *magissimus*, i. e. *maximus*, the superlative; it is derived from the Greek μεγας, and literally signifies *greatly;* thus, "more elegant," was originally "greatly elegant." The comparative, therefore, produces a different effect in language from that which it did originally, when its import was not "more," but "greatly."

The intrepid apostle of the Gentiles, speaking of himself, in one of his epistles, says, ἐμοι τῳ ἐλαχιστοτερῳ παντων των ἁγιων, which is translated "*less than the least*," probably because "*more* the least" would have made but an awkward appearance in English. The superlative here is formed into a new comparative. But the Greek comparative ends in -τερος, which, when fully traced, seems to be ἑτερος, the comparative of εἱς, one, joined to the word denoting the subject or thing compared, and signifies not *more* of one, but *one of two;* for we find the termination -τερος very frequently without any augment or increase of qualities, as πως, πωτερος, which of the two; εἱς, one, ἑτερος, not *more* of one, or *more* of unity, but one of two; ἀλλος, another, αλλοτερος, not *more of another*, but another of two; ὁς, who, ὁτερος, which of the two, in Latin *uterus*, abridged into *uter;* and, in the same manner, καλος, fair, καλοτερος, the fair of the two. We may add, that *whether*, in English, means *which of the two.* Agreeably to this notion, then, the comparative being used as a partitive, *major fratrum* means the elder of the two brothers, or the one selected (on account of *age*) to the exclusion of the other.

Of the termination of the superlative no certain account can be given; it is a part of the subject on which all is conjectural; and although it could be traced, this would be attended with no practical advantage. Its Greek termination is in -τος, and there is some coincidence between this termination and that of the ordinal numbers τριτος, τεταρτος, πεμπτος, &c. which do not mean the aggregate numbers *three, four, five*, but express each an ordinal *unity;* thus τριτος signifies the *third*, and often *one of the three.* The same coincidence between the superlative and the numerals is observable in Latin; thus, *optimus*, &c. *primus*, *quintus*, &c. the *first*, the *fifth*, always denoting *unity*, that is, unity in a numerical series or order. Now, since in these two languages there is such a coincidence between the superlative and the numerals, let us for a moment suppose the superlative to be made up of unity, or to contain in it unity; then *doctissimus Romanorum*, resolved on this assumed principle, will be *doctus unus Romanorum*, "the *one* learned or learned *one* of the Romans," making thus a selection of *one* to the exclusion of *all others. Unus* is taken two ways, either definitely or indefinitely; either as *one only* to the exclusion of all others, or as one of any number. Horace has an example which seems to favour this view, and in which for *unus potes*, *one* that is powerful, we might substitute *potissimus*, the *most* powerful. And Quintilian says, "Demosthenes eminens *unus* in omni genere loquendi est," in which expression *eminens unus* is the equation of *eminentissimus.* The superlative, like *unus*, is used both definitely and indefinitely; definitely when *optimus*, for instance, means *the best;* and indefinitely when it is rendered *very good.* Horace, when inviting Mecænas to a feast, desires him to write back word, "Tu, quotus esse velis, rescribe," where *quot*, combined with unity, signifies "of *how many* you wish to be *one;*" and so perhaps the superlative is composed of unity and the word expressive of that which is susceptible of comparison, namely, the positive.

Lastly, the comparative is often expressed by *quam*, as "Virtus est præstantior *quam* aurum." But *tam* and *quam* correspond to each other as antecedent and relative, and are really such themselves; *tam* being the accusative of the Greek article τον, την, and *quam* the accusative of the relative, and their effect being *tam*, to the degree, *quam*, to which degree. Hence the expression may be resolved, "Virtue is generally excellent to the degree to which gold is," and *more.* According to the idiom of the French language, it would have been "quam aurum *non* est," to which degree gold is *not.* In certain cases of apparent comparison, it is said by many that *potius* and *magis* are understood, as "Res autem admonet cavere *quam* consultare," where it is commonly said that *potius* ought to be supplied; but surely this would be a very violent supplement, and the more natural one, undoubtedly, would be the antecedent of *quam.* Thus, "Res autem admonet *tam* cavere *quam* consultare," "Circumstances warn us to be on our guard *to the degree to which* they warn us to consult" or consider what is best to be done. The import of *than* in English, however, is not so easily ascertained as that of *quam* in Latin. Where *potius* and *magis* are used they seem to be of the same import with the Greek prepositions παρα and προς, and significant of apposition or juxtaposition. *To* in English denotes apposition and likewise comparison. "These blunders are nothing to what we find in Grenada," that is, *compared with* "what we find in Grenada."

Such is an abridged, and, we fear, very imperfect, view of the ingenious and original speculations of Dr Hunter on the subject of comparison; speculations with which all his pupils must be familiar, but which, notwithstanding their extreme refinement, have not hitherto, so far as we know, been submitted to the public, even in an intelligible abstract.

3. *Analytical Resolution of the Moods and Tenses in the Greek and Latin Verbs.*

The subject of the verb, and of verbal forms, has already been treated of at considerable length, but chiefly, as the reader will have perceived, with reference to the English language. It may not be improper therefore to extend the application of the same principles to the resolution of the moods and tenses of the Greek and Latin verbs, and to establish, both analytically and inductively, their universality as laws of human speech, or rather of the human mind adapting language to the expression of its thoughts.

It occurred to Dr Hunter, early in life, that by separating the *time* from the other circumstances involved in those forms of the Latin verb called the tenses of the *indicative* and *subjunctive moods*, the explanations of the tenses, and also of these moods themselves, would be much simplified. The view which then occurred to him he continued to give annually, in his grammatical prelections, during a period of about half a century; and though, without calling in the aid of *other principles*, it is insufficient for the explanation of certain uses of the moods and tenses, yet, as far as it goes, it has contributed to the elucidation of a subject respecting which grammarians had, with a few exceptions, being long accustomed to wander in the dark. Mr Dawes, in his *Miscellanea Critica*, first published in 1745, reached the very verge of Dr Hunter's opinion;[1] and Matthiæ, in his copious grammar of the Greek language,[2] published in 1809, explained some passages of the Greek authors conformably to a general principle found exemplified in the structure of every language. But as he does not seem to have been at all aware of the *principle* itself, and of the *universality* of its application, Dr Hunter was induced, several years ago, to publish an introductory view of the moods and tenses of the Greek and Latin verbs, in which both the principle and its application are most clearly and beautifully unfolded, and which, with his consent and approbation, we are enabled to subjoin. Before entering on the discussion of the particular verbal forms, however, this venerable patriarch of philology premises some general observations connected with the subject, and necessary to a just view of it.

And, *first*, in the polished and refined state in which the Latin language has come down to us, it is perhaps impossible to decompose the various moods and tenses of its verbs, so as to exhibit with certainty the elements, or the *generic verbs*, by the coalescence or combination of which those moods and tenses have been originally formed. The surest, perhaps the only, guide, to which we can have recourse, is furnished by the decomposed state in which these moods and tenses are represented in our own or other modern languages, by means of those generic verbs termed *auxiliary*. Thus, *scripsero*, when decomposed into its simple elements, we represent, by recombining these elements in in this manner, *I shall—have—written.*

Secondly, whosoever, therefore, shall attempt a complete and satisfactory explanation of the moods and tenses of the learned languages, which is still a desideratum in our grammars, must attend particularly to the literal import and meaning of those auxiliary verbs. But even this will not always be sufficient. He will often find that more is meant than meets the ear; and that it is further necessary to call to his aid our modes and habits of thinking, and the inferences which mankind naturally and habitually draw from the verbal statements given. In the expression *I will write*, all that is stated is my *present will, inclination*, or *intention to write.* There is nothing in it *expressive* of a *future action;* yet every person understands it as a declaration, or assertion, of *future writing.* Now, as this is not the amount of the statement literally taken, the effect must be the consequence of an inference drawn from the present volition to the future action. From the *present volition* the *future action* is inferred.

Thirdly, The verbs which our grammarians have termed *auxiliary* are chiefly these: *am, do, have, shall, will, may, can.* One or other of these we employ, or may employ, in rendering literally into English the moods and tenses of the Greek and Latin verb. These verbs, however, when combined with a noun or subject, constitute, each of them, the predicate of a proposition. They all of them express an *assertion*, affirmative or negative, and consequently they are all verbs in the *indicative mood:* as *I am, I am not; I do, I do not; I have, I have not; I shall, I shall not; I will, I will not; I may, I may not; I can, I cannot.* From this view of the subject, some important consequences seem deducible.

1. These auxiliaries, being thus all verbs in the indicative mood, and all of them, when combined with a noun or *subject*, expressing an assertion, it follows that the tenses of the Latin *subjunctive*, or *potential*, or *optative*, as in certain instances it has been called, as well as the *subjunctive* and *optative* of the Greek verb, which involve those auxiliaries, and are literally rendered into English by means of them, are also *indicative.* To consider certain of those forms or tenses as exclusively indicative or assertive, and others as not so, seems to be founded completely in misapprehension, and tends to perplex and mislead. "I *may* write," "I *might* write," are as much assertions, as "I *do* write," and "I *did* write." The thing indicated or asserted is different; but, in as far as assertion is concerned, they are completely similar, and stand upon precisely the same footing.

2. Such expressions as, "I *may* read," "I *may* write," "I *might* read," "I *might* write," "I *may* have read," "I *may* have written," "I *might* have read," "I *might* have written," are incorrectly and improperly considered as *moods*, or *modes*, of *reading* and of *writing.* It is the verb *may* that is *generic*, or the term to be modified, and the other verbs annexed to it contain the modification. The verb *may* predicates *liberty* in general of its nominative or subject; *may read, may write*, predicate liberty *to read* and *to write.* They express not *liberty in general*, but *liberty modified* or particularized. They ought therefore to be considered as modes or moods of the verb *may*, not of the verbs *read* and *write.* The same observations are applicable to all our other auxiliaries. The verb *can* predicates *power* or *ability;* "*can* read," "*can* write," predicate particular power, the power or ability to perform those particular actions; and so of the rest. What has now been said of the English auxiliaries is applicable to the moods and tenses of the learned languages. If the generic verb be prefixed, as it is in our own language, it remains a separate word; and has been termed an *auxiliary* verb. If it be subjoined, or annexed at the end, being unemphatical, it becomes *enclitic;* and, adhering to the verbs to which it is thus annexed, comes at last to be considered as a *flexion*, or *termination.* The French future *J'ai à* or *de porter*, is an instance of the one process, and *Je porter-ai* is an instance of the other. And, in the progress of elision or abbreviation, the auxiliary may be so disguised as to be no longer distinguishable. It may even be doubted if *Je porter-ois* will now be recognised as a compound, or be believed to be the abbreviated form of *Je porter-avois*, "I had to carry." Similar to these last examples appear to be the moods and tenses of the Greek and Latin verb. The auxiliaries, being annexed at the end, have come to adhere to the verbs to which they were annexed, and to be considered as merely changes of termination; and they are with difficulty, if at all, distinguishable as having been separate verbs. Yet the foregoing considerations and examples render it extremely probable that they were originally separate verbs, not prefixed, like the English auxiliaries, but subjoined,

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[1] See *Miscellanea Critica*, p. 85, Dr Burgess' edition.

[2] Matthiæ's *Greek Grammar*, sect. 522.

and at last attached to and incorporated with the words to which they were subjoined.

But, whatever opinion may be adopted as to the origin and history of these flexions, no doubt whatever can be entertained that they are similar in their nature to our auxiliaries; that the terminations contain the generic part of the expression, and are modified by the radical part of the verbs combined with them. The forms *scrib-am*, *leg-am*, *teg-am*, are therefore improperly considered as *moods*, or *modes*, of the verbs *scribo*, *lego*, *tego*. It is the termination *-am*, the common part, that represents *I may*, or *I can*, and which receives modification from *scrib-*, *leg-*, *teg-*. The general notion of *liberty* or *power* is *modified* by the notion of *writing*, *reading*, and *covering*, with which it is combined; the termination *-am*, by the radical part of the verbs, not the radical part by the termination.

3. As the English auxiliary verbs determine the nature of the *moods* of the learned languages, and, as has already been seen, lead us to conclude, that, by whatever name they may have been distinguished, *subjunctive*, *optative*, or *potential*, they are all equally *indicative* or assertive; so they also, if we listen to their suggestions, will be found equally decisive as to the *tenses* or *times* of those moods. These auxiliaries are all verbs. They are all verbs of the indicative mood; and they are all verbs of the *present* time or tense, each of them having a corresponding form appropriated to *past* time. Thus,

PRES.	*Am*,	*do*,	*have*,	*shall*,	*will*,	*may*,	*can*.
PAST.	*Was*,	*did*,	*had*,	*should*,	*would*,	*might*,	*could*.

The terminations or flexions of the verbs of the learned languages, which contain or involve those auxiliaries, should therefore also be either of the *present* or of the *past time* or *tense*. Whatever they predicate of their subject or nominative, whether *existence*, *action*, *possession*, *duty* or *obligation*, *volition*, *liberty* or *possibility*, *ability* or *power*, they will be found, like the auxiliaries which they involve, to have two corresponding forms, one predicating those attributes of the *present* time, the other of the *past*. If then we separate the *time* from the other circumstances involved in those forms of the Greek and Latin verb called the *moods* and *tenses*, the *time* thus separated, or separately attended to, will, in every one of them, be found to be either the *present* or the *past*. One primary object of these forms seems to have been to give the *present* and the *past* as two *fixed points* of time, with a reference to which all the other ideas involved in them are to be estimated and determined. They are all *past*, *present*, *future*, *contingent*, &c. with reference to one or other of these two fixed points.

These preliminary observations seemed necessary to prepare the way for the proposed elementary view of the tenses of the Latin verb; and in the sequel that view will be further illustrated and confirmed by the application of it to the moods and tenses of the Greek verb. The *tenses* of the Latin verb, arranged as *present* and *past*, are as follow:

		Present.	*Corresponding Past.*		
Indic.	Pres.	*Scribo*,	*Scrib*EBAM,	Indic.	Imperf.
	Perf.	*Scrips*I,	*Scrips*ERAM,		Pluperf.
	Fut.	*Scrib*AM,	*Scrib*EREM,	Subj.	Imperf.
Subj.	Pres.	*Scrib*AM,			
Subj.	Perf.	*Scrips*ERIM,	*Scrips*ISSEM,		Pluperf.
	Fut.	*Scrips*ERO,			

Let us adopt the words *now* and *then*, as short and convenient expressions to indicate the *present* and the *past*. *Scribo*, the *present*, then, represents my *writing* as *now* doing, as *now* in progress; *scrib*EBAM, the corresponding *past*, as *then* doing, *then* in progress. *Scrips*I,[1] the *perfect*, represents it as *now* done, or past; *scrips*ERAM[2] as *then* done or past. *Scrib*AM, whether considered as the future indicative, or as the present subjunctive, represents my writing in the one case as *now* future, as a thing that *is* to be; in the other as a thing that *may* be. Although there may appear to be a marked difference between these two when they are uttered separately, and not combined with another verb, yet, when they are found in combination, as generally happens, the effect of them is in most cases precisely the same. They equally present the verbal state as *future*, and equally present it as *contingent* or *possible*. Thus, *Si jubebis* or *jubeas faciam*, "If you order me, I will do it." Both forms represent my doing it as depending on your ordering me; and both, at the same time, mark the relation of that order to the present time; the one as an event *now* future, the other as an event *now* contingent or possible. *Jubebis*, however, in this combination, leaves it *uncertain* whether you shall order me or not; and *jubeas* leads to the inference, that, if you order me at all, that order is *future*. What the one states as *future*, is at the same time stated by *si* as *uncertain;* what the other states as *uncertain*, is at the same time perceived to be *future*. The two modes of conceiving the event are so blended together, that it is often a matter of indifference whether we employ the one tense or the other; and in numerous instances the present subjunctive may be rendered by *shall*. It is from this affinity or similarity between these two modes of conceiving the action or verbal state, that the terms expressing them often coincide in form. Thus *scrib*AM, *leg*AM, *audi*AM, are, in all our elementary books, set down both as futures of the indicative, and rendered *shall* or *will*, and as presents of the subjunctive, and rendered *may* or *can;* and, whilst *am*EMUS is rendered MAY OR CAN *love*, *scrib*EMUS of the same termination is rendered SHALL OR WILL *write*. It is from the same affinity of signification that both these tenses always unite, in one *past* form, the imperfect of the subjunctive; as *scrib*EREM, which, as the *past time* of the *future indicative*, represents my writing as *then* future; and, as the *past time* of the *present subjunctive*, represents it as *then* contingent or possible, as a thing that might (*may-ed*) be.

There is, in like manner, so great a similarity of meaning in the forms *scrips*ERIM and *scrips*ERO, that, excepting the first person singular, they coincide completely, and always unite in one past form, *scrips*ISSEM. *Scrips*ERIM represents, not my *writing*, but my *having written* (the act of writing being conceived, not as *doing*, but as *done*), as *now* contingent or possible, as a thing that *may* be, or, which amounts to the same thing, it states my *writing* as a thing that *may* HAVE BEEN. *Scrips*ERO states my *having written*, the completion of my writing, as *now* future, or as a thing that *shall* be, or it states my *writing* as a thing that *shall* HAVE BEEN. The former is accordingly rendered by

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[1] This tense Dr Clarke has, with great correctness of thought, called *præsens perfectum*, the time being really the *present*. There is, however, no incongruity in combining with this form an expression of the *past* time at which the action *was performed;* as, for example, in stating an action as *now* past, and at the same time as having taken place *last year*, or even *last century;* or in stating an event of *last* year as *now* past. The usage of the English language does not admit of combining with the perfect, expressed by *have*, any expression of time that *excludes* the present; at least we do not commonly say, "I *have* written the letter *last week*," but "I *wrote* the letter *last week*."

[2] This form ought to be called *præteritum perfectum*, in conformity with the view on which the tenses have received their denominations, the *time* being really past (*præteritum*), and the action or verbal state represented as then finished (*perfectum*), and not in progress. *Helvetii jam per angustias et fines Sequanorum suas copias* TRANSDUXERANT, *et in Æduorum fines* PERVENERANT, *eorumque agros* POPULARENTUR. (Cæsar *in Bell. Gall.* lib. i. c. 11.) The time of these three verbs is a *past time*, and in this instance they refer to the same point of past time; but the first two express what was *then done* or *past*, the third what was then *doing*.

Mr Ruddiman, I MAY *have written;* the latter, I SHALL *have written.*[1] *Scrip*SISSEM expresses precisely the same conception with the two last, differing from them in no circumstance whatever but the *time*, and expressing the same thing with reference to *past* time which they express with reference to the *present.* It is the *past time* of *scrip*SERIM and *scrip*SERO. It states my *having written* as *then* contingent or possible, I MIGHT (*may-ed*) *have written;* or as *then* future, I SHOULD (*sceoll*-ED, Saxon) *have written.*

Let us apply this view to the various forms in combination with another verb.

And, *first*, of those which have respect to *present* time.

*Quæ imper*AT,
—— *impera*VIT,
—— *impera*BIT,
—— *imper*ET,
—— *impera*VERIT (perf.)
—— *impera*VERIT (fut.)
*se facturos pollice*NTUR.

This set of examples are all presents, each of them containing in itself an expression of present time with reference to which all the other ideas involved in it are to be estimated. "They promise *now*, that they will do

what
he *now* commands;
he *now hath* commanded;
he *shall* command;
he *may* command;
he *may have* commanded;
he *shall have* commanded."

In this combination, *imperat* states the *act of commanding* as *now* present, at the time when they promise; *imperavit* states it as *now* past, *imperabit* as *now* future; *imperet* as *now* contingent or possible, as an event that *may* take place; *imperaverit* (perf.) states the *having commanded* as *now* contingent or possible; *imperaverit* (fut.) states the *having commanded* as *now* future.

It is necessary further to observe, that all these forms contain only the reference or relation of the *command* to the *present* time, and that all of them, excepting the first, leave the *time* of commanding, the time when the command is actually given, completely indefinite. *Imperavit*, for example, merely states the act of commanding as NOW *past*, but leaves the time of giving the command unascertained. The command may have been given last moment, last week, last month, last year, or last century. In the same manner, *imperabit* states the act of commanding as NOW *future.* It expresses barely the relation of the command to the present time, but leaves the time of commanding completely indefinite. It may be next moment, next day, next week, next year, next age. If the *time* of the command be necessary to be ascertained, an expression of future time, or the statement of a future event, with which it shall be contemporaneous, is required for the purpose; as *to-morrow morning*, *next week*, *at sunset*, or *at sunrise*, &c.; or it may be obvious from other circumstances in the context or narrative. In like manner, *imperaverit* states *the having commanded* as an event *now* possible, or *now* future; but of itself it indicates neither the time of giving the command, nor any time or event to which the command shall be prior, or before which it *may* or *shall* have taken place. From the desire, however, which we have to obtain precise rather than vague information, we naturally avail ourselves of the circumstances in the context or in the combination in which it stands, to ascertain what the form itself leaves undefined. In the example given above, *imperaverit* may be considered as standing in a twofold connection, and as having a double reference; one to the present time, the time of the promise (*pollicentur*), with respect to which the act of commanding is stated as *contingent* or *future;* the other to the future time of performing the promise (*facturos*), with respect to which the act of commanding shall be *past.* The whole statement may be fully brought into view by a paraphrastical or periphrastical development, thus: "They promise that they will execute his commands, when the act of commanding, *now* contingent, or *now* future, shall once be past, or when the command *shall* once *have been given.*"

Secondly, Of those tenses which have reference to *past* time.

*Quæ impera*BAT,
—— *impera*VERAT,
—— *imper*ARET,
—— *impera*VISSET,
*se facturos pollice*BANTUR.

This second set of examples are all *past* tenses, each of them containing in itself an expression of *past time*, with reference to which all the other ideas contained in it are to be estimated. "They promised *then*, that they would do

what
he *then* commanded;
he *had then* commanded;
he *should* command;
he *might* command;
he *might have* commanded;
he *should have* commanded."

In this combination *imperabat* exhibits the act of commanding, as THEN *doing*, having the same reference to *past* time that *imperat* (commands) has to the *present;* and therefore may justly be considered as the past time of *imperat. Imperaverat* represents the act of commanding as *then* past, and is therefore the *past* time of *imperavit*, which represents it as *now* past. *Imperaret* represents the act of commanding either as *then* future, or as *then* contingent or possible. In the former case it may be considered as the *past* time of *imperabit: imperabit* stating the act of commanding as *now* future, or future at the present time; *imperaret* as *then* future, future at a *past* time, which in this instance is the time of the promise. They are therefore related to each other as *present* and *past.* On the other hand, if *imperaret* be considered as representing the act of commanding as then contingent or possible, a thing that *might* be, it will be the *past* time of *imperet;* the latter exhibiting the conception in reference to the *present* time, and the former exhibiting the same conception in relation to *past* time. The affinity of signification between the future indicative and the present subjunctive, as formerly observed, is so great, that their terminations often coincide; and hence they always unite in one past form, the imperfect of the subjunctive.

What increases the difficulty of this part of the subject

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[1] These two, like the present subjunctive and the future indicative, approximate so nearly in signification, that it is often a matter of indifference which of the two be employed.

Si SENSERO hodie quicquam in his te nuptiis
Fallaciæ conari, quo fiant minus;
————te, Dave, in pistrinum *dedam* usque ad necem.
Ea lege atque omine, ut, si te inde EXEMERIM, ego pro te *molam.*
Ter. *And.* I. ii. 25.

In this passage the future and perfect subjunctive may change places without in the least varying the ultimate effect. My perception of your attempting deception is stated as *now* future, but to be *past* or to have taken place when I commit you to the grinding-house; and my releasing you from thence is stated as *now* contingent or possible, and consequently *now* future, but to be past when I *grind* in your stead. My perception is conceived to stand here in a double relation: one to the *present time*, with respect to which it is *future*, and the other to the commitment, with respect to which it is to be *past.* Both events are represented as future with respect to the present time, but the one as past with respect to the other. The same observation is applicable to *exemerim* and *molam.*

Verbs.

s, that we have in English no auxiliary verb so generalized, s, like the terminations of the Latin imperfect subjunctive, o include the particular meanings expressed by *should* and *ight*, so as to be equally applicable to both. Neither does he English idiom always mark the relation of events to ne another in respect of time, as contemporaneous, or rior, or posterior, with the same minuteness as the Latin. This last circumstance also increases the difficulty, and adds o our embarrassment in our inquiries on this subject, as we re apt to consider the different and often more vague statement of the English language as an exact counterpart of hat given by the Latin.

It has already been observed, that the pluperfect subunctive expresses precisely the same conception as the erfect and the future subjunctive, differing from these in o circumstance but that of *time*, and expressing the same hing with reference to *past* time which they express with eference to the *present*. These two ought therefore to be onsidered as *present* forms, and the pluperfect as the corresponding *past* form. *Imperaverit*, for instance, states the aving commanded as *now* contingent or future; *imperavisset* as *then* contingent or future, contingent or future at *past* time; but *of itself* it indicates neither the time of he actual command, nor any time or event to which it was o be prior, or before which it was to have taken place. *Imperavisset*, however, in the connection in which it stands n the example given, is naturally, if not necessarily, conceived to have a double reference; one to the time of the romise (*pollicebantur*), with respect to which the commanding *was* future or contingent; the other to the execution of the command (*facturos*) which it was to precede, nd with respect to which it was to be *past*. "They promised that they would execute his commands, when the ct of commanding, *then* contingent or future, should once e *past*." This clumsy circumlocution is in some degree requisite to bring fully into view what is so concisely and neatly expressed in the Latin.

Such are the views respecting the moods and tenses of the Latin verb which Dr Hunter has unfolded in his invaluable disquisition on that subject, and which, we need scarcely add, are expressed in his own clear and concise language; views which might be illustrated by the usage of every known language, and which, in fact, are based on principles of universal application. In a matter which appears so clear, a wide range of induction was not called for, and might have proved tedious; and hence, in the subsequent part of his disquisition, he has confined himself to some illustrations drawn from the practice of the Greek language.

The indicative forms of the Greek verb, τυπτω, ἐτυπτον, τυψω, τυπῶ, ἐτυψα, ἐτυπον, τετυφα, ἐτετυφειν, &c. seem to require no particular discussion, except whether the aorist in α ought to be considered as a different form of the preterperfect, as a learned professor seems to suspect. The following observations shall therefore be restricted to those forms called the *optative* and *subjunctive*, and are intended to establish and illustrate these two positions:

1. That in all the tenses of the Greek verb (except the *future*, which has no subjunctive), the subjunctive is universally of the *present* time or tense, and the corresponding optative is the corresponding *past* time. And, 2. That the optative of the future is the *past* time of the indicative of the future, which itself is of the *present* time.

We shall begin with the *second* position. In the preceding observations we have endeavoured to show that all the forms of the Latin subjunctive are really *indicative*; that *I may write* is as much an assertion as *I do write*, although the thing asserted be different. It will surely not be controverted, then, that *I will write*, *I shall write*, or *I am to write*, have an equal title to be called *subjunctive* with *I may write*, or *I can write*. Λεγει ὁτι γραψει, "He *says* that he *will* write," is incontrovertibly classical Greek, the expression having a reference to the *present* time. Let λεγει be changed into ἐλεγε the past, γραψει, the indicative, must be changed into the corresponding optative γραψοι. Ελεγεν ὁτι γραψοι, "He *said* that he *would* write." The conception in both examples is exactly the same, except as to time; the *former* expressing it with reference to the *present* time, the *latter* with reference to the *past*. Should any doubt be entertained as to what has now been stated, the following passage from the second book of Xenophon's *Hellenica* will be found to contain as many examples of the optative of the future as may perhaps establish the point by induction. It is part of the defence made by Theramenes, one of the Thirty Tyrants, when he was impeached by Critias, another of them, because he would not concur in all their measures of cruelty and rapine.

. . . . "Επεὶ δὲ οὗτοι ἤρξαντο ἄνδρας καλούς τε καὶ ἀγαθοὺς συλλαμβάνειν, ἐκ τούτου κἀγὼ ἠρξάμην τἀναντία τούτοις γιγνώσκειν· ᾔδΕΙΝ γὰρ ὅτι, ἀποθνήσκοντος μὲν Λέοντος τοῦ Σαλαμινίου, ἀνδρὸς καὶ ὄντος και δοκοῦντος ἱκανοῦ εἶναι, ἀδικοῦντος δ' οὐδὲ ἐν, οἱ ὅμοιοι τούτῳ φοβήσΟΙΝΤΟ· φοβούμενοι δὲ ἐναντίοι τῇδε τῇ πολιτείᾳ ἔσΟΙΝΤΟ· ΕΓΙΓΝΩΣΚΟΝ δὲ ὁτι, ξυλλαμβανομένου Νικηράτου τοῦ Νικίου, καὶ πλουσίου, καὶ οὐδὲν πώποτε δημοτικὸν οὔτε αὐτοῦ οὔτε τοῦ πατρὸς πράξαντος, οἱ τούτῳ ὅμοιοι δυσμενεῖς ὑμῖν γενήσΟΙΝΤΟ· ἀλλὰ μὴν καὶ, Αντιφῶντος ὑφ' ὑμῶν ἀπολλυμένου, ὃς ἐν τῷ πολέμῳ δύο τριήρεις εὐπλεούσας παρείχετο, 'ΗΠΙΣΤΑΜΗΝ ὁτι καὶ οἱ πρόθυμοι τῇ πόλει γεγενημένοι, πάντες ὑπόπτως ὑμῖν ἕξΟΙΕΝ· ἀντεῖπον δὲ καὶ ὅτε τῶν μετοίκων ἕνα ἕκαστον λαβεῖν ἔφασαν χρῆναι· εὔδηλον γὰρ 'ΗΝ, ὅτι, τούτων ἀπολομένων, καὶ οἱ μέτοικοι ἅπαντες πολέμιοι τῇ πολιτείᾳ ἔσΟΙΝΤΟ.

In this passage every one of the indicatives is of the past time, and all the verbs *subjoined* are optatives of the future, "Ηδειν γαρ ὁτι, &c. I *had seen*, and consequently I *knew*, that when Leon of Salamis was put to death, the persons similar to him φοβησοιντο WOULD *be afraid*, and being afraid, ἐσοιντο WOULD *be* hostile to this establishment of ours. I *judged* too (ἐγιγνωσκον δε) that when Niceratus, the son of Nicias, was apprehended, the persons in a similar situation with him WOULD *become* (γενησοιντο) ill-affected to you. And likewise, when Antiphon was put to death by you, who during the war furnished two swift-sailing triremes, I *knew* (ἠπισταμην) that those who had been prompt and eager to serve the state WOULD *be suspicious* of you (ὑποπτως ἑξοιεν). And when they said that each of us must seize one of the μετοικοι, I opposed the measure. For it *was manifest* (εὐδηλον ἠν) that, if these were put to death, all the μετοικοι WOULD *be hostile* (πολεμιοι ἐσοιντο) to the establishment."

Let us now imagine that, instead of this narrative recital of his conduct and sentiments, Theramenes deems it proper to urge the same considerations to his colleagues in the direct or dramatic form. Every one of his statements must now be made by verbs, not of the *past*, but of the *present* time; and the indicatives of the *past* being changed into indicatives of the *present*, the verbs *subjoined* must also be changed from *optatives* of the *future* to *indicatives* of the *future*, that is, from the *past* to the *present*, so as no longer to express what was THEN *future*, but what is NOW *future*. Change ᾔδειν the past into οἶδα the present (I *have seen*, consequently) "I *know* that if Leon of Salamis be put to death, the persons similar to him φοβησονται *will be* afraid, and being afraid ἐσονται *will be* hostile," &c. In like manner, if ἐγιγνωσκον, ἠπισταμην, εὐδηλον ἠν, be changed into γιγνωσκω, ἐπισταμαι, εὐδηλον ἐστιν, the optatives γενησοιντο, ἑξοεν, ἐσοιντο, must also be changed into the corresponding indicatives, γενησονται ἑξουσι, and ἐσονται, which state these events as *now* future. The forms stating the events as *future at a past time*, will necessarily pass into those stating them as *future now* or at the *present time*.

The *first* of the two positions may be illustrated from the same part of Xenophon's narrative, in which he relates in detail the proceedings of the Thirty, and the measures which they adopted to gratify their hatred and establish their power.

"Τούτων δε γενομένων, ὡς ἐξὸν ἤδη ποιεῖν αὐτοῖς ὁ, τι βουλΟΙΝΤΟ, πολλοὺς μὲν ἔχθρας ἕνεκα 'ΑΠΕΚΤΕΙΝΟΝ, πολλοὺς δὲ χρημάτων· ΕΔΟΞΕ δ' αὐτοῖς, ὅπως ἔχΟΙΕΝ καὶ τοῖς φρουροῖς χρήματα διδόναι, καὶ τῶν μετοίκων ἕνα ἕκαστον λαβεῖν, και αὐτοὺς μὲν ἀποκτεῖναι, τὰ δὲ χρήματα αὐτῶν ἀποσημήνασθαι ἐκέλευον δὲ καὶ τὸν Θηραμένην λαβεῖν ὅν τινα βούλΟΙΤΟ· ὁ δ' ἀπεκρίνατο· Ἀλλ' οὐ δοκεῖ μοι, ἔφη, καλὸν εἶναι, φάσκοντας βελτίστους εἶναι ἀδικωτερα τῶν συκοφάντων ποιεῖν· ἐκεῖνοι μὲν γὰρ, παρ' ὧν χρήματα λαμβάνΟΙΕΝ, ζῆν ΕΙ'ΩΝ, ἡμεῖς δὲ 'ΑΠΟΚΤΕΝΟΥΜΕΝ μηδὲν ἀδικοῦντας, ἵνα χρήματα λαμβάνΩΜΕΝ" . . . .

Here the whole texture of the narrative shows that the author is relating *past events*, the verbs being all of the *past* time, ἀπεκτεινον, ἐδοξε, ἐκελευον, &c. The ends proposed to be accomplished should therefore, agreeably to the first position, be subjoined in the *optative.* "There being nothing to prevent their doing whatever they *might choose* (βουλοιντο), they put many to death out of hatred, and many on account of their money. And, that they *might have* (ἐχοιεν) money to give to the guards, they *thought* it proper (ἐδοξε) that each of them should seize one of the μετοικοι,[1] and put them to death; and they *ordered* (ἐκελευον) Theramenes likewise to seize whichever of them he *might choose* (βουλοιτο)," &c.

If the narrative be given in the present tense, the leading verbs will then be ἀποκτεινουσι, δοκει, κελευουσι, and all the optatives subjoined in dependence on them must be changed into the corresponding subjunctives; thus: "There being *now* nothing to prevent their doing whatever they MAY *choose* (ὁ, τι ἀν βουλωνται), they *put to death* (ἀποκτεινουσι) many out of hatred, and many for the sake of their money. And, that they MAY *have* (ἐχωσι) money likewise to give to the guards, they *think* it proper (δοκει αὐτοις) that each of them shall seize one of the μετοικοι and put him to death. And they *order* (κελευουσι) Theramenes likewise to seize whichever of them he MAY *choose* (ὀν, τινα ἀν βουληται).

In giving the reply of Theramenes to this requisition of his colleagues, the author makes a transition from the indirect or *narrative* form, to the direct or *dramatic.* He personates the speaker (Theramenes), and gives the *ipsa verba* supposed to have been spoken by him on the occasion. "It does not appear to me," said he, "to be honourable for those who profess themselves the best men of the state, to act more unjustly than the sycophants. For they (the sycophants) generally suffERED those to live (ἐιων ζην) from whom they MIGHT *receive money* (παρ' ὡν χρηματα λαμβανοιεν); but we are going to put to death (ἡμεις δε ἀποκτενουμεν) persons guilty of no injustice, that we MAY *receive* their money (ἱνα χρηματα λαμβανωμεν)."

This reply of Theramenes deserves to be particularly attended to, on account of the transition from the *past* to the *present* which it contains, and the corresponding transition from the *optative* to the *subjunctive.* Had the author intended to exemplify the first of the above positions, he could not have expressed himself in terms more appropriate, or more completely adapted to the purpose.

From what has been stated, it is easy to perceive why those statements, which, in the direct or dramatic form, are given in the *subjunctive* or in the *future indicative*, are in the indirect form, or narrative recital of them, expressed by the *optative*, precisely in the same manner as in our own language we employ, in direct statements, the present forms *may* and *shall*, and in the narrative recital of those statements the past forms *might* and *should.* Thus, the direct or dramatic statements, "I *may* perhaps go to London next week," and "I *shall* perhaps go to London next week," become in the narrative recital of them, I said that I MIGHT perhaps *go* to London next week," and "I said that I *should* perhaps *go* to London next week." So, when Agamemnon had retired wounded from the field of battle, Hector, in addressing the Trojans and Lycians, employs the subjunctive, a present form:

……………………Ιθὺς ἐλαύνετε μώνυχας ἵππους
Ιφθίμων Δαναῶν, 'ΙΝ' ὑπέρτερον εὖχος ἀρΗΣΘΕ.

"Drive (*now*) your horses straight against the valiant Greeks, that you MAY *bear away* still greater glory." But, when the statement is given in the narrative form, as a past event, the subjunctive ἀρηται is changed into the optative ἀροιτο, the corresponding form of the past time:

Ενθ' αὖ Τυδείδῃ Διομήδει Παλλὰς Αθήνη
ΔΩΚΕ μένος καὶ θάρσος, 'ΙΝ' ἔκδηλος μετα πᾶσιν
Αργείοισι γένΟΙΤΟ, ἰδέ κλέος ἐσθλον ἄρΟΙΤΟ.

"Then Minerva gave strength and courage to Diomede, that he MIGHT (*may-ed*) *become* eminently conspicuous, and MIGHT *bear away* distinguished glory."

It is to be noticed, however, that Homer does not always observe this, the usual and strictly grammatical, sequence of these moods. In the speech of Minerva to Diomede, we find a *past tense* followed by the *subjunctive*, "I *removed* the mist from your eyes that you MAY *distinguish* (ὀφρα γινωσκῃς) a *deity* from a *man* in the field of battle." But, in the indirect form, or narrative recital, of this speech of Minerva, given by Plato,[2] it is ὀφρα γινωσκοι. His words are, "Homer says that Minerva removed the mist from the eyes of Diomede, that he MIGHT *distinguish.*" But even in Homer the expression might have been, ὀφρα γινωσκοις. Ἀφελον ὀφρα γινωσκοις, I removed that you MIGHT *distinguish.* Wherein, it will be said, consists the difference? There is none in the ultimate effect. Γινωσκοις would be used in reference to the time of removal, expressed by ἀφελον, a verb of the *past* time, to which it would correctly correspond. Homer has chosen, however, to change the reference, and to substitute the subjunctive, a form of the present time, thereby marking a reference to the time of Minerva's speaking, not to that of the removal. I (*just now*) *removed* that you *may* (now, or hereafter) *distinguish.* Ἀφελον states the *removing* as *past*, and may be used with equal propriety, whether the removal took place a *moment* or a *century before.* This appears to be a more correct view of the passage than that given by Dawes, who, to preserve a correspondence in the *times*, is obliged to make ἀφελον a preterperfect. Such changes of reference are, we believe, to be found in every language, and they are strikingly frequent in the Greek. A person speaking of himself might say in English, "I *laboured* hard in my youth, that I MAY *enjoy* ease and repose in the evening of life." These changes of reference too are often alternate, as, in historical narrative, a transition is often made from the past to the present time, and from the present to the past.

In the course of this discussion, it has been stated that all the tenses of the subjunctive mood are indicative or assertive. If that observation be admitted to be just, it will supersede the controversy, whether the futures in *-ro* belong to the indicative or the subjunctive mood. It has also been suggested, that what have been considered as the modes or moods of the Latin verb are incorrectly so conceived; that these *flexions* are either generic verbs themselves, or equivalent to generic verbs, indicating *liberty, power*, &c.; and that, instead of modifying the *radical part* of the verbs to which they are annexed, they are really modified by it. It has been shown, that all the tenses, both of the *indicative* and of the *subjunctive* mood, whatever they may further involve, are every one of them either of the *present* or of the *past time;* that they express of themselves one or other of these times, and may be classed in *two* sets, the *one* containing those forms which are of the *present* time, and the *other* those of the *past* time; that the *present* and *past* are two *fixed points,* with reference to which all the other ideas contained in those complex forms, called *moods* or *tenses,* are to be estimated; and that these other ideas are to be estimated as *past, present, future, contingent,* &c. with reference to these two fixed points.

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[1] It is foreign to the object of these observations to enter on any discussion of the meaning of the word μετοικοι. It seems to mean *domiciliated strangers.*

[2] *In Alcibiad.* II. prope finem. These passages are quoted both by Dawes and by Matthiæ.

This is the elementary view which it was proposed to give of the tenses of the Latin verb. It contains, as far as we are competent to judge, the only ground on which a complete and satisfactory account of these tenses, in all their various occurrences and applications, can be raised as a superstructure; and, if admitted, it will enable us to decide several grammatical controversies; as that, for example, between the acute and bold Sanctius and his learned editor Perizonius, concerning the tenses of the infinitive and the participles, in which the former maintained, that, strictly speaking, *time* or *tense* does not belong to these, and that they are found of *all times.* It is obvious that the infinitive and participles do not, like the definitive forms, contain in themselves the two fixed points of estimation above mentioned; but, on the contrary, that their statements, when they are estimated at all, are to be estimated either from the verb with which they stand connected, or from some circumstance given in the context. They are always estimated from something extraneous, and not, like those of the definitive forms, from any fixed point of time which they themselves express. Thus *scribere* represents the act of writing as *doing* or in progress, but contains in itself no expression of the time *when* doing. The time may be any whatsoever, *past, present,* or *future.* It is generally, but not always, determined by that of the verb with which the infinitive is combined. Thus, in DICO *te scribere,* DIXI *te scribere,* DICAM *te scribere,* the *time* of the writing is determined, not by the infinitive itself, but by that of *dico, dixi,* and *dicam,* the verbs with which it is here combined, and is different in each of these examples. The same observation is equally applicable to the participles, as is manifest from the following examples: VIDEO te *scribentem,* VIDI te *scribentem, cras* VIDEBO te *scribentem.* It has been said above, that the *time* of the infinitive is not always determined by that of the verb with which the infinitive stands combined. DICO *te scribere* may equally signify, *I say that you* WERE THEN *writing,* as that *you* ARE NOW *writing;* and DICO *te scripsisse* may equally signify, *I say that you* HAD THEN *written,* as *I say that you* HAVE NOW *written,* if any circumstance in the context require it to be so understood.

In further illustration of the subject, it has been stated, that through the whole of the Greek verb except the future, the subjunctive and corresponding optative differ only as present and past; consequently, if the subjunctive be rendered by *may,* or *may have,* the optative will be rendered by *might,* or *might have;* and when the subjunctive is rendered by *shall,* or *shall have,* as frequently happens, the optative will be rendered by *should,* or *should have.* It also appears that the future of the Greek verb may be considered as itself subjunctive, and of the present time, and the optative of the future as the corresponding past time.

These views the very learned and ingenious author has sought to establish by *facts;* and if the inductive conclusion appear to be founded on too limited a number of examples, the number of these may be increased by any person *ad libitum.* He proceeds:

The celebrated Matthiæ has attempted to explain the common use of the subjunctive mood, when combined with certain particles of time, by the hypothesis, that it then expresses an *action frequently repeated at the present time.* But meeting in Homer with these words, addressed by Andromache to Hector,

.... οὐ γαρ ἰτ' ἀλλη
Εσται θαλπωρη, ἐπεὶ ἀν συγε ποτμον ἐπισπῃς,

he is obliged to admit, that the subjunctive with these particles does not *always* express an action frequently repeated; and for this good reason, that a person can die but *once.* Yet that learned author does not seem to perceive that this single instance in Homer is fatal to his hypothesis.

Mr Seyer of the university of Oxford, in his work on the syntax of the Latin verb, has assumed, that, in certain cases, the subjunctive is strictly synonymous with the indicative, and has proposed to distinguish it in such cases by the appropriate name of the *False Subjunctive.* Nothing could have been devised more unphilosophical than this proposal, which, had it been successful, and generally adopted, would have effectually dashed all spirit of inquiry, and prevented all further investigation of the subject. Can it for a moment be supposed that an enlightened people, provided with two forms of the verb for the expression of two different and distinct conceptions, should reject the form appropriate to one of them, and employ in preference the other form, which did not correctly and adequately express the conception? If the learned author had seen the following example, of authority that will not be questioned, "I regret that it *should have been found* necessary to add to the burdens of the people,"[1] he might perhaps have been induced to pause a little, and to ask himself whether delicacy of feeling, arising from some peculiarity in the circumstances of the speaker, or in those of the party addressed, or in the occasion, may not have led him to employ the subjunctive form, *should have been found,* in preference to the indicative forms, *has been found,* and *was found.*[2]

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[1] The Prince Regent's speech in proroguing the Parliament in July 1819.

[2] We subjoin here Dr Hunter's conclusive reply to the objections stated by Professor Dunbar in his work on the Greek and Latin Languages. It is reprinted from the postscript to Dr H's. Disquisition on the Latin and Greek Verbs.

"Mr Dunbar, the learned professor of Greek in the university of Edinburgh, in a work entitled *An Inquiry into the Structure and Affinity of the Greek and Latin Languages* (p. 250), has made some animadversions on one part of the foregoing essay. I subjoin the passage in his own words:—'I must here state that Dr Hunter's ideas respecting the subjunctive mood appear to me not well founded. He has derived his notions of it from the English auxiliary verbs *may, can,* &c. which he says are all *indicative* or *assertive.* This is no doubt true of these verbs when taken by themselves; but when joined with others, they evidently convey the notion of some *condition* or *contingency,* arising either from *ability, inclination, duty,* or *obligation,* in the same manner as those parts of Latin verbs that are subjoined to the tenses of the indicative, and give them a conditional meaning. It is surely not the same thing to say, *I am writing,* and *I may* or *can write.* The one implies the *present act* unconditionally; the other, a *future act,* and conditional. I *may* write *if* I please. I *can write* to him, *if* you wish it,' &c.

"I must observe, that there is nothing in language more subtle than the use of our auxiliary verbs, and of the verbal forms of the Greek and Latin which contain or involve them. They require more depth of thought, and more patient investigation, than yet appears to have been bestowed upon them. I cannot, therefore, at present enter on the subject further than to observe, that, as far as I am competent to judge, the strictures of my learned critic are founded in misapprehension, and completely erroneous. The sen-

4. *On the Analogy observed in the Formation of some Tenses of the Greek Verb.*

Of all the philological speculations of Dr Hunter, one of the most beautiful, perhaps, is that concerning the analogy observed in the formation of some of the tenses of the Greek verb, of which, under the modest title of "Conjectures," he published an outline in the ninth volume of the Transactions of the Royal Society of Edinburgh. The importance of this speculation, which, notwithstanding the heading given to it, is very far indeed from being merely "conjectural," consists in the advance it makes towards establishing juster rules for the formation of the tenses in some instances, and particularly in accounting for certain forms of the verb in Homer and Hesiod, which, being apparent violations of the usual analogy, have perplexed grammarians, and reduced them to the necessity of imagining *new presents*, without authority, and for no other reason but to account for such anomalous forms. The following is the clear and concise statement of his views on this matter, given by Dr Hunter himself.

"1. The perfect middle has not a middle signification. (See Kuster *De Voce Media*, sect. i.) Its form, too, is active; and therefore it probably belongs to the active voice, which, on this supposition, becomes more regular and uniform, having a double preterite, as well as a double future and aorist. Thus,

τυπτω	τυψω	ἐτυψα	τετυφα	1. Pret.
	τυπω	ἐτυπων	τετυπα	2. Pret.

"It is no objection to this account, that the second preterite may sometimes be found in a middle signification; for active verbs in all languages are sometimes used as middle, the reciprocal pronoun being *conceived*, though not *expressed*. Thus μεταβαλλω in Greek, *accingo* in Latin, *prepare* in English: 'omnes accingunt operi,' they all prepare (themselves) for the work.

"2. O in the second preterite, or preterite middle, uniformly arises from ε in the present, and from nothing else.

λεγω, λελογα—βλεπω, βεβλοπα.
λειπω, λελοιπα—πειθω, πεποιθα.

That φθειϱω, μειϱω, ἀγειϱω, and other such verbs having a liquid before ω, make ἐφθοϱα, μεμοϱα, ἠγοϱα, and not μεμοιϱα, ἐφθοιϱα, ἠγοιϱα, is no exception from the rule. For all such verbs probably had of old not ει, but ε only, in the penult. Thus φθειϱω seems to have been of old φθεῤῥω, whence the old or Æolic future φθεϱσω. So μειϱω was μεῤῥω, whence μεϱος, *pars*; and the old or Æolic form ἀγεῤῥω is still to be found. In like manner, βεβολα seems, as Dr Moor has observed, to be formed, not from βαλλω, but from the old verb βελλω, whence βελος, *jaculum*.

"3. Although the first preterite, or perfect active, generally follows the analogy of the first future, yet it sometimes, too, observes that of the second. Thus,

Στελλω makes	not ἐστελκα,	from στελῶ,	1. Fut.
	but ἐσταλκα,	from σταλῶ,	2. Fut.

In the same manner, τεινω, κτεινω, κειϱω, σπειϱω, &c.

"4. On the other hand, although the second preterite, or perfect middle, generally follows the analogy of the second future, yet it sometimes, too, observes that of the first. Thus,

Στελλω makes	not ἐστηλα,	from σταλῶ,	2. Fut.
	but ἐστολα,	from στελῶ,	1. Fut.

In the same manner, τεινω, κτεινω, κειϱω, σπειϱω, &c. Nay, from ε in the penult, there often arises ο in the first preterite, or perfect active. Thus, πεπομφα, λελοχα, κεκλοφα, δεδοικα, from πεμπω, λεγω, κλεπτω, δειδω, &c. And this seems of old to have been still more frequent, and to have extended also to the passive voice. Thus, μεμοϱθαι, πεποϱθαι, in the old or Æolic dialect, from μεῤῥω (*i. e.* μειϱω) and πεϱθω.

"5. In the same manner, although the first aorist generally follows the analogy of the first future, yet it also seems, particularly in the more early periods of the language, to have sometimes followed that of the second future. Thus, χεω, ἐχεα; so ἐιπα, ἠνεγκα or ηνεικα, ἀλευαμενος, ἐκηα, &c.

"Since, then, there are in the Greek verb two futures, and two preterites, each of which preterites follows the analogy of either future, and since there are two aorists, and that the first aorist also follows the analogy of either future; would it not, from these facts, be rather probable than otherwise, that the second aorist should also follow the analogy of either future; that, as from τυπῶ there is formed ἐτυπον, so from τυψω there should be formed ἐτυψον? And,

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tence, *I may write*, states my *present liberty* to write. It states that there is at present no *external* hindrance to prevent my writing. The words contain a proposition true and complete in itself, without further addition; and my learned critic is obliged to annex to it the conditional clause, *if I please*, to make it suit his purpose; not aware, it should seem, that it is the *actual writing* that is dependent on my pleasure, not the present *liberty* to write. In like manner, *I can write*, states my present *power* or *ability* to write; and this capacity exists independently of your wishes. My *actual writing* may depend on your *wish*, but not my *ability* to write. *I can write* whether you wish it or not. The freedom from external preventive and the inherent power or capacity frequently exist together; but either may exist without the other. 'Εξεστι μοι γϱαφειν, ἀλλ' ὀυ δυναμαι δια την χειϱαγϱαν. There is from without no hindrance to my writing, but I am unable to do it because of the gout in my hand. 'Εξεστι, sed non ἐνεστι; I have the ἐξουσια, but not the δυναμις.

"My learned critic, under a misapprehension for which it is difficult to account, has found fault with my calling the future in *-ro* the future of the subjunctive, imagining, from my employing that designation of it, that I intended to exclude that future from the indicative mood. I must observe, however, that although, to prevent being misunderstood, I was obliged to call the future in *-ro* by the name by which it was generally known, and by which it is distinguished in our elementary books; yet the general tenor of my essay, and even the following paragraph of it alone, ought to have prevented all possibility of misapprehension on the subject: 'In the course of this discussion it has been stated that all the tenses of the subjunctive mood are indicative or assertive. If that observation be admitted to be just, it will supersede the controversy, whether the futures in *-ro* belong to the *indicative* or to the *subjunctive mood*.' P. 14.

"I have stated (p. 4) that 'one primary object of these forms called the *moods* and *tenses* seems to have been to give the *present* and the *past* as two *fixed points* of time, with reference to which all the other ideas involved in them are to be estimated and determined. They are all *past*, *present*, *future*, *contingent*, &c. with reference to one or other of these two fixed points.' And I have there given a scheme of the tenses of the Latin verb arranged, agreeably to that principle, as present and past. This unfortunate future in *-ro*, however, Professor Dunbar has, in exhibiting that scheme, studiously transferred from the class of *presents* to that of *pasts*, and has thereby marred instead of mending the consistency of the scheme of arrangement. For it is quite evident that, as *scrib-am* states my *writ-ing* as NOW future, and therefore, as he admits, is properly arranged as a *present*; so, for the same reason, *scrips-ero*, which states my *having written*, or the *completion of my writing*, as NOW *future*, must also be arranged in the class of *presents*; the *completion* of my writing being *future* relatively not to the *past*, but to the *present* time."

We have only to add, that when Professor Dunbar says, "It is surely not the same thing to say, *I am writing*, and *I may* or *can write*," he not only misunderstands Dr Hunter, but confounds two things not very difficult to distinguish; namely, *assertion* generally, and the thing *asserted* or *indicated* in particular verbal forms. Dr Hunter never said or imagined that, "I am writing," and "I may or can write," are identical propositions. What he really stated, and has always maintained, is, that "I may write," "I might write," are equally *assertions* as "I do write," "I did write." The thing *asserted* or *indicated* is DIFFERENT; but, in as far as *assertion* is concerned, these expressions are completely similar, and stand upon precisely the same footing.

if this were admitted, would it not account for such words as *καταβησεο, ἐδυσετο, λεξεο, ὀρσεο, ὀισε, ὀισετω, ἀξε-τω*, &c. which have so much perplexed the celebrated Dr Clarke (see Notes on *Iliad*, B. 35. E. 109; I. 613), in a manner more satisfactory than is done by the arbitrary method of imagining new presents in -*σω*, from which these forms may be deduced? For it is only to account for such anomalous forms that these new presents have been imagined; and the grammarians would no doubt have assumed imaginary new presents also, to account for such first aorists as *ἐχεα, ἐκηα*, if, by so doing, these aorists could have been reduced to the usual analogy.

" Now this supposition, namely, that the *second aorist*, as well as the first, follows the analogy of either future, which is thus rendered in some degree probable, has actually taken place, at least in some instances. Thus the compounds of *τεμνω*,

{ from the first future *ἀποτεμῶ* has in
ποτεμνω { the second aorist part. *ἀποτεμων*, as well
{ as from the second fut. *ἀποταμῶ, ἀποταμων*.

So *ἰξον*, they came, *Il.* 23, v. 38; *κατεβησετο*, *Il.* 24, v. 191, both of which follow the analogy of the first futures, viz. *ἰξω* (from *ἰκω*, *venio*) and *καταβησομαι*. And every person acquainted with the elements of Greek is aware, that, as *μενω* is the primary form, whence, by the common reduplication, arises, first, *μιμενω*, and then, dropping the short *ε*, by what the grammarians call *syncope*, *μιμνω*, and as *γενω* is the primary form, whence, in like manner, is derived *γιγνω* (Latin *gigno*) and *γιγνομαι*; so *πετω* is the primary form, which, by like reduplication and syncope, gave birth to *πιπτω*, *cado*, from which primary form *πετω*, making in the first future *πεσῶ*, there is formed the second aorist *ἐπεσον*, in common use; which, in so far, both illustrates and confirms the foregoing hypothesis."

These observations were written about thirty years anterior to the date of their publication in the Edinburgh Transactions (1823), and, of course, before either Villoison's or Heyné's editions of the *Iliad* were published. Subsequently to their appearance, Dr Hunter judged it proper to subjoin some facts contained in these two celebrated editions, together with a few observations suggested by these facts, and tending to confirm the opinion which he had been led to form of the anomalous flexions above mentioned of the Greek verb. The additional illustrations, derived from these sources, together with the critical remarks by which they are accompanied, we shall now place before our readers. (See Edinburgh Transactions, *ubi supra.*)

" From the ancient scholia, quoted by Heyné in his observations on the various readings of the *Iliad*, and from the large volume of scholia published by Villoison (as well as from those contained in Barnes's edition of the poems of Homer, published in 1711), it seems to be clearly established, that, in the days of the Ptolemys, this form of the second aorist, following the analogy of the first future, was more frequent in the writings of Homer than that of the first aorist, formed upon the analogy of the same future; and that it was the reading received and approved by the most eminent of the Alexandrian grammarians, by Zenodotus, the keeper of the Alexandrian library, and by Aristarchus himself.

" Whilst, however, the Greek scholiasts have recorded these as the ancient and genuine forms used by Homer, they have, I suspect, greatly erred in their manner of accounting for them. After the lapse of so many centuries, these Homeric forms had, in a great measure, become obsolete,[1] and the other form, that of the first aorist, had come into general use; and those grammarians could devise no other method of accounting for these old and now obsolete forms, but by imagining *new presents* in -*σω*, of which they supposed these forms to be the regular imperfects. This manner of solving the difficulty has been implicitly followed by Eustathius, in his Greek Commentary on the Poems of Homer, and (I am sorry to be obliged to add) by my late invaluable friend Lord Monboddo; of whom, and of the *dies Attici*, now long gone by, in which I enjoyed his learned and elegant society, I never can think but with an indescribable feeling of satisfaction and regret.

" If, however, we acquiesce in this solution of the difficulty, we must be content to abate somewhat of our admiration of the Greek language, which has been heretofore held to express, with the utmost clearness and precision, all the various and diversified conceptions of the human mind, even to their minutest shades of difference. Indeed, that the Greeks, or any enlightened people, should employ those forms of their verbs as *presents*, which were familiar to every ear as appropriate expressions of the *future*, or, as Eustathius often expresses it, should *draw back* the *future* to express the *present*, is, when duly considered, a supposition in itself so unreasonable, not to say absurd, that it would require better and more conclusive evidence to support it, than has yet been produced. Besides, where was the necessity of such an innovation? what advantage was to be gained by it? The original presents remained in common use. Why then employ the *futures*, *δυσομαι* and *ἰξομαι*, for example, as *presents*, when *δυω* and *δυομαι*, and *ἰκω* and *ἰκομαι*, present forms in common use, would answer the same purpose?

" There is still another consideration, to which, in a question like this, due weight ought to be given. There is no evidence whatever that those *present-futures*, or *future-presents*, in -*σω* and -*σομαι*, ever existed. They are not to be found in the poems of Homer or Hesiod. They are not to be found in the Greek authors posterior to Homer and Hesiod; and of Greek authors prior to the age of Homer and Hesiod we know absolutely nothing.

" From these considerations, it seems to be evident that the existence of these *future-presents* is merely a gratuitous assumption of grammarians, to account for the Homeric forms *βησετο, δυσετο*, &c. which they could in no other way reduce to any known analogy of formation.

" *This*, however, the learned Dr Clarke had too much acuteness and good sense to admit; and, accordingly, we find him regarding these presents as altogether *fictitious*. His words on the passage *Ὡς ἀρα φωνησας, ἀπεβησατο*, are these: ' Editi plurimi habent *ἀπεβησετο*, a verbo *ficto ἀποβησομαι*.' And, to obviate the difficulty, he changes *ἀπεβησετο* here into *ἀπεβησατο*; and, when *βησετο*, or any of its compounds, occurs, his general practice is to substitute the form of the first aorist, *βησατο*. But, even if it would remove the difficulty, this change is unauthorized. The other form in -*ετο* is attested as genuine by the Alexandrian grammarians, is supported by the Greek scholiasts, by the ancient manuscripts of the highest authority, and by the early editions. In Villoison's edition of the Iliad, which bears to be an exact transcript of a manuscript of the tenth century, in the library of St Mark at Venice, the form is uniformly -*ετο*, except in a single instance, and in that one instance I suspect -*ατο* to be an error of the press.

" Dr Clarke, however, soon finds that this change of -*ετο* into -*ατο*, violent and unauthorized as it is, will not remove the difficulty. In the address of Diomede to Sthenelus, he meets with the imperative, *καταβησεο*,

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[1] " One instance, however, of this ancient *Homeric second aorist* occurs in Theocritus, and another in Callimachus; and perhaps by an attentive observer more might be found."

> 'Ορσο, πεπον Καπανηϊαδη, καταβησεο διφρον. *Iliad*, v. 109.

which he attempts to account for in this manner: 'Videtur mihi *imperativus ex futuro deductus*, licet id non agnoscant grammatici; errareque eos, qui verbum hic in præsenti fingunt καταβησομαι. Quanquam, analogia haud dissimili persæpe usurpare visus est Homerus verbum δυσομαι, δυσεο, ἐδυσετο,' &c. Nothing can show more strongly the difficulty which Dr Clarke must have felt in accounting for these forms, than that he is here obliged to have recourse to another gratuitous assumption of an imperative of the future, a thing unheard of before; and almost to admit δυσομαι as a present, from which to deduce ἐδυσετο as an imperfect. The fact is, that he found the authorities in favour of δυσετο and ἐδυσετο to be so numerous, and of such weight, that he did not venture, in these examples, to change -ετο into -ατο.

"Afterwards, however, he found himself obliged to abandon this hypothesis of an imperative of the future, as well as his original position, that these new presents in -σω and -σομαι are imaginary; and he appears at last (he or his son, it is uncertain which) to adopt, in its full extent, the explanation given by Eustathius. That commentator, whose remarks would have been invaluable had his taste and judgment been equal to his means of information, if I rightly understand him, has this observation on v. 154 of the 20th book of the Odyssey: ''Οισετε is sanctioned by a poetic rule of formation (ποιητικῶς κανονιζεται) as the *imperfect* of the verb ὀισω, the *future* having *retrograded* into a *present*. For, of ὀισω, the imperfect is ὀισον, the third person ὀισε, the imperative the same in sound, also ὀισε, of which the plural is ὀισετε.' Dr Clarke or his son adds in continuation: 'Atque analogia quidem haud dissimili sæpe usurpare videtur poeta verba δυσομαι, βησομαι, βησετο, &c. Vide autem ad *Il.* ε. 109' (where, however, he reprobates the hypothesis of these new presents in -σομαι). 'Occurrit eadem vox (viz. ὀισετε) *Il.* γ'. 103, ό. 718, et apud Theocritum, *Idyll.* xxiv. 48. Porro fuerunt, teste Barnesio, qui ὀισατε ubique legendum statuerunt, sed nullo profectu. Nam, uti ipse annotat, occurrit apud Homerum ὀισε in imperativo, numero singulari, ubi isti emendationi locus nullus est, &c. et apud Callimachum, φερε σταχυν, ὀισε θεριсμον. *Hymn. in Cer.* v. 137.'

"All the attempts, however, to account for these forms in particular verbs are partial and unsatisfactory. As the facts to be accounted for are all similar, the true solution must be *general*, and such as will embrace them all. Whether the method which I have ventured to suggest be of this description, does not belong to me to determine. It possesses at least this indispensable requisite, that it accounts for all the phenomena in question.

"It would be tiresome to enter upon a particular examination of every individual verb of the kind which we are considering. It may not be improper, however, to select one example for the purpose of illustration.

"There are not many verbs of more frequent occurrence in Homer than ἱκω, *venio*, in one or other of its parts. It is found in the present:

> Ενθεν (e Cypro) δη νυν δευρο τοδ' 'ΙΚΩ, πηματα πασχων. *Odyss.* ρ'. 444.

and the future, ἵξομαι, occurs once in Hesiod, and ten or twelve times in Homer; and, in not one of these instances, can it by any sophistry be tortured into a *present*, or forced into an expression of *present time*, in the sense in which present time is generally understood. I shall note the places of occurrence, that any person may, if he chuses, examine them, and judge for himself. They are these: *Hesiod. Op. et Dies*, υ. 477. *Il.* α. 240; ζ. 363, 502; λ. 182; ο. 505; ψ. 47; ω. 728. *Od.* δ. 515; θ. 198; κ. 276.

"'Ιξομαι, the future of ἱκω, then, must be decidedly excluded from the catalogue of new presents, devised by the Greek scholiasts to account for the supposed imperfects, so frequent in Homer. And yet a new present, ἵξω, is equally necessary in this, as in any other verb of the kind, to account for ἵξον, *they came*, the past tense, formed upon the analogy of the first future; which, though not noticed either by Dr Clarke or by Heyné, is no less frequent in Homer than the future itself. Thus,

> 'Αλλ' ὁτε δη Τροιην 'ΙΞΟΝ, ποταμω τε ῥεοντε. *Il.* ε. 773.
> *At quando jam Trojam* VENERUNT, *fluviosque labentes.*

See also *Il.* κ. 470; ξ. 433; φ. 1; ω. 692. *Od.* γ. 5, 31, 495; δ. 1; ε. 194. *Hymn. in Apoll.* 411, 438, 230, 278.

"Nor is there a single unequivocal example of the first aorist of this verb to be found in the poems either of Homer or of Hesiod, except one, viz. ἵξας, which occurs in the Hymn to Apollo, υ. 223. In that same hymn, however, there are no fewer than four examples of the form in -ον (ἵξον), and another still in the Hymn to Mercury, υ. 398.

"This instance of ἵξον, so frequent in Homer, may therefore be fairly admitted to be, in the language of the celebrated Bacon, an *instantia crucis*, clearly pointing out the true method of accounting for all the other Homeric forms of the same description. If so, there will no longer be any necessity for the gratuitous assumption of new presents in -σω and -σομαι, to account for these forms; nor for supposing, with Dr Clarke, that καταβησεο is an imperative of the *future;* nor for changing, as he has generally done, the second aorists βησετο, καταβησετο, &c. into regular first aorists in -ατο. We ought rather to restore the Homeric second aorists in -ετο, recognised as the genuine readings by the grammarians of Alexandria, and the Greek scholiasts, and confirmed by the ancient manuscripts of highest authority, and the early editions.

"If the view which I have ventured to give of these Homeric forms in -ετο be well founded, it will hardly be necessary to notice the canon of criticism attempted to be established by the learned Heyné, in his voluminous edition of the *Iliad*, as to -ετο and -ατο, and the reasons for preferring the one to the other in particular passages. Of the futility of that attempt every classical scholar who will read with sufficient attention the last seventeen verses of the third book of the Odyssey, will be fully convinced. The learned German has adopted, without scruple or hesitation, the explanation of these Homeric forms given by the Greek scholiasts; and, in allusion, I presume, to the difficulty felt by Dr Clarke, in admitting the existence of new presents in -σω and -σομαι, he states his opinion, and the grounds of it, with decisive confidence, in the following words: "Esse autem talem formam præsentis βησομαι *dubitari nequit; nam* est v. e. Θ. 105. Αλλ' ἀγ', ἐμων ὀχεων ἐπιβησΕΟ,' p. 506, v. 4. And on B. v. 35, he makes the following remark, not quite consistent with itself: 'Quid hoc loco intersit, non video; nisi quod ἀπεβησετο *antiquioris vocis* speciem habet: *nova forma* subnata, ut δυσομαι, ἐδυσομην, et alia.' How the *nova forma* should have *antiquioris vocis speciem*, I do not clearly comprehend. But a gleam of truth will sometimes burst through the darkness of inveterate prejudice."

These views, which to most persons will probably appear to carry their own evidence along with them, have, however, had the misfortune to incur the disapprobation and censure of Professor Dunbar, who, in his very meritorious work on the Greek and Latin languages (p. 188, *et seqq.* Edinburgh, 1827, in 8vo), has treated "one of the most acute scholars and grammarians of the present day" (these are his own words) with far less consideration than might have been expected from such an admission, and who contradicts speculations which it is impossible to refute, in a peremptory tone, neither called for by the subject itself, nor much in keeping with the courtesy

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that usually obtains amongst men of letters. It may not be improper or unnecessary, therefore, to show, by a few examples, that the critical strictures of Professor Dunbar are as deficient in point of accuracy, as his mode of expressing himself is, we are sorry to say, wanting in that respect which is due to the venerable age and to the great attainments of "the most acute scholar and grammarian" of his time.

1. After citing the greater part of the fifth paragraph of the first quotation above introduced, Mr Dunbar observes, "Dr Hunter then gives as an example the compound verb ἀποτεμνω, from the first future of which, says he, comes the second aorist participle ἀποτεμων, as well as from the second future ἀποταμω, ἀποταμων. *Where Dr Hunter found the second aorist participle* ἀποτεμων, *I do not know, as I never observed it;* the other form, ἀποταμων, occurs often in the Greek authors." Now, it will not be very difficult to show where Dr Hunter found ἀποτεμων, or at least sufficient authority for employing it, and where Mr Dunbar might have made the discovery. In the *Cyropædia* of Xenophon (lib. v. c. 2, l. 29), there is the following passage:—'Αλλα τους μεν ἀσθενοῦντας ὁια ὑβριζει, τι δεῖ λεγειν; ἑνος δε ἀνδρος πολυ δυνατωτερου, ἢ ἐγω, ὑιον και ἐκεινου ἑταιρον ὀντα, ὡσπερ τον ἐμον, συμπινοντα παρ' ἑαυτῳ συλλαβων ΕΞΕΤΕΜΕΝ, ὡς μεν τινες εφασαν, κ. τ. λ. For a reason which will be obvious to every scholar, we abstain from translating this passage, in which Gobryas describes the treatment to which a certain ancient lover of surgery was in the habit of subjecting some of his boon companions. But as we have here ἐξετεμε, the participle of which is ἐξετεμων, it is difficult to conceive why Mr Dunbar should proscribe ἀποτεμε, or at least ἀποτεμων, which only differs from the word employed by Xenophon in having the preposition ἀπο instead of the preposition ἐκ or ἐξ prefixed to it. 'Αποτεμειν means *to cut away* or *cut off;* ἐξετεμειν signifies *to cut out*, or, in other words, indicates a somewhat more radical and complete form of the operation. If it be good Greek to use such a form of the verb as ἐξετεμειν, it can scarcely, we should imagine, be bad Greek to employ ἀποτεμειν, the same verb, in the same tense, varied only in its sense by the preposition prefixed.

2. "I am, however, *decidedly* of opinion," continues Mr Dunbar, "that no first aorist was ever formed from a second future; and in the examples which the doctor has given, *he has assumed what never existed*." Here again the learned professor cuts a little before the point; for the "assumption" on which Dr Hunter has grounded his ingenious solution of these apparent anomalies, so far from being gratuitous and unauthorized, as Mr Dunbar asserts, is distinctly countenanced by Apollonius of Alexandria, whom Priscian calls *summus auctor artis grammaticæ*, and Mr Harris, in his *Hermes*, describes as "the most acute author that ever wrote on grammar." In his treatise *De Syntaxi* (lib. i. c. 36, p. 76), this learned and acute grammarian, speaking of imperatives, says,

"Quid est igitur cur non ridiculi existimentur, qui negant esse verba imperativa futuri temporis, cum omnia cogantur ad futuri sensum? nam ea imperamus, quæ aut non fiunt, aut non facta sunt. Quæ autem non fiunt, aut non facta sunt, et tamen ut fiant apta nata sunt, ea futuri temporis sunt: siquidem et ea quæ imperata non fiunt, enunciantur cum negante particula, et sensu futuri; ὀυ δυνησομαι, ὀυ ποιησω. Nam etsi dicimus etiam illo modo ὀυ δυναμαι βαστασαι idem tamen valet atque ὀυ δονησομαι. Ergo ex futuri sensu imperamus ut fiat aliquid, aut non fiat, addita negante particula; imperfecte quidem, ut σκαπτετω τας ἀμπελους; perfecte vero, ut σκαψατω τας ἀμπελους. *Quid autem decepit eos qui admiserunt futuri imperativa?* Γραψετω tantum, et ὀισε θεειον γρηϋ; quæ quanquam absolutius a nobis in libro *De Imperativis* diluuntur, tamen quia locus etiam hic idem exigit, pauca quædam adjungemus. Nimirum illud γραψετω et ὀισε poetica licentia per enallagen fuisse usurpata pro voce γραψατω et φερε; *non diverso tempore, sed dilectu verbi*, quod, utra voce velis, *recte profertur:* quemadmodum in indicativo modo quæstio ejusmodi ante orta est; in ἐγραψας, inquam, vel ἐγραψες, quandoquidem in istis *nullum temporis discrimen est*, sed tantum *in scriptura;* quæ assumi potest *non sine ratione probabili*, sicut demonstramus in capite *De Verbis*."[1]

From what is here stated by Apollonius, particularly if it be taken in connection with other parts of his work, to which reference is expressly made by him, and in which his views are more fully explained, it appears that, according to this learned grammarian, the circumstance which has misled those who admit imperatives of the future is the occurrence of such forms as γραψετω and ὀισε; that γραψετω and ὀισε, though used, *poetica licentia per enallagen*, for γραψατω and φερε, are not to be considered as thereby undergoing any change in point of *time*, but merely as variations in the form of expression, and perfectly equivalent in their effect (*non diverso tempore, sed dilectu verbi, quod, utraque voce velis, recte profertur*); that, in short, between γραψετω and γραψατω, ἐγραψες and ἐγραψας, there is no difference whatever in point of *time* (*nullum discrimen temporis*), but only in the writing; and that those verbal forms which Mr Dunbar has arbitrarily denominated imperfects, are truly aorists in the strictest acceptation of the term. With regard to the *ratio probabilis* here alluded to as explained in the chapter on Verbs, though it is not very clearly developed by the Alexandrian grammarian, it seems, in effect, to be nearly the same with the principle so distinctly brought out by Dr Hunter; namely, that the second aorist, as well as the first, follows the analogy of either future, and that, in some instances at least, second aorists have been formed upon the analogy of the first future, as stated by Dr Hunter. Mr Dunbar, however, is "decidedly of opinion" that no second aorist was ever formed from the first future, and conversely; in other words, he is at issue with Apollonius, who states facts to the contrary, as well as with Dr Hunter, who unfolds the only principle on which these facts can be accounted for, consistently with the genius and idiom of the Greek language.

3. Professor Dunbar proceeds thus: "The whole *mistake* has arisen from not considering, or *not knowing*, the genuine form of the second future. But, says Dr Hunter, how are we to account for such forms as καταβησεο, ἐδυσετο, ορσεο, ὀισε, ἰξον, and some others, if these are not to be considered as second aorists derived from first futures; because no person can show that the futures of

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[1] To prevent mistakes, and obviate cavils, we shall subjoin the original of the passage translated from Apollonius: "Πῶς οὖν οὐ γελοῖοι εἰσιν οἱ [μη] ὑπολαβοντες ῥηματα προστακτικα μελλοντος χρονου, ὅπου γε παντα συνωθεῖται εἰς την τοῦ μελλοντος ἐννοιαν; ἐπι γαρ μη γινομενοις ἢ μη γεγονοσιν ἡ προσταξις· τα δε μη γινομενα ἢ μη γεγονοτα, ἐπιτηδειοτητα δε ἔχοντα εἰς το ἔσεσθαι, μελλοντος ἐστιν, εἴ γε και τῶν προσταχθεντων τα μη γινομενα λογον ἔχει μετα ἀποφασεως και τῆς τοῦ μελλοντος ἐννοιας, οὐ δυνησομαι, οὐ ποιησω. κἀν γαρ οὕτω φαμεν, οὐ δυναμαι βασταισαι, ἐν ἴσῳ ἐστι τῷ οὐ δυνησομαι. εἰς το γινεσθαι οὖν ἢ γενεσθαι ἡ προσταξις γινεται, ἀποφασκομενη ἀπο τῆς τοῦ μελλοντος ἐννοιας, εἰς μεν παρατασιν, σκαπτετω τας ἀμπελους, εἰς δε συντελειωσιν, σκαψατω τας ἀμπελους. Τι δε το παραξαν τους παραδεξαμενους μελλοντος προστακτικα; Μονον το γραψετω και το οἶσε θειον γρηϋ, ἅπερ ἀπολυεται ἐντελεστερον ἐν τῷ περι προστακτικῶν, ἀπαιτοῦντος δε και νῦν τοῦ λογου ὀλιγα παραθησομεθα, ὅτι ποιητικωτερον μεν το οἶσε κατ' ἐναλλαγην εἴρηται φωνῆς τῆς φερε, τῆς γραψετω και τα ὅμοια, οὐ κατα διαφορον μεν χρονον, κατα δε ἐκλογην ὀνοματος, ὁποτερον εἰη κατωρθωμενον, καθαπερ ἤδη προεμελετηθη τοιαυτη ζητησις ἐν τῇ ὁριστικῇ ἐγκλισει, ἔγραψας ἢ ἔγραψες, οὐ διαφορᾶς οὔσης χρονικῆς, αὐτο δε μονου γραφῆς, δυναμενης οὐκ ἀπιθανως παραλαμβανεσθαι, ὡς ἐπιδεικνυμεν ἐν τῷ περι ῥηματων." (Apollonii Alexandrini *De Constructione Orationis*, lib. iv. ex recens. Immanuelis Bekkeri, p. 70, 71, Berlin, 1817, in 8vo.)

such verbs were ever employed as presents? I hope to be able to prove, both from *examples and analogy*, that the old established opinion, viz. that the futures of certain verbs, whose original presents had become obsolete, were sometimes used as presents, and that those forms which the doctor supposes to be second aorists, were imperfects, *used, however, as aorists*, i.e. *with indefinite time*." We shall have occasion immediately to examine some of the "examples" and "analogies" by means of which the learned professor labours to establish his position. It will be sufficient here to advert to the confusion of ideas which reigns in the passage we have just cited. How, says Dr Hunter, can you account for such forms as *καταβησεο, ἐδυσετο, ὀρσεο, ὀισε, ἶξον*, and the like, if they are not to be considered as second aorists formed on the analogy of the first futures of the verbs to which they belong? Perfectly, responds Mr Dunbar; they are neither first nor second aorists (Apollonius, as we have just seen, thought otherwise), but only *imperfects*, "used, however, *as aorists*," and performing all the functions of these particular verbal forms; that is, they are *not* aorists, but imperfects, which imperfects, however, *are in reality* aorists. Nor is even this all. The learned professor, misled apparently by the literal meaning of the term, is betrayed into an entire misconception in regard to the *time* indicated by the aorist, which he considers as "indefinite." He could not easily have committed a greater mistake, as has already been shown in treating of the verb. The *time* of the aorist, strictly considered, is *absolute past*, and if it ever *appear* to be "indefinite," as it unquestionably in some instances does, that arises, not from any vagueness or uncertainty in the tense itself, but from an *inference* drawn by the mind from those particular predications which it is employed to express. Thus, *ὀλιγος χρονος τας των φαυλων συνηθειας διελυσε*, "A short time *dissolved* (or *did dissolve*) the associations of bad men." This is all that the words actually express. But, as we know from experience that the laws of nature, moral as well as physical, are uniform, we *infer* that what occurred *formerly*, happens *now*, and will take place *hereafter*; and hence, by an easy and gradual coalition of the secondary inference with the primary and invariable signification of the verb, we come at length to say that "a short time *always dissolves* the associations of the wicked." The expression in Scripture, *Ὁυτος ἐστι ὁ ὑιος μου ἀγαπητος ἐν ᾡ ἐυδοκησα*, rightly translated in our version, "This is my beloved Son, in whom I am *always well pleased*," and all others of a similar description, are to be resolved and explained upon precisely the same principle.

4. In rejecting Dr Hunter's solution, which proceeds upon ascertained and determinate *data*, Professor Dunbar adopts one which he admits to be *purely imaginary*. "I believe," says he, "the present of *ὀισω is nowhere to be found in the language*, because it must have been the same in appearance and sound as *οἰω, puto: φερω* is commonly used instead of it. But Pindar, in his fourth Pythian Ode (v. 181), employs *οἰσειν as a present*.

> ……………………φαμι διδασκαλιαν
> Χειρωνος οἰσειν. ἀντροθε γαρ νεομαι
> Παρ Χαρικλοῖς.

I say that I obtain instruction from Chiron," &c. In this passage Professor Dunbar appears to have committed several mistakes. Without adverting to his contradictory expressions in regard to *οἰσω*, we may observe, in the first place, that if Pindar had really employed *οἰσειν* here "as a present," the language which he puts into the mouth of Jason would, upon that supposition, have conveyed a statement contrary to the fact. Jason, it is true, was educated by Chiron; but long before the period referred to in this passage, his education had been *concluded;* and there is nothing said to warrant the assumption that, on his return from the Argonautic expedition, which is celebrated in this ode, he had resumed his studies under the Centaur, and was, at the time of speaking, actually "obtaining" or receiving "instruction from Chiron." He had no doubt, according to his own statement, been to visit that famous personage; but his object, as we shall presently show, was not for the purpose of being taught, instructed, or educated by Chiron (*that* had been accomplished long before), but to obtain *information* from the Centaur to enable him to make good his claims, which, it seems, had been disputed. Adjured to speak the truth, Jason accordingly says, "I *will relate* what I have learned (*διδασκαλιαν*) from Chiron; for I have just come from the cave near Chariclo and Philyræ;" and, in conformity with this declaration, he proceeds to state the substance of the *information* he had obtained from the Centaur respecting his rights. In what follows there is not a word said respecting "instruction" or education. The narrative of Jason relates to a subject of more immediate interest to him, one indeed in regard to which he had engaged that he would *produce* (*ὀισειν*) *what he had learned* (*διδασκαλιαν*) *from Chiron* during the visit to his cave, and tell nothing except on the authority of his old master, or in accordance with the *information* which he had received from him. In our view, therefore, the common interpretation of this passage, *Institutus sum a Chirone*, is erroneous, notwithstanding it has been adopted by so distinguished a scholar as Heyné, who conceives *διδασκαλιαν Χειρωνος οἰσειν* equivalent to *διδαχθῆναι παρα Χειρωνος*. But, however this may be, it is evident from the words here quoted, that the celebrated German scholar does not consider *ὀισειν* "as a present" tense; and that, whether our interpretation of the passage be right or wrong, Heyné, in adopting the ordinary one, has distinctly corroborated the view which we have taken of *ὀισειν*.

But, not to dwell longer on this, other examples of the nature of *instantiæ crucis* may be produced to disprove Mr Dunbar's assertion that *οἰσει* is used "as a present." In the ninth Pythian Ode of Pindar (l. 104) we meet with the following passage:—

> Τυθι παῖδα τεξεται, ὁν κλυτος, Ἑρμᾶς
> Ἐυθρονιοις Ὡραισι και Γαιᾳ, ἀνελων
> Φιλας ὑπο ματερος, ᾿ΟΙΣΕΙ.

In this sentence, if *ὀισει* be a *present*, as Mr Dunbar contends, how is its *time* to be reconciled with that of *τεξεται*? If the learned professor be right, Pindar has, in this case at least, been guilty of a gross anachronism. Again, in the seventh book of the Iliad (l. 81), Hector says,

> Ἐιδε κ' ἐγω τον ἑλω, δῳη δε μοι ἐῦχος Ἀπολλων,
> Τευχεα συλησας, ᾿ΟΙΣΩ ποτι Ἰλιον ἱρην,
> Και κρεμοω ποτι νηον Ἀπολλωνος ἑκατοιο.

"Sin ego illum *interfecero*, dederitque mihi gloriam Apollo, arma detracta FERAM ad Ilium sacrum, et *suspendam* ad templum Apollinis longe jaculantis:" "But if I shall be fortunate enough to slay him, and Apollo give me the glory of such a victory, *then*, having stripped him of his arms, *I will carry* them to sacred Ilium, and will hang them up at the temple of the far-darting Apollo." By no sophistry can the verb *οἰσω* in this passage be tortured into a present; and the same observation equally applies to *οἰσει* in the foregoing extract from Pindar. But if *οἰσω* be a first future, as it undoubtedly is, can it for a moment be doubted that *οἰσε* is an aorist formed upon the analogy of that future; and if so, is it not clear that, in some instances at least, the second aorist follows the analogy of the first future?

(A.)

GRAMMARIAN, one who is skilled in or teaches grammar. Anciently the name grammarian was a title of honour in literature and erudition, being given to persons accounted learned in any art or faculty whatsoever. But it is otherwise now, being frequently used as a term of reproach, to signify a dry plodding person, employed about words and phrases, but inattentive to the true beauties of expression, and also to delicacy of sentiment. The ancient grammarians, called also philologers, must not, however, be confounded with grammatists, whose sole business was to teach children the first elements of language. Varro, Cicero, Messala, and even Julius Cæsar, thought it no dishonour to be ranked as grammarians, who in fact had many privileges granted to them by the Roman emperors.

GRAMPIANS, a mountain chain in Scotland, so called from two Celtic terms, *grans* and *bein*, signifying "rugged mountains." It runs from east to west almost the whole breadth of the kingdom. See SCOTLAND.

GRANADA, a portion of Andalusia, in Spain, being one of those four districts denominated kingdoms, into which that rich province is divided. It is bounded on the west by Seville, on the north by Jaen and Murcia, on the east by Murcia, and on the south by the Mediterranean Sea. Its extent is 805 square leagues, and the number of its inhabitants 1,097,098. The density of the population on the plains is greater than in any other part of Spain; but as a great proportion of the country is covered with lofty, and in many parts uninhabitable mountains, it is not much more thickly peopled than the general average of the kingdom. The mountains of Granada are much higher than any other range in Europe; for though the extreme summit of Mont Blanc is somewhat higher than the most elevated peak of the Sierra Nevada, yet none of the other points in the Alps attains the same altitude. The ridge called, from its being perpetually covered with snow, the Sierra Nevada, runs from north-east to south-west. Geometrical levels were taken in 1804, and the highest peaks were found to be, Mulahacen, 12,762 feet, and Picacho de Veleta, 12,459 feet, above the level of the sea. The height at which perpetual snow is to be found is 9915 feet. In the winter indeed it descends considerably lower, but above that line it never wholly melts so as to discover the surface. This range of mountains declines gradually towards the south till it approaches Almeria, where it again rises to the height of 7800 feet on the Sierra de Gador. This sierra is a solid rock of marble, without any other covering than the snow, which lies on the higher parts of it three quarters of the year, and only totally melts in the hottest months of summer. Near it is the singular rock called Filabres, which appears to be an enormous pyramid of white marble, 2000 feet in height, and four miles in circumference at the base; and has no mixture of any other stones or earth with it. To the eastward of the range of the Sierra Nevada the mountains called the Apuxarras extend to the sea, and stretch from Almeria to Motril on the coast of the Mediterranean, about seventeen leagues. This range of mountains may be considered as a very sterile tract of country in general, but on it are mixed plains and valleys which are highly fruitful, and nourish considerable herds of cattle and flocks of sheep and goats, and besides feed great abundance of pigs, which furnish hams in considerable quantities. The plains interspersed in this mountain range afford great quantities of mulberry trees, on which silk worms are reared, and their produce is one of the foundations of the silk manufactories of the capital. It was to these mountains that the Moorish race was removed on the final subjection of their capital to Ferdinand; and the industry they displayed seems to have been continued by the other inhabitants, after the remains of that singular race were most impoliticly and wickedly banished from these mountain retreats to the shores of Africa.

Besides these mountains on the eastern division, there are many ranges between the capital and Gibraltar, which, though they do not equal them in height, exhibit a grandeur and sublimity both pleasing and awful. Amongst these may be classed the Sierra Vermeja and the Sierra de Arboto, which approach the coast near Marvella, and the Sierra Junquilla on the road to Ronda. These, though slightly sprinkled with snow, have no permanent covering of that substance, except during the winter months.

The rivers of Granada are the Xenil and the Darro, issuing from the Sierra Nevada; the Guadalhora, which rises in the mountains near Antequera, and waters the most fertile of its valleys; and the Guadiaro, which issues from the mountains near Ronda.

The valleys of Granada deserve attention, from being perhaps the most fertile spots in Europe, and yielding with but little labour the richest productions of nature in the greatest abundance. Amongst these is prominent the Vega or plain of Granada, if that can be called a valley which is 2400 feet above the level of the sea. This plain, however, is so surrounded by the loftiest mountains, that it is in effect, and has in appearance, all the properties of a rich valley. The melted snow from the Sierra Nevada is perpetually descending in the form of transparent rivulets; and the industry of the inhabitants has been constantly directed to conducting these into such channels as can most effectually irrigate the lands. As the melting of the ice and snow proceeds most rapidly in the warmest weather, the summer months, the parched land, which most requires moisture, is thus provided with it most copiously. The decomposition of the rocks which surround the plain is constantly proceeding, and the rapid torrents derived from the melting of the snow bring into the plain a constant succession of new soil, which in spreading itself over the land by the process of irrigation, refreshes the earth, and invigorates vegetation. The highest enjoyment a practical agriculturist of good observation can have, is in riding over this plain, and viewing the rapid progress of vegetation, the rich productions of the soil, and the admirable skill displayed in dispensing the refreshing streams which descend from the lofty mountains.

In the midst of this plain, and in the most fruitful and delightful part of it, is that estate which, by the gratitude of the Spanish nation, has been conferred on the Duke of Wellington. The Sota de Roma is a fine tract of land, about five miles in length and two miles in breadth. It was retained by Ferdinand at the conquest of Granada, and made an appendage to the crown; and several successive monarchs used it as a retreat from the cares of a throne. Having been granted to Wall when prime minister of Spain, he rebuilt the mansion in part, and fitted it up in the best taste. He improved the grounds, laid out gardens, and made roads through the woods, which he stocked with game of all kinds, but especially pheasants, a species of bird which does not generally thrive in other parts of Spain. At his decease it reverted to the crown, and was afterwards granted to Godoy, prince of the peace; but on his forfeiture it came again into the possession of the government, when it was granted in perpetuity to the Duke of Wellington. More than four thousand acres are woodland, and abound with good elm trees, the right of cutting which used to be reserved by the crown. The other part of this domain is excellent cultivated land, with great facilities of irrigation, and produces most extraordinary crops of wheat, barley, hemp, flax, and fruits of all kinds.

The parts of the plain near Alhama yield prodigious crops of wheat and barley. They are cultivated in open fields at a distance from towns or even villages. At seed time the proprietors with their labourers pitch tents on the ground, and remain at the fields till the seed is deposited. At the harvest, tents are again pitched; the inhabitants of the town fill them, and continue in the fields till the whole of the produce is cut and thrashed out. This last operation is performed on a thrashing floor in the open air. In each large division of corn-land there is a circular portion, very level, paved with large stones; on these thrashing floors the corn is piled in the straw, and a number of unbroken horses, or more commonly mares, are held by long reins, and driven round the circle. By their treading the corn is separated from the straw with great facility. The dry state which the straw is brought to by the time it is cut makes it separate with but little labour; and from this dryness of the straw, it is so broken in the operation of thrashing, that it becomes like our chopped straw, and is carefully preserved in that condition as food for cattle in those dry months when no vegetation is visible in the meadows. This plan of thrashing the corn on floors in the fields where it grew is derived from high antiquity, and its practice may be seen in the sacred writings at the time of the patriarch Abraham. So dry is the climate of Spain, that the corn could not be carried to a distance, even if the roads were good and wheel carriages were used, without shaking out the greater part of the grain. After this description of the mode of harvesting the grain, it need not be added that barns are not necessary appendages to a corn farm. The straw in the broken state here described is formed into stacks, and the grain, when separated from the straw, and by a flapping wheel from the chaff, is deposited in paniers, and conveyed on the backs of asses to the granaries of the proprietors in the towns, where, for the most part, and not on their farms, they reside. In some parts of Granada there is a mode of preserving wheat for many years without its sustaining any injury. In caves hewn in the granite rocks they carefully line the bottom and sides with chaff or the finest of the broken straw; the caverns are then filled with the grain in bulk, and the top covered with chaff to the thickness of about eighteen inches. In this state no humidity can reach it from without; and the heat of the climate having perfectly dried it in the process of harvesting, it may remain secure for almost any period. Some repositories of this kind made by the Moors three centuries ago have been discovered within recent periods, and the grain was as good as when first deposited. It was the practice of the Moors, on the birth of a child, to lay up its future portion in grain, concealed in these caves, which, from the turbulent state of the country, were usually in as secret spots as they could select. When the child reached maturity his property was pointed out and his provision appropriated; but sometimes those who knew of the secret deposit were cut off, and the grain remained buried without discovery.

Many practices in the husbandry of Granada which differ from those in the other parts of Spain may be traced to the circumstances in which the Moors were placed, when, having been subdued in the other parts of the peninsula, their sole dominion for three hundred years was contracted to the small but rich kingdom of Granada.

The cultivation of mulberry trees, and the breeding of silk worms which depend upon them, is an important portion of the agriculture of Granada. Long practice and attention has led the cultivators to know the species of mulberries which yield the most leaves, and the greatest quantity of silk from the worms that feed on them. The white mulberry, when grafted on the stock of the wild mulberry, is now almost universally preferred, as those leaves produce not only the greatest proportionate quantity of silk, but it is also of a much finer quality than that yielded by either the white or the black mulberry leaves. As the trees are cultivated not for the sake of the fruit, but solely for the food which the leaves supply, it is customary to cut off the tops, which, they find, diminishes the quantity of the fruit and increases that of the leaves. The worms suffer much by any great humidity in the leaves on which they feed; and hence the cultivators are careful not to gather any as long as the dew remains on them, or after a shower of rain; and if the weather appears lowering, it is the practice to gather as many leaves as will suffice for three or four days' consumption; but care is taken that they neither become shrivelled nor mildewed, in either of which cases they would injure the worm. There is perhaps no animal whose voracity compared with its size equals that of the silk worm, especially during the eight or ten days which precede their beginning to spin. It is estimated that the leaves of a tree of ten years growth are devoured in three days by as many worms as will yield seven pounds of silk. The silk produced by the worms here is calculated as one pound from 2500 worms. The quantity of silk produced on the plains of Granada, on an average of years, is 100,000 pounds, and there must consequently be two hundred and fifty millions of worms, and near three millions five hundred thousand mulberry trees in full bearing, besides those decayed, and those not arrived at maturity.

If the vegetable productions of Granada were enumerated, they would be found to include almost every gift of every climate; for as the variation in temperature descends from that of the coldest to that of almost the hottest regions of the globe, so the different productions are all to be met with here within a very narrow compass. On the high levels the apples, pears, and plums of the colder parts of Europe grow to perfection. In the middle regions they have wheat, barley, wine, hemp, flax, grapes, olives, peaches, apricots, pomegranates, and other similar fruits; whilst in the hotter regions in the low valleys, on a level with the sea, coffee, cotton, sugar cane, and indigo, are cultivated with success; and those more rare fruits, the pine-apple, the chircmaya, the guava, and the banana, are brought to perfection in the open air. The agriculture of the level parts from Manvella to Velez Malaga, except that the labourers are not negro slaves, exactly resembles that of the islands in the West Indies; and the face of the country and its different productions recal to the mind of the traveller the scenery, the odours, and all the sensations experienced in the finest districts of the tropical regions.

From the agriculture we turn next to the mineral riches which this province affords in return for the labour of man. In former times mines of gold and silver were wrought, and the sands of the river Darro were found to be enriched with grains of the former precious metal. The veins still exist; but since the discovery of the mines of Mexico and Peru, and the value of the precious metals has been reduced, they have ceased to yield sufficient to pay the labourers' wages that must be employed in them. Copper, iron, and lead are found in the mountains of secondary formation; and though from the scarcity of fuel they are not worked to the extent which they might be if that commodity were more abundant, yet it is ascertained that they are as rich in ore now as at the former periods when their produce formed the foundation of an extensive commerce with Egypt, Greece, and the borders of Asia. No part of the world abounds with more beautiful marbles than the province of Granada. The public buildings, the fountains, the statues, and the ornaments made from them on the spot, strike the beholder with surprise, by their beauty, their variety, and their cheapness; but from their bulky and weighty character, the difficulty of transporting them over mountains and precipices where no roads have been formed, is such as to preclude their removal with any chance of being repaid for the labour bestowed on it. Alabaster, jasper, and most beautiful serpentine, are in some degree articles of commerce; and the fluates of lime, called in England Derbyshire spar, are worked into various fanciful and ornamental pieces of furniture.

The manufactories of this province are considerable for the extent of the population, and consist of silks, linens, woollens, sail-cloth, leather, and other articles, the particulars of which will be found under the names of the different places in which they are carried on.

The foreign commerce almost wholly passes through the port of Malaga; and will be found under that article; but the domestic trade is the most considerable and most beneficial. The part to the north of the mountains supplies the sea coast with corn, cattle, and some manufactures, and receives in return coffee, sugar, cotton, and the other productions of the warmer climate. It sends to Castille corn, oil, and dried figs, and receives in return some wine and manufactured articles.

The salubrity of the climate of Granada varies with the various elevations. On the sea coast the valleys are excessively hot; and, though not uniformly, are frequently subject to those visitations which have thinned the population of several cities in the western hemisphere. In the year 1804 an epidemic fever which passed along the shores of Spain visited this province with most fearful destruction to human life; and, though not to the same extent, yet before and since, such fevers have prevailed. On the more elevated plains, and on the mountains, such pestilential dispensations have not been experienced, and the inhabitants enjoy as much health, strength, activity, and longevity as in any part of the world.

The interesting events of the history of Granada, its prosperity under the Moorish government, its final subjugation, and the subsequent extirpation of the remainder of the Arabian race, will fall more naturally under our notice of the history of the whole kingdom of Spain.

GRANADA, a city of Spain, and capital of the province or kingdom of that name, in Andalusia. It is situated partly in the celebrated plain called the Vega de Granada, and partly on the declivity of a hill whose summit is covered with that massive pile of buildings called the Alhambra, of which a description may be seen under that article. The rivers Xenil and Darro have their rise in the mountains, and pass through the city; the former is a clear, and at times a small stream, but the latter is a mountain torrent, at some periods almost destitute of water, and at others overflowing its banks, and producing extensive inundations. After traversing the plain, both streams unite and force their way into the Guadalquivir. Many of the streets of Granada are steep, most of them are narrow, and all of them are ill paved. No object can be more strikingly beautiful at a few miles distance than this city, but the appearance on entering it by no means corresponds to the distant impressions.

The market-place or great square is spacious and well proportioned. The houses have piazzas, which afford shelter from the heat of the sun; but the want of glass windows, and the substitution of red shutters, give them a mean appearance. The cathedral is a very large and splendid but irregular building, having been formed by throwing into one edifice three contiguous churches. The high altar, the pulpits, and the choir, are fine groups, and beautifully adorned with some of the finest specimens of variegated and highly polished marble that has been found in this vicinity. It has within it two fine monuments, one to the memory of Philip I., the other to that of Ferdinand and Isabella; and it is adorned with some pictures from the pencil of that celebrated artist Alonzo Cano, which, though disgusting to Protestants from the sacred objects they represent, yet possess exquisite merit as paintings. There are some fine statues executed by the same artist, who was a sculptor as well as a painter. The vice-regal palace, in which is the supreme court of justice for the province, is an extensive and splendid building; but its effect is destroyed by having houses so close as to prevent a proper view of it. The palace of the archbishop is a very large pile, but of no particular beauty, though, as having been the scene of the adventures of Gil Blas, in the work of Le Sage, which every one has read, it is generally inquired for and noticed by travellers.

The city of Granada contains at present 66,660 inhabitants, who are generally a more industrious people than the other natives of Spain. The activity of the Moors, if not their blood, has been left behind them; and, in spite of the bad maxims of the court of Madrid, this city displays considerable industry in many arts and manufactures. The woollen manufactories employ about 7000 persons of the two sexes, and afford cloths, serges, baizes, and stuffs, but not in sufficient quantities for the consumption of the surrounding district, the deficiency being supplied by importation through the port of Malaga. The whole of the silk which the plain yields is made in this city into taffetas, satins, ribbons, and similar goods; and, besides their own produce, silk in some years is brought from Valencia to be used in this place. There are manufactories of linen, sail-cloth, and a very small one of cotton. The sail-cloths are estimated as of most excellent quality, and are but little subject to the mildew in the most humid climate. Iron and steel are made here into the various smaller articles required for domestic and agricultural purposes. The Carthusian convent is an extensive establishment; and the fathers possess several farms, which they cultivate themselves; and some other of the religious foundations are very rich. Institutions for education are upon a low scale; and most of those destined for the learned profession receive their instruction either in the universities of Seville or Alcala. From the locality of this city, it is remarkably healthy. The vicinity of the Sierra Nevada, from which cool breezes blow in the midst of summer, tends to give a freshness to the atmosphere, even in the dog-days; and, considering the productions, the climate, and the beautiful streams, it is not wonderful that the Moors long looked back with fond regret to the delightful spot from which, after an obstinate resistance, they were at length most reluctantly driven.

GRANADA, or *Grenada*, one of the Caribbee Islands. See GRENADA.

GRANADA, a town of Mexico, in America, in the intendancy of Nicaragua, and in the republic of Guatimala, seated on the Lake Nicaragua. It contains a handsome church and four convents, one of which, belonging to the Franciscans, is amongst the most ancient of these establishments in the kingdom. There is here some commerce; but the place would appear to have declined. Long. 86. 21. W. Lat. 11. 30. N.

GRANADA, *New*, a province of South America. See VENEZUELA.

GRANADIER, or GRENADIER, originally a soldier armed with a sword, a firelock, a bayonet, and a pouch full of hand grenades; whence the name. Grenadiers now differ from the rest of the battalion only in their superior size and stature, and in certain distinctive peculiarities of uniform. They are always composed of the tallest and stoutest men, and employed on services where strength and courage united are necessary to ensure success; and, in some armies, they have more pay than the common soldiers. Every battalion of infantry has generally attached to it a company of grenadiers, who take the right of the battalion, the left being occupied by the light company. Grenadiers were first instituted in France in 1667, when four or five were attached to each company; but in the year 1670 they were formed into companies, and, in 1685, introduced into the British service.

GRANADO, or GRENADE (so called from being filled with grains of powder, as a pomegranate is with kernels), is, in war, a hollow ball or shell of iron or other metal, of about two inches and a half diameter, which being filled with fine powder, is set on fire by means of a small fuse made of well-seasoned beech-wood driven into the fuse-hole, and is thrown by the grenadiers into places where men stand thick, particularly into the trenches and other lodgments effected by the enemy. As soon as the composition within the fuse gets to the powder in the grenade, it bursts into pieces, greatly to the damage of all who happen to be in its way. Grenades were first made about the time when shells were invented, and first used in 1594. They have now unaccountably sunk into disuse; but, in the opinion of some, there is nothing more proper than to have grenades to throw amongst the enemy who have jumped into the ditch. During the siege of Cassel under the Count de la Lippe, in the campaign of 1762, a young engineer undertook to carry one of the outworks with a smaller detachment than that which had been repulsed, and succeeded with ease from the use of grenades; which is a proof that they should not be neglected, either in the attack or defence of posts. There are two sorts of grenades, viz. *grenades de rempart* and *grenades à main*. *Grenades de rempart* are those which are rolled from the top of the parapet into the ditch, and which in calibre are equal to an eighteen, and sometimes to a thirty-two pounder. *Grenades à main* are thrown by the hand into the covered-way and trenches; their calibre is that of a four-pounder, and they weigh about two pounds. The ordinary thickness of grenades is four lines, or one third of an inch, throughout. There is also a sort of grenade which is thrown out of a mortar, and which is used for the purpose of annoying the besieging enemy,

GRANARD, a borough, market, fair, and post town, in the county of Longford, and province of Leinster, situated fifty-two miles from Dublin, and about sixteen north-east of Longford. Here is a remarkable hill or mount, called the *Moat of Granard*, supposed to be artificial, and the site of a Danish castle or fort, which commands from its summit a most extensive prospect.

GRANARY, a building to lay up or store corn in, especially that which is designed to be kept for a considerable time.

Sir Henry Wotton recommends that a granary should be made to look towards the north, because that quarter is the coolest and most temperate. Mr Worlidge observes, that the best granaries are built of brick, with quarters of timber wrought in the inside, to which the boards, with which the inside of the granary must be lined, must be nailed so close to the bricks that there may not be any room left for vermin to shelter themselves. There may be many storeys one above another, but these should be near the one to the other, because the shallower the corn lies, it is the better, and the more easily turned.

The two great cautions to be observed in the erecting of granaries are, to make them sufficiently strong, and to expose them to the most drying winds. In many parts of England, particularly in Kent, corn is ordered in this manner. To separate it from dust and other impurities after it is thrashed, it is tossed with shovels from one end to the other of a long and large room; the lighter substances fall down in the middle of the room, and the corn only is carried from side to side or from end to end of it. After this the corn is screened, and being then brought into the granaries, it is spread about half a foot thick, and turned from time to time about twice in a week; the screening of it is also repeated once a week. This sort of management is continued about two months, after which it is laid a foot thick for two months more; and during this time it is turned once a week, or twice if the season be damp, and now and then screened again. After about five or six months, it is raised to two feet thickness in the heaps, and then turned once or twice in a month, and screened now and then. After a year, it is laid two and a half or three feet deep, and turned once in three weeks or a month, and screened proportionally. When it has lain two years or more, it is turned once in two months, and screened once a quarter; and how long soever it be kept, the oftener the turning and screening are repeated, the better the grain will be found to be preserved. It is proper to leave an area of a yard wide on every side of the heap of corn, and other empty spaces, into which the corn may be turned and tossed as often as required. In Kent two square holes are made at each end of the floor, and a round one in the middle, by means of which the corn is thrown out of the upper into the lower rooms, and so up again, that it may be the better turned and aired. Their screens are made with two partitions, to separate the dust from the corn, which falls into a bag; and when sufficiently full this is thrown away, whilst the pure and good corn remains behind. Corn has by these means been kept in our granaries thirty years; and it is observed, that the longer it is kept the more flour it yields in proportion to the corn, and the purer and whiter the bread is, the superfluous humidity only evaporating in the keeping. At Zurich in Switzerland, corn has been kept eighty years, or longer, by methods of a similar description.

The public granaries at Dantzick are seven, eight, or nine storeys in height, having a funnel in the midst of each floor, to let down the corn from one to another. They are built so securely, that though every way surrounded with water, the corn contracts no damp, and the vessels have the convenience of coming up to the walls to be loaded. The Russians preserve their corn in subterranean granaries of the figure of a sugar-loaf, wide below and narrow at the top, the sides being well plastered, and the top covered with stones. They are careful to have the corn well dried before it be laid into these storehouses, and often dry it by means of ovens, the summer dry weather being too short to effect this sufficiently. Dantzick is the grand storehouse or repository of the fruitful kingdom of Poland. The wheat, barley, and rye, of a great part of the country, are there laid up in parcels of twenty, thirty, or sixty lasts in a chamber, according to the size of the room; and this is turned every day or two, to keep it sweet and fit for shipping.

According to the rules of Vitruvius, a granary should always be at the top of a house, and have its openings only to the north or east, that the corn may not be exposed to the damp winds from the south and west, which are very destructive to it; but the contrary winds are very necessary and wholesome, serving to cool it and absorb all external humidity. There must also be openings in the roof, to be set open in dry weather, partly to let in fresh air, and partly to let out the warm effluvia which are often emitted by the corn. The covering of the roofs should always be of tiles, because in the worst seasons, when the other openings cannot be safe, there will always be a considerable inlet for fresh air, and an issue for the vapours by their joinings, which are never close. If there happen to be any windows to the south, great care must be taken to shut them in moist weather, and in the time of the hot southern winds. There must not be a cellar or any other damp place under a granary, nor should it ever be built over stables; for in either of these cases the corn will certainly suffer by the vapours, and be rendered damp in one, and ill tasted in the other.

M. Duhamel and Dr Hailes recommend various contrivances for ventilating or blowing fresh air through corn laid up in granaries or ships, in order to preserve it sweet and dry, and to prevent its being devoured by weevils or other insects. This may be done by nailing wooden bars or laths on the floor of the granary, about an inch distant from each other, when they are covered with hair-cloth only, or at the distance of two or three inches, when coarse wire-work, or basket-work of osiers, is laid under the hair-cloth, or when an iron plate full of holes is laid upon them. These laths may be laid across other laths, nailed at the distance of fifteen inches, and two or more inches deep, that there may be a free passage for the air under them. The under laths must come about six inches short of the wall of the granary at one end, on which a board is to be set edgewise, sloping against the wall; for, by this disposition, a large air-pipe is formed, which having an open communication with all the interstices between and under the bars, will admit the passage of air below forcibly through a hole at the extremity, and consequently carry off the moist exhalations of the corn. The ventilators for supplying fresh air may be fixed against the wall, on the inside or outside of the granary, or under the floor, or in the ceiling; but wherever they are fixed, the handle of the lever that works them must be out of the granary, otherwise the person who works them would be in danger of suffocation when the corn is fumigated with burning brimstone, as is sometimes done for destroying weevils. Small moveable ventilators will answer the purpose for ventilating corn in large bins in granaries, and may easily be moved from one bin to another. If the granary or corn ship be very long, the main air-pipe may pass lengthwise along the middle of it, and convey air on both sides under the corn. In large granaries, double ventilators laid upon each other may be fixed at the middle and near the top of the granary, that they may be worked by a windmill fixed on the roof of the building, or by a water-mill. The air is conveyed from the ventilators through a large trunk or trunks, reaching down through the several doors to the bottom of the granary, with branching trunks to each floor, by means of which it may be made to pass into a large trunk along the adjoining cross walls; and from these trunks several lesser trunks, about four inches wide, branch off, at the distance of three or four feet from one another, and reach through the whole length of the granary, their farther ends being closed. Seams of one tenth or one twelfth of an inch should also be left open at the four joinings of the boards, where they are nailed together, that the air may pass through them into the corn. In some of these lesser trunks there may be sliding shutters, to stop the passage of the air through those trunks which are not covered with iron, or to ventilate one part of the granary more briskly than others, as there may be occasion. There should also be wooden shutters, hung on hinges at their upper part, so as to shut close of themselves; and these should be fixed to openings in the walls of the granary on their outside; by which means they will readily open to give a free passage for the ventilating air, which ascends through the corn, but will instantly shut when the ventilation ceases, and thereby prevent any dampness of the external air from entering. The ventilation should be made only in the middle of dry days, unless the corn, when first put in, be cold and damp.

In lesser granaries, where the ventilators must be worked by the hand, if these granaries stand on straddles, so as to have their lowest floor at some distance from the ground, the ventilators may be fixed under the lowest floor, between the straddles, so as to be worked by men standing on the ground without or within the granary. A very commodious and cheap ventilator may be made for small granaries, by constructing a ventilator of the door of the granary, which may be easily effected by making a circular screen, of the size of a quarter of a circle, behind the door; but in order to this, the door should open, not inwards, but outwards, so that when it falls back, it may be worked to and fro in the screen, which must be exactly adapted to it in all parts of the circular side of the screen, as well as at the top and bottom. But there must be a stop at about eight or ten inches distance from the wall, to prevent the door falling farther back, and that there may be room for a valve in the screen to supply it with air, which will be driven in by the door, through a hole made in the wall near the floor, into the main air-trunk, in which also there should be another valve over the hole in the wall, to prevent the return of the air.

GRANATE, or GRANITE, a species of mineral belonging to the siliceous genus. See MINERALOGY.

GRAND, a term rather French than English, though used on many occasions in our language. It has the same import with *great*, being formed from the Latin *grandis*. In this sense we say, the grand-master of an order, as the grand-master of Malta and of the free-masons; the grand-signior and the grand-visier; grandfather, grandmother, and the like. Amongst the French there were formerly several officers thus denominated; as grand almoner, grand ecuyer, grand chambellan, grand voyer, and the like.

GRAND Distress (*districtio magna*), in *English Law*, a writ of distress, so called on account of its extent, which reaches to all the goods and chattels of the party within the county.

GRAND Gusto, amongst painters, a term used to intimate that there is something in the picture calculated to surprise, please, and instruct.

GRANDEE is a term applied to a lord of the first rank or highest quality. In Spain the name *grandees* is used absolutely to denote the great lords of the court, to whom the king has granted permission to remain covered in his presence. There are some grandees for life only, who are made by the king's saying simply, "Be covered;" others are grandees by descent, and made by the king's saying, "Be covered for thyself and heirs." The latter are of course the higher and nobler grade.

GRANDEUR and SUBLIMITY. These terms have a double import, commonly signifying the quality or circumstance in objects by which the emotions of grandeur and sublimity are produced, and sometimes also the emotions themselves.

In treating this subject, it is necessary that the impression made on the mind by the magnitude of an object, abstracting from its other qualities, should be ascertained; and because abstraction is a mental operation of some difficulty, the safest method of judging is, to choose an object which is neither beautiful nor deformed, if such an one can be found. The plainest that occurs is a huge mass of rubbish, the ruins perhaps of some extensive building; or a large heap of stones, such as are collected together for keeping in memory a battle or other remarkable event. Such an object, which in miniature would be perfectly indifferent, makes an impression by its magnitude, and even appears agreeable. And supposing it large enough to fill the eye, and prevent the attention from wandering to other objects, the impression it makes will be so much the deeper.

But though a plain object of this kind be agreeable, it is not termed *grand*; nor is it entitled to that character, unless, together with its size, it be possessed of other qualities which contribute to beauty, such as regularity, proportion, order, or colour; but, according to the number of such qualities combined with magnitude, it will be more or less grand. Thus St Peter's church at Rome, the great pyramid of Egypt, the Alps towering above the clouds, an arm of the sea, and, above all, a clear and serene sky, are grand, because, besides their dimensions, they are beautiful in an eminent degree. On the other hand, an overgrown whale, having a disagreeable appearance, is by no means grand. A large building, remarkable for its regularity and proportions, is grand; and yet a much larger building, if destitute of regularity, has not the least tincture of grandeur. A single regiment in battle-array makes a grand appearance, which the surrounding crowd does not, though perhaps ten times the number; and a regiment where the men are all in one uniform, and the horses of one colour, makes a grander appearance, and consequently strikes more terror, than where there is confusion of colour and dress. Thus greatness or magnitude is the circumstance which distinguishes grandeur from beauty; in other words, agreeableness is the genus, of which beauty and grandeur are species.

The emotion of grandeur, if duly examined, will be found to furnish additional proof of the truth of our doctrine. That this emotion is pleasant in a high degree, requires no other evidence than an appeal to the feelings, produced by the view of a grand object; and if an emotion of grandeur be pleasant, its cause or object, as already observed, must infallibly be agreeable in proportion.

The qualities of grandeur and beauty are not more distinct than the emotions which these qualities produce in a spectator. All the various emotions of beauty have one common character; that of sweetness and gaiety. The emotion of grandeur has a different character. A large object that is agreeable, occupies the whole attention, and swells the heart with a vivid emotion, which, though extremely pleasant, is rather serious than gay. And this affords a good reason for distinguishing in language these different emotions. The emotions raised by colour, regularity, proportion, and order, have such a resemblance to each other, as readily to come under one general term, *the emotion of beauty;* but the emotion of grandeur is so different from these, that it deserves to have a peculiar name applied to it.

Though regularity, proportion, order, and colour, contribute to grandeur as well as to beauty, yet these qualities are not by any means so essential to the former as to the latter. To establish this proposition, some preliminary remarks are necessary. In the first place, the mind, not being totally occupied with a small object, can give its attention at the same time to every minute part; but in a great or extensive object, the mind, being totally occupied with the capital and striking parts, has no attention left for those which are little or indifferent. In the next place, two similar objects appear not to be similar when viewed at different distances; the similar parts of a very large object cannot be seen except at different distances; and for this reason its regularity, and the proportion of its parts, are in some measure lost to the eye; neither are the irregularities of a very large object so conspicuous as those of one which is small. Hence it is that a large object is not so agreeable by its regularity as a small object, nor so disagreeable by its irregularities.

These considerations render it evident that grandeur is satisfied with a less degree of regularity, and of the other qualities mentioned, than is requisite for beauty. This may be illustrated by an experiment. Suppose that, approaching a small conical hill, we take an accurate survey of every part, and are sensible of the slightest deviation from regularity and proportion. If the hill were to be considerably enlarged, so as to make us less sensible of its regularity, it would upon that account appear less beautiful. It would not, however, appear less agreeable, because some slight emotion of grandeur would come instead of that which it had lost in beauty. Lastly, suppose the hill enlarged to a great mountain; then the small degree of beauty which is left would be merged in its grandeur. Hence it is that a towering hill is delightful, if it have but the slightest resemblance of a cone; and a chain of mountains is not less so, though deficient in the accuracy of order and proportion. We require a small surface to be smooth; but in an extensive plain, considerable inequalities are overlooked. In a word, regularity, proportion, order, and colour, contribute to grandeur as well as to beauty; but with this remarkable difference, that in passing from small to great they are not required in the same degree of perfection. This remark serves to explain the extreme delight we feel in viewing the face of nature, when sufficiently enriched and diversified with objects. The bulk of the objects in a natural landscape are beautiful, and some of them grand; a flowing river, a spreading oak, a round hill, an extended plain, are delightful; and even a rugged rock, or barren heath, though in themselves disagreeable, contribute by contrast to the beauty of the whole; but if to these we add the verdure of the fields, the mixture of light and shadow, and the sublime canopy spread over all, it will not appear wonderful that so extensive a group of splendid objects should swell the heart to the utmost, and raise the strongest emotion of grandeur. The spectator becomes conscious of an enthusiasm which cannot bear confinement, or the strictness of regularity and order; he loves to range at large, and is so enchanted with magnificent objects as to overlook slight beauties or deformities.

The same observation is applicable in some measure to works of art. In a small building, the slightest irregularity is disagreeable; but in a magnificent palace, or in a large Gothic church, irregularities are less regarded. In an epic poem, we pardon many negligences which would not be permitted in a sonnet or an epigram. But notwithstanding such exceptions, it may justly be laid down as a rule, that in works of art, order and regularity ought to be governing principles; and hence the justice of the observation of Longinus, that "in works of art we have regard to exact proportion, and in those of nature, to grandeur and magnificence."

The same reflections are in a great measure applicable to sublimity, particularly that, like grandeur, it is a species of agreeableness; that a beautiful object placed on an elevated position appears more agreeable than formerly, and produces in the spectator a new emotion, termed *the emotion of sublimity;* and that the perfection of order, regularity, and proportion, is less required in objects elevated or placed at a distance, than in those which are at hand.

But though a grand object is agreeable, we must not thence infer that a little object is disagreeable; which would be unfortunate for man, considering that he is surrounded with so many objects of that description. The same thing holds true with respect to place. A body placed high is agreeable; but the same body placed low is not by that circumstance rendered disagreeable. Littleness and lowness of place are precisely similar in this, that of themselves they produce neither pleasure nor pain. And in this may be discovered a peculiar adaptation in fitting the internal constitution of man to his external circumstances. Were littleness and lowness of place agreeable, greatness and elevation could not be so; were littleness and lowness of place disagreeable, they would occasion uninterrupted uneasiness.

The difference between great and little with respect to agreeableness is remarkably felt in a series when we pass gradually from one extreme to the other. A mental progress from the capital to the kingdom, and from that to Europe, to the whole earth, to the planetary system, to the universe, is extremely pleasant; the heart swells, and the mind is dilated at every step. Nor is the returning in an opposite direction positively painful, though our pleasure lessens at every step, till it vanish into indifference. Such a progress may sometimes produce pleasure of a different sort, arising from our taking a narrower and narrower inspection. The same observation holds good in a progress upwards and downwards. Ascent is pleasant because it elevates us: but descent is never painful; on the contrary, it is for the most part pleasant from a different cause, that it is according to the order of nature. The fall of a stone from any height is extremely agreeable by its accelerated motion. We feel it pleasant to descend from a mountain, because the descent is natural and easy. Neither is looking downwards painful; whilst, on the contrary, looking down upon objects forms part of the pleasure of elevation. Looking down becomes painful only when the object is so far below as to create dizziness.

It has been remarked, that the emotions of grandeur and sublimity are nearly allied; and hence it is, that the one term is frequently put for the other. An increasing series of numbers, for example, producing an emotion similar to that of mounting upwards, is commonly termed *an ascending series;* a series of numbers gradually decreasing, producing an emotion similar to that of going downwards, is commonly termed *a descending series.* We talk familiarly of going *up* to the capital, and of going *down* to the country; and from a lesser kingdom we talk of going *up* to a greater, as in the *anabasis* of the Greek language, when one travelled from Greece to Persia. We discover the same mode of expression in the language even of Japan; and its universality proves that it is the offspring of a natural feeling.

This leads us to consider next grandeur and sublimity in a figurative sense, and as applicable to the fine arts. Hitherto these terms have been taken in their proper sense as applicable to objects of sight only; and it is of importance to bestow some pains upon this, because, generally speaking, the figurative sense of a word is derived from its proper sense, and particularly so in the present instance. Beauty, in its original signification, is confined to objects of sight; but as many other objects, intellectual as well as moral, raise emotions resembling that of beauty, the resemblance of the effects prompts us to extend the term *beauty* to these objects. The same principle serves equally to explain the terms *grandeur* and *sublimity*, when employed in a figurative sense. Every emotion, from whatever cause it proceeds, which resembles an emotion of grandeur or elevation, is called by the same name. Thus generosity is said to be an *elevated* emotion, as well as great courage; and that firmness of soul which is superior to misfortunes obtains the peculiar name of *magnanimity.* On the other hand, every emotion which contracts the mind, and fixes it upon things trivial or of no importance, is termed *low*, by its resemblance to an emotion produced by a little or low object of sight. Thus an appetite for trifling amusements is called a *low taste.* The same terms are applied to characters and actions. We talk familiarly of an *elevated* genius, of a *great* man, and equally so of *littleness* of mind. Some actions are *great* and *elevated*, and others are *little* and *grovelling.* Sentiments, and even expressions, are characterised in the same manner. An expression or sentiment which raises the mind is denominated *great* or *elevated;* and hence the sublime in poetry. In such figurative terms, we lose the distinction between great and elevated in their proper sense; for the resemblance is not so entire as to preserve these terms distinct in their figurative application. And we carry this figure still further. Elevation, in its proper sense, imports superiority of place, and lowness inferiority of place; hence we say a man of *superior* talents, of *superior* rank, of *inferior* parts, of *inferior* taste, and such like. The veneration we have for our ancestors, and for the ancients in general, being similar to the emotion produced by an elevated object of sight, justifies the figurative expression of the ancients being *raised* above us, or possessing a *superior* place. The notes of the gamut, proceeding regularly from the blunter or grosser sounds to the more acute and piercing, produce in the hearer a feeling somewhat similar to that which is produced by mounting upwards; and this gives occasion to the figurative expressions, *a high note, a low note.*

Such indeed is the resemblance in feeling between real and figurative grandeur, that amongst the nations on the eastern coast of Africa, who are directed purely by nature, the officers of state are, with respect to rank, distinguished by the length of the batoon each carries in his hand; and in Japan, princes and great lords exhibit their rank by the length and size of their sedan poles. Again, it is a rule in painting, that figures of a small size are most proper for grotesque pieces; but that an historical subject generally requires figures as large as the life, or nearly so. The resemblance of these feelings is in reality so strong, that elevation in a figurative sense is observed to have the same effect, even externally, with real elevation.

The resemblance in feeling between real and figurative grandeur is humorously illustrated by Addison in criticising English tragedy. "The ordinary method of making a hero is to clap a huge plume of feathers upon his head, which rises so high, that there is often a greater length from his chin to the top of his head than to the sole of his foot. One would believe that we thought a great man and a tall man the same thing. As these superfluous ornaments upon the head make a great man, a princess generally receives her grandeur from those additional incumbrances that fall into her tail. I mean the broad sweeping train that follows her in all her motions, and finds constant employment for a boy who stands behind her to open and spread it to advantage." On the same principle, the Scythians, impressed with the fame of Alexander, were astonished when they found him a little man.

The gradual progress from small to great is not less remarkable in figurative than in real grandeur or elevation. Every one must have observed the delightful effect of a number of thoughts or sentiments, artfully disposed like an ascending series, and making impressions deeper and deeper as they proceed. Such a disposition of members or clauses in a period is termed a *climax.*

Within certain limits grandeur and sublimity produce their strongest effects; which, however, lessen by excess as well as by defect. This is remarkable in grandeur and sublimity taken in their proper sense. The grandest emotion which can be excited by a visible object is where the object can be taken in at one view; but if so immense as to be comprehended only in parts, it tends rather to distract than to satisfy the mind.[1] In like manner, the strongest emotion produced by elevation is where the object is seen distinctly; a greater elevation lessens in appearance the object, till it vanishes out of sight with its pleasant emotions. The same thing is equally remarkable in figurative grandeur and elevation. Sentiments may be so strained as to become obscure, or to exceed the capacity of the human mind; but against such license of imagination every good writer will be upon his guard; and it is therefore of importance to observe, that even the true sublime may be carried beyond that pitch which produces the strongest impression. We are undoubtedly susceptible of a greater elevation than can be inspired by human actions the most heroic and magnanimous: this is evident from the feelings produced by Milton's description of superior beings: yet every man must be sensible of a more constant and agreeable elevation when the history of his own species is the subject. He enjoys an elevation equal to that of the greatest hero, of an Alexander or a Cæsar, of a Brutus or an

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[1] It is justly observed by Addison, that perhaps a man would have been more astonished with the majestic air which appeared in one of Lysippus's statues of Alexander, though no bigger than the life, than he might have been with Mount Athos had it been cut into the figure of the hero, according to the proposal of Phidias, with a river in one hand and a city in the other.

Epaminondas; he accompanies these heroes in their most sublime sentiments and hazardous exploits, with a magnanimity equal to theirs; and he finds it no stretch to preserve the same tone of mind for hours together without sinking. The case is not the same in describing the actions or qualities of superior beings. The reader's imagination cannot keep pace with that of the poet; the mind, unable to support itself in a strained elevation, falls as from a height, and the fall is immoderate like the elevation; or where that effect is not felt, it must be prevented by some obscurity in the conception, which frequently attends the descriptions of unknown objects. A mind unable to raise itself to the full contemplation of the Supreme Being self-existent and eternal, or to support itself in a strained elevation, finds itself more at ease in using the intercession of some saint whose piety and penances whilst on earth are supposed to have rendered him a favourite in heaven; and hence the part assigned to tutelary saints, such as St Francis and St Dominic, amongst the Roman Catholics.

Objects of sight which are not remarkably great nor elevated scarcely raise any emotion of grandeur or sublimity; and the same things hold respecting other objects; for we often find the mind roused and animated, without being carried to that height. This difference may be discerned in many sorts of music, as well as in some musical instruments. A kettle-drum rouses, and a hautboy is animating; but neither of them inspires an emotion of sublimity. Revenge animates the mind in a considerable degree; but it never produces an emotion which can be termed *grand* or *sublime;* and perhaps no disagreeable passion ever has that effect.

No desire is more universal than that of being exalted and honoured; and upon this account chiefly are we ambitious of power, riches, titles, fame, which would suddenly lose their relish did they not elevate us above others, and command submission and deference; indeed it may be thought that our attachment to things grand and lofty proceeds from their connection with our favourite passion. This connection has undoubtedly its effect; but that the preference given to things grand and lofty must have a deeper root in human nature, will appear from considering that many bestow their time upon low and trifling amusements, without having the least tincture of such a noble passion; yet these very persons talk the same language with the rest of mankind, and prefer the more elevated pleasures; they acknowledge a more refined taste, and are ashamed of their own as low and grovelling. This sentiment, constant and universal, must be the work of nature; and it plainly indicates an original attachment in human nature to every object which tends to elevate the mind. Some men may have a greater relish for an object not of the highest rank; but they are conscious of the preference given by mankind in general to things grand and sublime, and they are sensible that their own peculiar taste ought to yield to the general inclination.

What is said above suggests a rule for attaining the sublime in such works of art as are susceptible of it; and that is, to present those parts or circumstances only which make the greatest figure, keeping out of view every thing low or trivial; for the mind, elevated by an important object, cannot, without reluctance, be forced down to bestow any share of its attention upon trifles. Such a judicious selection of capital circumstances is by an eminent critic styled grandeur of manner. In none of the fine arts is there so great scope for that rule as in poetry, which thus enjoys a remarkable power of bestowing upon objects and events an air of grandeur. When we are spectators, every minute object presents itself in its order; but in describing at second hand, these are laid aside, and the capital objects are brought close together. A judicious taste in thus selecting the most interesting incidents, to give them an united force, accounts for a fact which may appear surprising; namely, that we are more moved by spirited narrative at second hand, than by being spectators of the event itself, in all its circumstances.

There is another rule which chiefly regards the sublime, though it is applicable to every sort of literary performance intended for amusement; namely, to avoid as much as possible abstract and general terms. Such terms, like mathematical signs, are contrived to express our thoughts in a concise manner; but images, which are the life of poetry, cannot be raised in any perfection except by introducing particular objects. General terms, which comprehend a number of individuals, must however be excepted from this rule. Our kindred, our clan, our country, and words of the like import, though they scarcely raise any distinct image, have a wonderful power over the passions; the greatness of the complex object overbalances the obscurity of the image; and the associations, of which it is the mnemonic type, fill the mind with exalted emotions.

Grandeur being an extremely vivid emotion, is not readily produced in perfection, except by reiterated impressions. The effect of a single impression can be but momentary; and if one feel suddenly something like a swelling or exaltation of mind, the emotion vanishes as soon as felt. Single thoughts or sentiments are often cited as examples of the sublime; but their effect is far inferior to that of a grand subject displayed in its capital parts.

The straining of an elevated subject beyond due bounds, or beyond the reach of ordinary conception, is not a vice so frequent as to require the correction of criticism. But the false sublime is a rock which writers of more fire than judgment commonly split upon. One species of false sublime, known by the name of bombast, is common amongst writers of a mean genius; it is a serious endeavour, by strained description, to exalt a low or familiar subject, which, instead of becoming sublime, fails not to become ridiculous. The mind, indeed, under the influence of some animating passions, is extremely prone to magnify its objects beyond natural bounds; but such hyperbolical description has its limits, and when carried beyond the impulse of the propensity, it degenerates into burlesque. Another species of false sublime, which is still more faulty than bombast, is that of forcing elevation by introducing imaginary beings without preserving any propriety in their actions; as if it were lawful to ascribe every extravagance and inconsistency to beings of the poet's creation. In a word, exaggeration of every kind, with a view to produce a great effect, is not only contrary to the principles of good taste, but becomes disgusting or ludicrous, very probably both.

GRANGE, an ancient term for a barn or place in which to lay up and thrash corn. The word is formed from the Latin *granea* or *granum,* grain or corn. Hence also *granger* or *grangier,* a grange-keeper or farmer. Grange is also used, in a more extensive sense, to signify a whole farm, with all the appendages of stables for horses, stalls for cattle, and the like.

GRANGER, James, a well-known biographer, who has himself been left without any memorial. The time and place of his birth, and the condition of his parents, are equally unknown. He studied, however, at Christ Church, Oxford, which he probably left without taking a degree; and having entered into holy orders, was presented to the vicarage of Shiplake in Oxfordshire, which appears to have been his only preferment. In the dedication of his Biographical Dictionary, which was published in 1769, he informs us that his name and person were at that time known to few persons, as he had the good fortune to retire early to independence, obscurity, and contentment. In 1772 he published a sermon, entitled An Apology for the Brute Creation, in which he strongly censured cruelty to animals; but which, owing to the mention made in it of horses and dogs, seems to have excited disgust amongst the purists of that time. In 1773 he presented to the public another sermon on the Nature and Extent of Industry, which, notwithstanding a strange dedication, was more favourably received. But his principal work, indeed that by which alone he is now known, is his Biographical History of England, from the time of Egbert the Great to the Revolution, a production of very considerable merit, which occupied him for many years, and of which he lived to see two editions sold. In this work he has only given biographies of those persons of whom some engraved portrait had been executed; and this circumstance, joined to the success which it met with, seems to have had the effect contemplated by the author, namely, to create a taste for collections of portraits. The Biographical History was first published in 1769, in four thin vols. quarto; but the second and subsequent editions have been published in octavo. On the 14th April 1776, whilst at the communion table in the act of administering the sacrament, Granger was seized with an apoplectic fit, and, notwithstanding he had the benefit of immediate medical assistance, died next morning. This affecting circumstance is alluded to in the following verses, written by a friend:

More happy end what saint e'er knew?
  To whom like mercy shown?
His Saviour's death in rapturous view,
  And unperceived his own.

GRANI, in our ancient writers, moustaches or whiskers of a beard. The word seems to have been formed from the ancient British or Irish *greann*, a beard. It is stated as a reason why the cup is refused to the laity, *Quia barbati, et prolixos habent granos, dum poculum inter epulas sumunt, prius liquore pilos inficiunt, quam ori infundunt.*

GRANICUS, a small river near the Hellespont, in Asia Minor, remarkable for the first victory gained by Alexander the Great over the armies of Darius.

GRANITE, one of the primitive rocks. See MINERALOGY.

GRANITILLO, or GRANITEL, a name given by some mineralogists to a particular species or variety of granite, which sometimes contains hornblende.

GRANIVOROUS, an appellation given to animals which feed on corn or seeds, and which are principally of the bird kind.

GRANT, in *Law*, a conveyance in writing of such things as cannot pass or be conveyed by word only.

GRANT, *Francis*, an eminent Scottish lawyer and judge, known in the latter capacity under the title of Lord Cullen, was descended from a younger branch of the family of the Grants of Grant, and was born about the year 1660. When he commenced advocate, he made a distinguished figure at the Revolution, by opposing the opinions of the old lawyers, who warmly maintained the inability of the convention of estates to make any disposition of the crown. The abilities which he discovered in favour of the Revolution introduced him to extensive practice. When the union between the two kingdoms was in agitation, Queen Anne created him a baronet, with the view of securing his interest in favour of that measure; and she soon afterwards appointed him a judge, or one of the Lords of Session. He died on the 16th March 1726. His character is drawn at great length, in the style of an *eloge*, in the *Biographia Britannica*, from which we shall only extract the following notice of his literary labours: "He was so true a lover of learning, and was so much addicted to his studies, that, notwithstanding the multiplicity of his business while at the bar, and his great attention to his charge when a judge, he nevertheless found time to write various treatises on very different and important subjects; some political, which were remarkably well timed, and highly serviceable to the government; others of a most extensive nature, such as his essays on law, religion, and education, which were dedicated to George II. when prince of Wales, by whose command his then secretary, Mr Samuel Molyneaux, wrote him a letter of thanks, in which were many gracious expressions, as well in relation to the piece as to its author. He composed, besides these, many discourses on literary subjects, for the exercise of his own thoughts, and for the better discovery of truth; which went no farther than his own closet, and, from a principle of modesty, were not communicated even to his most intimate friends." The Essays above mentioned were published at Edinburgh, in one volume octavo, in 1715.

GRANTHAM, a borough-town of the county of Lincoln, in the liberties of Grantham Soke, and parts of Kesteven. It is on the great north road, distant from London 112 miles, on the river Witham, in a healthy and fertile district. It is a corporate town, with a mayor and alderman, and returns two members to parliament. The church is a fine object, with a tower, one of the loftiest in the kingdom, being 246 feet in height. There are two charity schools in the town, at one of which Sir Isaac Newton received his first lessons. It is a place of very little trade, but has a good market on Saturday. The population amounted in 1801 to 3301, in 1811 to 3646, in 1821 to 4148, and in 1831 to 4590.

GRANVILLE, GEORGE, Lord Lansdowne, was descended from a very ancient family, derived from Rollo the first duke of Normandy. At the age of eleven he was sent to Trinity College, Cambridge, where he remained five years; but at thirteen he was admitted to the degree of master of arts, having, before he was twelve, spoken a copy of verses of his own composition before the Duchess of York, at his college, when she paid a visit to the University of Cambridge. In 1696 his comedy called the *She-Gallants* was acted at the theatre-royal in Lincoln's-inn Fields, as his tragedy called *Heroic Love* was in the year 1698. In 1702 he translated into English the second Olynthiac of Demosthenes. He was member for the county of Cornwall in the parliament which met in 1710; and afterwards became secretary of war, comptroller of the household, then treasurer, and a member of the privy council. In the year following he was created Baron Lansdowne. On the accession of King George I. in 1714, he was removed from the office of treasurer; and the next year he entered his protest against the bills for attainting Lord Bolingbroke and the Duke of Ormond. He entered deeply into the scheme for raising an insurrection in the west of England; and being seized as a suspected person, was committed to the Tower, where he continued two years. In 1719 he delivered a speech in the House of Lords against the bill to prevent occasional conformity. In 1722 he withdrew to France, and continued abroad nearly ten years. At his return in 1732 he published a fine edition of his works in two vols. quarto, and died in 1735, leaving no male issue.

GRANVILLE, a sea-port town of France, in Lower Normandy, partly situated on a rock and partly on a plain. Long. 1. 32. W. Lat. 48. 50. N.

GRANULATED, something which has undergone granulation, or has been reduced to grains.

GRANULATION, in *Chemistry*, an operation by which metallic substances are reduced into small grains, for the purpose of facilitating their combination with other substances.

GRAPE, the fruit of the vine. See VINE and WINE.

GRAPE-Shot, in artillery, is a combination of small shot, put into a thick canvass bag, and corded strongly together, so as to form a kind of cylinder, the diameter of which is equal to that of the ball adapted to the cannon. The number of shot in a bag varies according to the service or size of the guns. In the naval service, for instance, nine is always the number; but by land it is increased to any number or size from an ounce and a quarter in weight to three or four pounds. In the naval service the bottoms and pins are made of iron, whereas those used by land are of wood.

GRAPHOMETER, a mathematical instrument, otherwise called a *semicircle*, the use of which is to observe any angle, the vertex of which is at the centre of the instrument in any plane (though it is most commonly horizontal, or nearly so), and to find how many degrees it contains.

GRAPNEL, or GRAPLING, a sort of small anchor, fitted with four or five flukes or claws, and commonly used to ride a boat or other small vessel.

Fire-GRAPPLING, an instrument nearly resembling the former, but differing in the construction of its flukes, which are furnished with strong barbs at their points. These machines are usually fixed on the yard-arms of a ship, in order to grapple an adversary whom it is intended to board.

GRASS, in *Botany*, a plant having simple leaves, a stem generally jointed and tubular, a husky calyx called *gluma*, and the seed single.

GRASSE, LA, an arrondissement of the department of the Var, in France, extending over 506 square miles. It is divided into seven cantons, and sixty-three communes, and contains 56,818 inhabitants. The capital is a city of the same name, situated on the declivity of a hill, in a district which abounds in citrons, oranges, lemons, figs, and pomegranates, and in flowers used by the perfumers. It contains 2000 houses, and 12,620 inhabitants, who are much occupied in preparing liqueurs, perfumery, scented soaps, and confectionery. Near it much marble and alabaster is found. Long. 6. 50. 40. E. Lat. 43. 39. 19. N.

GRATES FOR FIRES are composed of ribs of iron placed at small distances from one another, so that the air may have sufficient access to the fuel, and the accumulation of the ashes, which would choke the fire, may be prevented. Grates seem peculiarly adapted to the use of pitcoal, which requires a greater quantity of air to make it burn freely than other kinds of fuel.

The hearths of the Britons seem to have been fixed in the centre of their halls, as is yet practised in some parts of Scotland, where the fire is nearly in the middle of the house, and the family all sit around it. Their fire-place was perhaps nothing more than a large stone, depressed a little below the level of the ground, and thereby adapted to receive the ashes. About a century ago, the fireplace was on the floor of the room, with the addition of a bank or hob of clay. But amongst gentlemen this was changed for a portable fire-pan, raised upon low supporters, and fitted with a circular grating of bars.

GRATIAN, the son of Valentinian the First by his first wife, was declared Augustus by his father at the city of Amiens in 365, and succeeded him in 367. This prince was equally extolled for his wit, eloquence, modesty, chastity, and zeal against heretics. He associated Theodosius with him in the empire, and advanced the poet Ausonius to the consulate. He made a great slaughter of the Germans near Strasburg; and was hence surnamed *Alemannicus.* He was the first emperor who refused the title of *Pontifex Maximus*, upon the score of its being a pagan dignity. He was assassinated by Andragathius in 375, in the twenty-fourth year of his age.

GRATIAN, a famous Benedictine monk of the twelfth century, was born at Chiusi in Tuscany. He employed above twenty-four years in composing a work entitled *Decretum, vel Concordantia Discordantium Canonum*, because he there endeavoured to reconcile the canons which seemed contradictory to each other. This work was first printed at Mentz in 1472. But as the learned Benedictine has frequently fallen into mistakes, both in regard to the canons and the fathers, and has often cited false decretals, several authors have endeavoured to correct his errors; particularly Anthony Augustin, in his excellent work entitled *De Emendatione Gratiani.* To the decretals of Gratian the popes principally owed the great authority which they exercised in the thirteenth and succeeding centuries.

GRATINGS, in a ship, are small edges of sawed plank, framed one into another like a lattice or prison grate, placed on the upper deck, between the main-mast and fore-mast, and serving as a defence in a close fight, as well as contributing to the convenience of the ship's company.

GRATITUDE, a virtue disposing the mind to an inward sense and outward acknowledgment of benefits received. See MORAL PHILOSOPHY.

GRATIUS, FALISCUS, a Roman poet, the contemporary of Ovid, and from his name probably a slave or freedman, but respecting whose life we have no particulars. A poem of his on hunting has been preserved, entitled *Cynegeticon*, in 540 hexameters; but its conclusion has been lost. The language is pure, and worthy of the age in which he lived, though in some passages he is obscure. Gratius seems to have imitated the work of Xenophon on the same subject, though it also contains much which can be found nowhere else. (Burmann, *Poet. Lat. Min.* tom. i.; Wernsdorf, *Poet. Lat. Min.* tom. i., in the preface "De Gratio et Nemesiano et utriusque Cynegetico Proœmium." Gratius Faliscus, *Cynegeticon*, &c. Mitau, 1775.)

GRATTAN, HENRY, an illustrious Irish orator and statesman, was born at Dublin in the year 1750. His father followed the profession of barrister, and, though not remarkable for shining qualities, was industrious and prudent. Being a Protestant, the corporation of Dublin extended to him its patronage, in consequence of which he was elected as representative of the city in parliament, and made recorder. After passing through the usual course of scholastic discipline, which he did with much reputation, young Grattan was entered as a fellow-commoner in Trinity College, Dublin. Here he also greatly distinguished himself amongst contemporaries who afterwards became the chief ornaments of the senate and the bar. His original intention was to have studied for a fellowship, but the persuasions of his relatives induced him to remove to England, where he entered himself as a student of the Middle Temple. When the requisite number of terms had expired, he returned to his native country, and in the year 1772 was called to the Irish bar. His practice seems to have been small; but that his talents had already begun to make an impression, is proved by the fact, that in 1775 he was brought into the Irish parliament under the auspices of Lord Charlemont. From this period the life of Grattan became a portion, and a very conspicuous one, of the history of his country. He joined the ranks of the opposition, and the accession of strength which it thereby acquired soon became apparent. The effect of his commanding eloquence was not confined to those who listened to it in the house. He infused the patriotic spirit, with which he was himself actuated, into the country at large. It is allowed, indeed, that the volunteer bands who had begun to assemble in various parts of Ireland, acquired new confidence from the bold, uncompromising tone assumed by the young speaker; and in the course of a few years, their ranks swelled to the number of eighty thousand men, armed, disciplined, and prepared for the field. The menacing attitude which Ireland assumed at this critical period, and the boldness with which the members of the Irish opposition, particularly Grattan, contested the supremacy of the sister kingdom, induced the British legislature, in the year 1782, to repeal the statute of the 6th of George I. By this law it had been enacted that the

Grattan.

rown of Ireland should be inseparably annexed to that of reat Britain; that Ireland should be bound by British acts f parliament, if named therein; that the Irish House of ords should have no appellate jurisdiction; and that the st appeal, in all cases of law and equity, should lie to the ritish House of Peers. For Grattan's exertions in getting is statute rescinded, his country was profuse in laudatory ldresses to him; and the parliament rewarded his serices by a grant of L.50,000. A more magnificent donation as intended, but Grattan declined to accept it. That beowed was large enough to inspire envy and provoke misonstruction. The following sessions of parliament were ormy; and the young patriot had to contend, amongst thers, with Mr Flood, an antagonist formidable alike by s acknowledged talents and the unscrupulous virulence f his attacks. The latter maintained that the act of reeal did not involve a renunciation of the British claims, nd that therefore they might be resumed and exercised t any time. This sophistry found supporters in both ouses of parliament, and the reputation of Grattan acually began to wane. But the energy and success with hich he opposed Mr Ord's celebrated propositions, rought forward in 1785, fully re-established his fame. ne of these was, that the Irish legislature should, from me to time, adopt and re-enact such statutes of the Brish parliament as related to the regulation of commerce. n opposing this proposal Grattan put forth all his powers, nd from this period he began to be acknowledged as the eader of the country party, and as the head of the Irish Whig Club. The members of this association were recirocally bound not to accept office under any adminisration which had not for its avowed principle the concedng of certain popular measures. These consisted of a bill o make the great officers of the crown responsible for heir proceedings; a bill to prevent revenue officers from oting at elections; and a place and pension bill. Several ther important subjects engaged the attention of Gratan at this period; and amongst these was the establishment of a provision for the clergy independently of tithes. He also brought in a bill to encourage the improvement f barren lands, by exempting reclaimed wastes from payng ecclesiastical dues during the space of seven years. But both these measures were rejected by the legislature, rincipally through the influence of the established church.

About the same period Grattan strenuously advocated n extension of civil rights to his Roman Catholic countrymen. That a Protestant statesman should exert himself n behalf of those who professed a religious creed different rom his own, was, at the time when Catholic emancipaion was at length conceded by the British parliament, a matter of such frequent occurrence, that no personal claim o distinction could be raised upon that ground. To enertain such sentiments was not considered as sufficient to ubject the person entertaining them to public suspicion as ne infected with pernicious opinions. But during the arly career of Grattan, the subject was viewed in another spect, and through a different medium. In Ireland, whilst he heads of the Protestant church, with the majority of the Protestants, were arrayed in opposition to any concession o the Catholics, in England the tide of vulgar prejudice an so strongly in the same direction, that a great civil conulsion had nearly arisen out of it. When these facts and ircumstances are taken into consideration, the conduct of Grattan will appear in its true light, as that of a wise tatesman, and a fearless patriot. His principal object was to obtain the elective franchise for the Catholics; but he administration of that day indignantly rejected the rayer of their petitions.

On the arrival of Earl Fitzwilliam, as lord-lieutenant, in 795, Mr Grattan attached himself to that highly popular obleman, and under his auspices originated many plans which had for their object to promote the peace and prosperity of his native land. But the recall of his lordship put a stop to all amelioration, and at the same time generated universal discontent, which was increased by the creation of new sinecures and the lavish profusion of titles. The consequences were memorable and instructive. The society of United Irishmen, whose ostensible object was reform, but who really aimed at the independence of Ireland, acquired new courage from these dissensions, and some even proposed to establish a republic in that country. The triumph of the French Revolution had no doubt inspired these daring projectors with hopes of success. A large portion of the people adopted their principles; military associations were formed, and numbers disciplined and armed; whilst an intercourse was opened with France, by which succours and assistance were liberally promised. From the commencement of the rebellion which ensued, Mr Grattan advised measures of conciliation; and when he saw that there was no hope of stemming the general movement, he withdrew from parliament, and retired to his country residence.

But the grand project of Mr Pitt for effecting a union between Great Britain and Ireland summoned him from his retirement. He obtained a seat in parliament for the express purpose of opposing that measure, which, he maintained, would prove fatal to the best interests of Ireland. Its success did not, however, prevent him from accepting a seat in the imperial parliament, and there employing his talents and eloquence for the benefit of both countries. He was chosen, in 1805, to represent the small borough of Malton; and in the year following he was returned as one of the members for Dublin. Throughout the remainder of his career, his public conduct continued to evince the purest patriotism and the most undeviating consistency, illustrated by an eloquence fraught with the finest inspirations of genius and liberty. Notwithstanding the uniform and vehement opposition of the corporation of the city which he represented, he continued to advocate the Catholic claims with equal zeal and ability. Accordingly, towards the close of his life, we find him complying with an unanimous requisition on the part of the Catholics of Ireland, to present their petition to the British parliament, and to give it his support. Some of his friends represented the fulfilment of this duty as incompatible with his health, which had now begun to decline; but he nobly replied, that "he would be happy to die in the discharge of his duty." This event did actually take place; for he expired on the 14th of May 1820, soon after his arrival in London; and his remains were interred in Westminster Abbey.

It is comparatively easy for posterity to judge for themselves of the moral and political qualities of a statesman's character, because these can be dispassionately determined from the information afforded by history as to the course of conduct which he had pursued, and the measures which he had supported. If Mr Grattan be thus estimated, he must ever be accounted one of the most ardent, consistent, and patriotic of modern statesmen. Viewing him as an orator, we can only judge of his excellence by the report of contemporaries, who but rarely agree in such matters. We are informed that he had to contend with an indifferent voice, which was thin, and, considered simply as an organ of sound, unequal to the expression of impassioned feelings. His action, too, was seldom elegant or graceful, but it possessed a far higher character; it was forcible and energetic. Animation and ardour predominated in his manner; and his pronunciation was distinct and articulate. These are the qualities which are calculated most powerfully to impress a mixed assembly; and the effects which he accordingly produced on several occasions were not surpassed by those of any orator of modern times. "With much of national peculiarity, but chiefly in the manner," says a very able writer;[1] "with much, too, of individual mannerism, his eloquence is, beyond all doubt, of a very high order. Perhaps, after making every deduction for obvious defects, he may even be accounted an orator of the first class. For he possesses an originality, and a force, rising far above any excellencies of mere composition. Fervid, vehement thoughts, clothed in language singularly pointed and terse; an extraordinary power of invective, so remarkable indeed, that he may be ranked among the greatest masters of the sarcastic style; and, above all, and it is the distinguishing character of his oratory, a copious stream of the most sagacious and original observations, or the most acute and close arguments, flowing, though not continuous and unbroken, yet with an ease the more surprising, because they almost all are in the shape of epigrams;—these are the high and rare merits which strike the reader of Mr Grattan's speeches, and must have produced a still deeper impression upon those who heard him in his prime."—"He had deep, and warm, and generous feelings, and, when roused to enthusiasm, they sometimes found vent in simple language; but his accustomed style of epigram is far more prejudicial to the expression of passion than to the conduct of an argument; and accordingly, his declamation was by no means equal to his reasoning, if we except the vituperative parts of it, which were among the finest of all his performances. He had a lively and playful fancy, which he seldom permitted to break loose; and his habits of labour were such that he abounded in all the information, ancient and recent, which his subject required, and could finish his composition with a degree of care seldom bestowed upon speeches in modern times. Finally, he was a person of undaunted spirit, and always rose with the difficulties of his situation. He was ready, beyond any man, perhaps, who ever laboured his speeches so habitually. No one ever took him off his guard. Whoever dreamt that he had caught him unawares, was speedily roused to a bitter sense of his mistake; and it is a remarkable circumstance, that, of all his speeches now preserved, the two most striking in point of execution are those personal attacks upon Mr Flood and Mr Corry, which, from the nature of the occasions that called them forth, must, of necessity, have been the production of the moment. The epigrammatic form in which he delighted to throw all his ideas, and the diction adapted to it, had become so habitual to him, that, upon such emergencies, they obeyed his call with the readiness of a natural style; and he could thus pour forth his indignation in antithesis and point, as easily as the bulk of mankind, when strongly excited, give vent to their feelings in the sort of language which, from this circumstance, we are accustomed to term the eloquence of nature or of passion.

"In the more glaring defects of what has been called the Irish School of Orators, he certainly did not abound. Extravagance of passion; strained pictures of feeling; exuberance of metaphor, and of forced metaphor; and, worse than all, excess of passion expressed by unnatural and far-fetched imagery, in language quite wide of nature, and often wholly incorrect;—from these characteristic vices of his country's fanciful and ingenious and ready orators, he was exempted beyond all his contemporaries, by the chastening effects of classical discipline. Occasionally, indeed, they do break out in his compositions; but, generally speaking, it is rather in the style than in the ideas that he departs from nature; or if in the ideas, it is in his love of point, rather than in his proneness to metaphor. In one great quality he not only stands single among his countrymen, but may be pronounced eminently superior to our own greatest orators; and it is that in which all modern compositions, those of Dante and perhaps of Milton alone excepted, fall so far short of the ancient, and especially the Greek exemplars; we mean the dignified abstemiousness, which selects one leading and effective idea, suddenly presents it in a few words, and relies upon its producing the impression desired, without saying all that can be said, and, as it were, *running down* the topic. In Mr Grattan's speeches we constantly meet with opinions delivered, or illustrations flung out, in a single sentence, or limb of a sentence, and never again recurred to, although the opinion may have been so sagacious, and the illustration so happy, that a copious modern, or even an ancient of the school of Cicero, would have worked the one into a dissertation, and the other into an allegory. This is a merit of the very highest order, subject to the remarks already made upon the difficulty of making things thus lightly touched at once perceived by an audience, and the aggravation of that difficulty by the obscurity incident to the epigrammatic style."

Mr Grattan's speeches were collected and published by his son, at London, in 1822, in 4 vols. 8vo.

GRATZ, a circle of the Austrian province of Steyermark. It extends over 2134 square miles, and contains six cities, thirty market-towns, 976 villages, with 56,362 houses, and 286,442 inhabitants. The capital, of the same name, is also the capital of the province. It stands on the river Mur, in a valley of great fertility and beauty. It is fortified, and contains 2621 houses; but the greater number of them are in the suburbs. The inhabitants are now about 40,000, having rapidly increased within the last twenty years. There are several religious houses, many churches and chapels, and a lyceum, with twenty-six professors of the various branches of science, a library of 70,000 volumes, and an observatory. There are manufactures of silk and cotton goods, and of fine articles in steel and iron, as well as of paper and hats. Long. 15. 20. 40. E. Lat. 47. 49. N.

GRAUDENZ, a city of the province of West Prussia, and government of Dantzic. It is strongly fortified, and stands on the Vistula, where there is a bridge of boats. It contains 575 houses, and, including the military in the citadel, 7572 inhabitants. It has establishments of various kinds of a charitable nature and for education, and some trade in brewing, in distilling, and in corn. Long. 18. 33. 25. E. Lat. 33. 27. 30. N.

GRAUNT, John, the author of Observations on the Bills of Mortality, and the founder of Political Arithmetic, was born at London on the 24th of April 1620, bred up in all the strictness of puritan principles, and, being designed for trade, received no more education than was barely necessary for that purpose. At an early age he was put as apprentice to a haberdasher in the city, whose trade he afterwards followed; and when he entered into business on his own account, he gained the esteem and confidence of his fellow-citizens, passed with reputation through all the offices of his ward, and was first captain and then major of the trained bands. But his genius at length prompted him to seek distinctions of a higher kind, and enabled him to overcome all the disadvantages of a confined education, to form a new and noble design, and to execute it with a degree of ability equal to the sagacity he had displayed in forming it. It is not known at what precise time he first began to collect and digest the Bills of Mortality; but it appears, from his own statement, that he had directed his attention to the subject several years before he had any design of publishing the discoveries which rewarded his researches. His book, entitled Observations on the Bills of Mortality, was published in 1661, 4to, and met with so favourable a reception that a second edition was called for the succeeding year, and others followed. Immediately after its publication, Louis XIV., by a royal ordonnance, provided that a more exact register of births and burials should be kept in Paris; and Charles II. conceived so high an opinion of his abilities, that, at the institution of the Royal Society, he recommended Graunt to the choice of the members, with this additional charge, that if they found any more such tradesmen, they should be sure to admit them. Graunt appears to have changed his religion, and become Roman Catholic, some time before his death, which took place on the 18th of April 1674. He left his papers in charge to Sir William Petty, who had all along befriended him, and who took care to adjust and insert them in a fifth edition of his work published in 1676, 8vo. The observations of Graunt may be considered as having formed the elements of that useful science afterwards styled Political Arithmetic, which, therefore, he is entitled to the honour of having founded; and whatever merit may be ascribed to Sir William Petty, Mr Daniel King, Dr Davenant, and others, there can be no doubt that the Observations on the Bills of Mortality served as the model, if not as the basis, of all their investigations. (A.)

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[1] *Edinburgh Review*, vol. xxxviii. p. 58.

GRAVE, in *Grammar*, a species of accent opposed to acute. The grave accent is expressed thus (`); and shows that the voice is to be depressed, and the syllable over which it is placed to be pronounced in a low deep tone.

Grave, in *Music*, is applied to a sound which is in a low or deep tone. The thicker the chord or string, the graver the tone or note will be, and the smaller the more acute. Notes are supposed to be grave in proportion as the vibrations of the chord are less frequent.

Grave, in the Italian music, serves to denote the slowest movement.

Grave is also used to signify a tomb, in which a person defunct is interred. Graves, amongst the Jews, were generally without the city, though we meet with instances of their interring the dead in towns. Frequent mention is made of graves upon mountains, in highways, in gardens, and even in private houses; so that nothing on this head seems to have been fixed by any invariable usage. The same thing may be observed with respect to the Greeks. The Thebans had a law that every person who built a house should provide a burial ground. Men who had distinguished themselves were frequently buried in the public forum. The most general custom, however, was to bury without the city, chiefly by the side of the highway. The Romans were forbidden by the law of the Twelve Tables to bury or burn the dead in the city; but some, we find, had their sepulchres in Rome, though they paid a fine for this indulgence.

GRAVER, in the art of engraving, a tool by which all the lines, scratches, and shades are cut in copper, &c. See Engraving.

GRAVESANDE, William Jacob, was descended of an ancient and honourable family, and born at Delft, in Holland, on the 27th of September 1688. The name of his family was properly Storm van s'Gravesande. He studied the civil law at Leyden; but the mathematics, for which he had evinced an early inclination, were his favourite pursuit. When he had taken his doctor's degree in 1707, he settled at the Hague, where he practised at the bar, and cultivated the acquaintance of learned men. In the month of May 1713, he, in conjunction with a society of young men distinguished for their acquirements, undertook the composition of a periodical review entitled *Le Journal Littéraire*, which was continued without interruption until the year 1722. In 1715, 'sGravesande, in the capacity of secretary of legation, accompanied the deputies of the states-general, sent to London to compliment George I. on his accession to the throne; and having there formed a connection with Dr Burnet, bishop of Salisbury, he was admitted a member of the Royal Society. He returned the following year to the Hague, and, in 1715, was appointed ordinary professor of mathematics and astronomy in the academy of Leyden. During the vacations of 1721 and 1722, 'sGravesande made two journeys to Cassel to visit the landgrave of Hesse, a prince who showed an enlightened taste for experimental philosophy, and generously promoted its advancement. In 1724, he resigned the rectorship of the academy, to which he had previously been promoted, and on this occasion pronounced a discourse *De Evidentia*, which has been prefixed to the third edition of his Elements of Physics. In 1730, he added to his ordinary course civil and military architecture, which he taught in Dutch; and, in 1734, he was also appointed to teach philosophy, including logic, metaphysics, and ethics. 'sGravesande died on the 28th of February 1742, at the age of fifty-five, after a period of protracted suffering, during which he preserved unimpaired all his characteristic vivacity. His principal works are as follow, viz. 1. Essai de Perspective, Hague, 1711; 2. Physices Elementa Mathematica, experimentis confirmata, sive Introductio ad Philosophiam Newtonianam, Hague, in two vols. 4to; 3. Philosophiæ Newtonianæ Institutiones in usus academicos, an abridgment of the preceding, Leyden, 1723, 1728, and 1744; 4. Matheseos Universalis Elementa, quibus accedunt, specimen commentarii in Arithmeticam universalem Newtoni, et de determinanda forma seriei infinitæ adsumtæ Nova Regula, Leyden, 1727, in 8vo; 5. Introductio ad Philosophiam, Metaphysicam et Logicam continens, Leyden, 1736, 1737. In the *Dictionaire Historique* of Prosper Marchand may be found a detailed biography of 'sGravesande by Allemand, the editor of the work, who was intimately connected with 'sGravesande and his family.

GRAVESEND, a market-town of the county of Kent, in the hundred of Toltingtrough, of the lathe of Aylesford, twenty-three miles from London. It is situated on the south bank of the river Thames, from which the principal street ascends up a gentle hill. It depends chiefly on the ships which resort to the port of London, as at the custom-house all vessels report their arrival, and outward bound ships receive their clearances. There are strong batteries above and below the town, which defend the passage, in conjunction with Tilbury Fort, opposite the town, on the Essex shore. There is a constant, almost hourly, intercourse with the metropolis by steam, and other passage boats, which find ample employment in conveying the numerous pilots, custom-house officers, masters of vessels, merchants, and seamen, backwards and forwards. The soil round the town is favourable for gardens, and the supply of vegetables to ships departing is amply furnished; and this, with the sale of poultry, fresh butter, eggs, and meal, is a source of profit to the inhabitants. A little below the town, establishments have been formed of late years for bathing, as the river, with the flood tide, is perfectly salt. The great road to Dover passes the end of the town, and contributes in some degree to its prosperity. It is a corporate borough, governed by a mayor, twelve jurats, and twenty-four common councilmen, who have an elegant town-hall, but return no members to parliament. The church is a modern building, erected, under the act of Queen Anne, for building fifty churches, in 1731. There is a good market on Saturday. The population amounted in 1801 to 2483, in 1811 to 3119, in 1821 to 3814, and in 1831 to 5097.

GRAVINA, John Vincent, one of the most distinguished men of letters that the kingdom of Naples ever produced, was born at Rogiano, a small town near Cosenza, in Calabria-Ulteriore, on the 20th of January 1664. His parents, who, by their station and their fortune, held the first rank in the place, neglected nothing to promote his early education; but the precocity of mind, the vivacity of imagination, and the ardour to instruct himself evinced by their son, soon made them sensible that he required other cares at their hands, and needed to be restrained rather than stimulated. Gregorio Caloprese, his uncle, after having cultivated, with success, at Naples, poetry and philosophy, had retired to his native place, Scalea, a maritime city in that part of Calabria. The education of a nephew, who inspired so high hopes, appeared to him an agreeable task, and he willingly undertook it. Under the auspices of his uncle, young Gravina learned Latin, rhetoric, history, and the principles of geometry; acquisitions well calculated to pave the way for the study of philosophy, which was then beginning to cast off the yoke under which it had languished in the schools. Thus occupied, Gravina attained his sixteenth year, when Caloprese, finding that the education of his nephew, on which he had bestowed so great care, required his removal to another and wider field, desired to conduct him to Naples; but some domestic embarrassments obstructed the proposed arrangement, and the young student might have been left to his fate, had not his generous relation taken on himself the expense of carrying this proposal into effect, and sent him to the capital, with a strong recommendation to Seraphino Biscardi of Cosenza, then considered as the head of the Neapolitan bar. Charmed with the dispositions evinced by Gravina, Biscardi divided his attentions between him and Cajetano Argentio, particularly directing the application of the former towards Greek, in which he had only received a few lessons from his uncle, but of which he soon acquired a perfect knowledge under Gregorio Massere, then regarded as the first Hellenist of Naples. In the mean time Biscardi taught them all the secrets of the art of oratory, not forgetting that of declamation; but Gravina, who at the same time cultivated poetry, did not so far abandon this pursuit as to devote himself exclusively to the study of eloquence. It was about this time in fact that he composed, on the subject of the Passion, a drama, entitled *Tragedia di Cristo;* a piece which has not been printed, but which he most probably translated, with some additions, from the Greek drama of the same name attributed to Gregory of Nazianzen. Of another drama also composed by Gravina, there remains only the title, *Sant' Atanasio.* As the relations of Gravina had destined him for the profession of the law, the time was now approaching when it would be necessary to make jurisprudence a serious study; but for that science he had conceived an aversion which appeared to be insurmountable. The barbarous language of chicane, as he considered the technical nomenclature of the law, appeared to him an offence committed against the worship of the muses, and the riches which the bar often produces, a sordid means of existence. Biscardi had much difficulty in convincing him of the difference which exists between the science of laws, and the mere conduct of processes, or ordinary practice. He repeated, for some time in vain, that this science rests on a profound knowledge of the classics; and that, if modern jurisconsults had corrupted the Latinity of the schools, it might still be brought back to the standard of the purer ages of Alciat and Cujas. The prejudices of Gravina at length vanished; he applied himself vigorously to the study of the civil and canon law, and at the same time extended his knowledge of theology by an attentive perusal of the works of the Fathers. He sought the conversation of the learned, and continually studied the five books which he regarded as the sources of the knowledge to which he aspired; we mean the Holy Scriptures, the body of the civil law, the works of Plato, those of Cicero, and the poems of Homer. Gravina had long desired to visit Rome; but his uncle, Caloprese, who still superintended his education, opposed his wish until he should have completed his course of study. When this was accomplished, he repaired to the ancient capital of the world in 1689. Paolo Coardo, of Turin, afterwards chamberlain to Clement XI. received him into his house, where he remained several years, and also procured him the acquaintance of the most celebrated men of their time, Ciampini, Fabretti, Bianchini, Buonaroti, Emmanuel Martino, and Father Miro. In conversation, they were accustomed to discuss the most important questions; and as it often turned upon the relaxation of morals, Gravina undertook to treat this subject, applying to it the theological knowledge which he had acquired in the course of his studies. Accordingly, in 1691, he published, under the supposititious name of Priscus Censorinus, a dialogue, entitled *De corrupta Morali Doctrina,* Naples, 4to, the object of which was to prove that the corrupters of morals do more injury to the church than the boldest heresiarchs. Gravina was then only twenty-six years of age. But the eloquence of the style and the solidity of the reasonings ensured the success of the book, which at the same time excited lively dissatisfaction amongst the numerous partisans of convenient doctrines and loose practice. Father Concina has inserted this dialogue almost entire in his treatise *De Incredulis.* Nor did poetry escape the contamination which had so deeply infected morals. A single writer, Alessandro Guidi, a friend of Gravina, struggled at Rome against the prevailing debasement of taste, and, at the request of Christina, queen of Sweden, had, under the Arcadian name of Erillo Cleoneo, written a comedy, entitled *Endimione.* As this piece became the object of the most virulent attacks, Gravina, under the name of Bione Crateo, undertook the defence of his friend, which he read in a literary assembly, and which was afterwards printed under the title of *Discorso sopra Endimione,* Rome, 1692. This little work, in which he laid down excellent principles, drew upon the author new adversaries, who considered it equally strange and unpardonable that Gravina should attempt to constitute himself at once the censor of morals and the reformer of taste. A jealousy, almost amounting to fury, was excited against the young Neapolitan; whilst his disposition to censure the works of others, and the confidence which he appeared to repose in his own opinions, were but little calculated to calm the spirits of his enemies. Gravina sometimes commended, but he more frequently censured, and his decisions were often expressed in contemptuous terms. This tendency made him a host of enemies. His least actions were watched in order to calumniate him, and he was assailed with the most malignant invectives. Then appeared in succession, under the name of Quintio Settano, the Arcadian *alias* of Ludovico Sergardi, sixteen satires against Philodemus, the name under which Gravina was therein designated. These satires, which were equally spirited and bitter, obtained great success, and were circulated in profusion. Gravina at first affected indifference. It is a fault of the age, said he, to take pleasure in outraging merit. But as this tranquillity did not reduce his enemies to silence, he could no longer restrain his resentment, and composed some declamations of the nature of *verrine,* and also some iambics; but he has not published these retaliatory effusions, probably because he thought them inferior to the satires of Settano. The malignity of the enemies of Gravina did not lessen the esteem which he had inspired, nor abate his zeal for useful and wholesome pursuits. He united with several other literary men who had associated together for the purpose of cultivating poetry in silence. There were only fifteen of them, but their number soon increased, and Gravina assembled them for the first time, in November 1695, at a house which he had provided for the purpose on Mount Janiculum. They framed for the association a democratic constitution, and took the name of *Arcadi,* or Arcadians. In summer, they were to assemble in the gardens, and there invoke the Muses; and, by their manner of living and the simplicity of their writings, they were to endeavour to imitate the ancient shepherds, without distinction of rank or fortune. Each assumed a pastoral name. As the number of members increased, it became necessary to give laws to the association, and decemvirs were named for the purpose of preparing them. Called to discharge this duty, Gravina reviewed the numerous and incoherent regulations adopted by the Arcadians, and reduced them into a single code. These laws, written in Latin, with an elegant conciseness, and rare propriety in the selection of terms, in imitation of those of the Twelve Tables, soon spread throughout Europe, and were universally admired. Lastly, on the 20th of May 1696, the *Arcadi* held a general assembly on the Palatine Hill. Gravina, after an eloquent discourse, presented the marble tablets containing the laws, which he established with the expressions consecrated in the Roman jurisprudence, and on this occasion also he assumed the name of Opizio Ermanteo. During this period, Gravina had composed several dissertations, which he collected under the title of *Opuscula*, Rome, 1696, and in which are included, 1. Specimen prisci Juris; 2. De Lingua Latina dialogus; 3. Epistola ad Gabrielem Reignerium à Gallum; 4. De contemptu Mortis; 5. Epistola ad Trojanum Mirabellam; and, 6. Delle Favole Antiche, which has been translated into French by Joseph Regnauld. After the death of Alexander VIII. Antonio Pignatelli, having obtained the pontifical throne under the name of Innocent XII. wished to raise Gravina to the highest ecclesiastical honours; but the latter refused to embrace the clerical profession, as all his ambition was confined to teaching the laws, and his taste led him towards profane erudition. Nor was his ambition disappointed. In 1699, he obtained the chair of civil law, and in his opening discourse traced the history of that science; whilst, in order to make his system of instruction better known, he composed the treatise *De Instauratione Studiorum*, which he dedicated to the new pontiff. The discourse *De Sapientia*, which he delivered in 1700, also relates to the same subject. In that one which is entitled *Pro Legibus ad magnum Moschorum regem*, after speaking of the pre-eminence and dignity of the Roman laws, he considers them in reference to the influence which they were likely to have in the civilization of the states of the czar, Peter the Great. The subjects of the other dissertations of Gravina we need not indicate, as they have been collected in his works. We shall merely refer to that one on the *internal rule*, because it makes known the religious sentiments with which the mind of this great civilian was deeply imbued. In 1703, Gravina passed from the chair of civil to that of canon law. From the commencement of his career as a public instructor he had abolished the usage of scholastic argumentation; and each succeeding year brought some useful change. He thought that the only means of establishing sound doctrine was to ascend to the sources or fountain-head of the laws; and this accordingly is the object of his treatise *De repetendis Doctrinarum Fontibus*. But these little treatises, which he composed with extreme facility, did not prevent him from continuing his great work, *De Ortu et Progressu Juris Civilis*, the first book of which appeared at Naples in 1701, and the whole was completed in three books, and printed in 1713. Europe resounded with the praises bestowed on this great work; the celebrated Maffei made an abridgment of it; and it was reprinted several times in different places. The writings of Gravina attest the extent of his knowledge, and his ardour in the cause of education; but the greatest proof of his general zeal and discrimination consists in giving to literature Metastasio, who owed to him his education and his fortune, and who, in his writings, particularly in his poetry, takes pleasure in acknowledging the gratitude he owed, not only to the beneficence, but still more to the instructions of his adoptive father. During the period which elapsed from 1711 to 1714, Gravina completed and published several works, particularly his Discourses, his book *De Romano Imperio*, Naples, 1712, in 12mo; his tragedies, *Palamede*, *Andromede*, *Appius Claudius*, *Papinianus*, and *Servius Tullius*, Naples, 1712, in 12mo; and his treatises, *Della Ragione Poetica*, Rome, 1708, and *Della Tragedia*, Naples, 1714, in 4to. Gregorio Caloprese died at Scalea in the summer of 1714. As soon as Gravina heard of his illness, he hastened to pay his last duties to a relation to whom he lay under so many obligations. He passed nearly two years in Calabria, and it was not until 1716 that he returned to Rome, where he died on the 6th of January 1718, leaving to his mother, Anna Lombarda, the property which he possessed in Calabria, and to Metastasio all that he had acquired at Rome, excepting some legacies to his other pupils, Giuliano Pier-Santi, Lorenzo Gori, and Horazio Bianchi, all men of reputation in letters. The works of Gravina have been collected in three volumes, under the title of *Opere del Gravina*, Leipsic, 1737, in 4to, and Naples, 1756, with notes by Mascovius the editor. (A.)

Gravina, a city of the province of Bari, in the kingdom of Naples. It is a rocky height, watered at its foot by the rivers Casale and Gravina. It contains 8693 inhabitants, who are employed in cultivating wheat and aniseseed, and in preparing saltpetre.

GRAVITATION, in *Natural Philosophy*, signifies either the force by which bodies are pressed towards the surface of the earth, or the manifest effect of that force; in which last sense the word has the same signification with *weight* or *heaviness*.

GRAVITY, Specific, denotes the weight belonging to an equal bulk of every different substance. Thus the exact weight of a cubic inch of gold, compared with a cubic inch of water, tin, lead, or any other substance, is called its *specific gravity*.

GRAY, or Grey, a mixed colour partaking of the two extremes of black and white. See Dyeing.

Gray, *Lady Jane*. See Grey.

Gray, *Thomas*, an eminent English poet, was the youngest and only surviving son of Philip Gray, a citizen and money-scrivener of London, and was born in Cornhill, on the 20th of December 1716. He was educated at Eton, where he contracted a friendship with Horace Walpole, afterwards Earl of Orford, and with Mr Richard West, son of the Lord Chancellor of Ireland. Mr West and Mr Gray were both intended for the bar; but the former died early in life, and the latter was diverted from that pursuit by an invitation to accompany Mr Walpole in his travels, which he accepted, without any fixed plan for his future life. During his travels, which included the customary tour through France and Italy, he wrote a variety of letters to Mr West and to his parents, which are printed with his poems, and full of interest. Architecture, Gothic as well as Grecian, painting and music, with the manners and customs of the people, were all studied by him with success. But, whilst at Reggio, an unfortunate difference took place between him and Walpole, and they parted in mutual displeasure. A great deal has been said of this quarrel, but the real cause of it has never been sufficiently explained. Walpole, however, affected to take the blame on himself, and in doing so he was very probably right. On his return, Gray finding himself in narrow circumstances, yet with a mind indisposed to active employment, retired to Cambridge, where he devoted himself to study; and soon afterwards his friend West died. The melancholy impressed on him by this event may be traced in his admired Elegy written in a Country Churchyard; which is believed to have been begun, if not finished, about this time, though the conclusion, as it stands at present, is certainly different from what it was in the original manuscript copy. The first impulse of his sorrow for the death of his friend gave birth to a tender sonnet in English, written on the model of Petrarch; and also to a sublime apostrophe in hexameter verse, with which he intended to commence one of his books *De Principiis Cogitandi.*

From the winter of the year 1742 till the day of his death, his principal residence was at Cambridge, whence he seldom was absent for any considerable time, except between the years 1759 and 1762, when, on the opening of the British Museum, he took lodgings in Southampton Row, in order to have access to the Harleian and other manuscripts there deposited, from which he made several curious extracts, amounting in all to a tolerably sized folio volume.

About the year 1747, Mason, afterwards the editor of his poems, was introduced to Gray. The former had written, a year or two before, some imitations of Milton's juvenile poems, particularly a Monody on the Death of Pope, and two pieces entitled *Il Bellicoso* and *Il Pacifico*, on the peace of Aix-la-Chapelle; and the latter had revised them at the request of a friend. This laid the foundation of an intimacy which continued without interruption until the death of Gray.

About the year 1750, Mr Gray having put the last touches to his Elegy written in a Country Churchyard, communicated it to Walpole, who was too much charmed with it to withhold it from his acquaintance. Accordingly it was shown about for some time in manuscript, and received with all the applause which it so justly merited. At last the publisher of one of the magazines having surreptitiously obtained a copy, Gray wrote to Walpole, desiring that he would put the manuscript into the hands of Mr Dodsley, and order him to print it immediately. This proved the most popular of all our author's publications. It passed through eleven editions in a very short space of time, and was translated into Latin, first by Ansty and Roberts, and afterwards by Lloyd.

From July 1759 till the year 1762, Gray resided generally in London, with the view, as we have already mentioned, of having more ready access to the British Museum. In the summer of 1765 he undertook a journey to Scotland for the benefit of his health, which was then in a precarious state, and having passed through Edinburgh and Perth, he proceeded to Glammis Castle, the seat of Lord Strathmore, where he resided for some time; after which he visited the north, where he formed an acquaintance with Dr Beattie, then but little known beyond the immediate circle of his friends at Aberdeen. Gray's account of this journey is praised by Dr Johnson as curious and elegant; "for," says the doctor, "as his comprehension was ample, his curiosity extended to all the works of art, all the appearances of nature, and all the monuments of past events." Part of the summers of 1766 and 1767 he passed in journeys in England; and he had intended to make a second tour in Scotland, but returned to London without accomplishing his design. In July 1768 his grace the Duke of Grafton wrote him a polite letter, informing him that his majesty had been graciously pleased to offer to him the professorship of modern history in the university of Cambridge, then vacant by the accidental death of Mr Brocket. This place was valuable in itself, as the salary amounted to L.400 a year; but what rendered it particularly acceptable to Mr Gray was its being given him without solicitation. He was indeed remarkably disinterested or indifferent about money in all his pursuits. Though his income, before this addition, was but small, he never read or wrote with a view of rendering his labours useful to himself. He may be said to have been one of the few personages connected with literature, especially the poetical department, who are devoid of selfishness, and at the same time attentive to economy; and he was also amongst mankind in general one of those rare economists, who possess that talent, untinctured with the slightest stain of avarice. When his circumstances were at the lowest, he gave away such sums in private charity as would have done credit to an ampler purse. But what chiefly deterred him from seeking any advantage by his literary pursuits, was a certain degree of pride, which led him to despise the idea of being thought an author by profession.

It is probable, however, that early in life he had an intention of publishing an edition of Strabo; for his papers contain a great number of notes and geographical disquisitions on that author, particularly respecting that part of Asia which comprehends Persia and India. The indefatigable pains which he had bestowed on the writings of Plato, and the quantity of critical as well as explanatory observations which he left upon almost every part of that ancient philosopher's works, plainly indicate that no man in Europe was better prepared to republish and illustrate them than Mr Gray. Another work, on which he had bestowed uncommon labour, was the *Anthologia.* In an interleaved copy of that collection of Greek epigrams, he has transcribed several additional ones, which he selected in his extensive reading, inserted a great number of critical notes and emendations, and also subjoined a copious index. But whether he intended this performance for the press or not, has not been ascertained. The only work which he meditated with a direct view to publication from the beginning, was a history of English Poetry, upon a plan sketched out by Pope. He has mentioned this himself in an advertisement to the three fine imitations of Norse and Welsh poetry which he gave the world in the last edition of his poems. But after he had made considerable preparations for the execution of this design, and Mason had proffered his assistance, he was informed that Mr Wharton, of Trinity College, Oxford, was engaged in a work of the same kind. The undertaking was therefore relinquished by mutual consent; and soon afterwards, upon that gentleman desiring a sight of the plan, Gray readily sent him a copy of it.

Amongst other sciences which he cultivated, Gray had acquired a great knowledge of Gothic architecture. He had seen and accurately studied on the spot, whilst abroad, the Roman proportions, both in ancient times, and in the works of Palladio. In his later years he applied himself to study those stupendous structures of more modern date which adorn our own country, and which, if they have not the same grace, undoubtedly possess at least equal dignity, with those of ancient times. He endeavoured to trace this mode of building from its commencement through the various changes it underwent, until it arrived at its perfection in the reign of Henry VIII. and ended in that of Elizabeth. For this purpose, he did not so much rely upon written accounts, as on that internal evidence which the buildings themselves exhibit of their respective antiquity; since they constantly furnish to the well-informed eye, arms, ornaments, and other marks, by which their several ages may be ascertained. On this account he applied himself to the study of heraldry as a preparatory science; and he has left behind him a number of genealogical papers, more than sufficient to prove him a complete master of that subject. By these means he attained such prompt sagacity in architectural matters, as to be enabled to pronounce, at first sight, the precise time when every particular part of any of our cathedrals was erected. But the favourite study of Gray for the last ten years of his life was natural history, which he then rather resumed than commenced; for, by the instructions of his uncle Antrobus, he was a considerable botanist at the age of fifteen. The marginal notes which he has left on Linnæus and other writers on the vegetable, animal, and fossil kingdoms, are very numerous; but the most considerable are those on Hudson's *Flora Anglica*, and the tenth edition of the *Systema Naturæ*, which he interleaved and filled almost entirely. Whilst employed on zoology, he read with great care Aristotle's treatise on that subject, and explained many difficult passages of that obscure ancient, by the lights he had received from modern naturalists. In a word, excepting pure mathematics, and the studies dependent on that science, there was hardly any branch of human learning in which he had not acquired a competent skill, and in most of them a consummate mastery. To this account of his literary character we may add, that he had a fine taste in painting, prints, gardening, and music; and was moreover a man of good breeding, as well as of virtue and humanity.

Gray died in 1771; and an edition of his poems, with memoirs of his life and writings, were published by Mr Mason in 1775, 4to. This gentleman, however, instead of employing his own pen in delineating the character of Gray, has adopted one drawn by the Reverend Mr Temple, rector of Mamhead in Devonshire, and communicated in a letter to Mr Boswell. "Perhaps," says Mr Temple, "he (Gray) was the most learned man in Europe. He was equally acquainted with the elegant and profound parts of science, and that not superficially, but thoroughly. He knew every branch of history, both natural and civil; had read all the original historians of England, France, and Italy; and was a great antiquarian. Criticism, metaphysics, morals, politics, made a principal part of his plan of study; voyages and travels of all sorts were his favourite amusement; and he had a fine taste in painting, prints, architecture, and gardening. With such a fund of knowledge, his conversation must have been equally instructing and entertaining; but he was also a good man, a well-bred man, a man of virtue and humanity. There is no character without some speck, some imperfection; and I think the greatest defect in his was an affectation in delicacy, or rather effeminacy, and a visible fastidiousness, or contempt and disdain of his inferiors in science. He also had, in some degree, that weakness which disgusted Voltaire so much in Mr Congreve: though he seemed to value others chiefly according to the progress they had made in knowledge, yet he could not bear to be considered himself merely as a man of letters; and though without birth, or fortune, or station, his desire was to be looked upon as a private independent gentleman, who read for his amusement. Perhaps it may be said, what signifies so much knowledge, when it produces so little? Is it worth taking so much pains to leave no memorial but a few poems? But let it be considered that Mr Gray was, to others, at least innocently employed; to himself, certainly beneficially. His time passed agreeably; he was every day making some new acquisition in science; his mind was enlarged, his heart softened, and his virtue strengthened; the world and mankind were shown to him without a mask; and he was taught to consider every thing as trifling, and unworthy the attention of a wise man, except the pursuit of knowledge, and the practice of virtue in that state wherein God hath placed us."

The more recent, and perhaps also the more valuable editions of the collected works of Gray, are, 1. That by Thomas James Mathias, London, 1814, in 4to; and, 2. That by the Rev. John Mitford, London, 1816, in two vols. 4to. The edition of Mathias, besides the poetical works of Gray, contains Memoirs of his Life and Writings, including his correspondence, by Mason, together with extracts, philological, poetical, and critical, from the author's original manuscripts. In the edition of Mitford the poems are accompanied and illustrated with critical notes, and to them are prefixed a Life of the author, and an Essay on his Poetry.

GRAZALEMA, a city of Spain, in the province of Granada. It is a romantic place, of Moorish building, partly on the side and partly on the summit of a lofty hill in the Sierra de Ronda, and contains 5000 inhabitants, who are occupied in making coarse woollens.

GREAT, a term of comparison, denoting that one thing has more extension than some other to which it is referred. Thus we say, a *great* space, a *great* distance, a *great* figure, a *great* body, and the like.

GREAT is likewise used figuratively in matters of morality, &c. to signify ample, noble, elevated, extraordinary, important, and the like. Thus we say, Shakspeare was a *great* genius, Da Vinci a *great* painter, Galileo a *great* philosopher, Bossu a *great* critic, and so on.

GREAT is also a title or quality appropriated to certain princes and other illustrious personages. Thus we say, the *great* Turk, the *great* Mogul, the *great* Khan of Tartary, the *great* Duke of Florence.

GREAVES, JOHN, an eminent mathematician and antiquary, was the eldest son of John Greaves, rector of Colemore, near Alresford in Hampshire, and born in 1602. He was educated at Baliol College, Oxford, from which he removed to Merton. He was afterwards, on the ground of merit, chosen professor of geometry in Gresham College. His ardent thirst of knowledge soon led him to visit several parts of Europe, where he eagerly availed himself of every opportunity to improve it. His travels were next into the countries of the East, where nothing remarkable seems to have escaped his observation. With indefatigable industry, and even at the peril of his life, he collected for Archbishop Laud a considerable number of Arabic, Persic, and Greek manuscripts, of which he well knew the value, as he was a master of the languages in which they were written. He also collected for that prelate many oriental gems and coins. He made a more accurate survey of the pyramids of Egypt than any traveller who had preceded him, and afterwards digested his observations in a work on that subject. On his return from the East, he visited a second time several parts of Italy; and during his stay at Rome instituted inquiries into the ancient weights and measures. Soon after his return he was appointed to the Savilian professorship of astronomy at Oxford; an office for which he was eminently qualified, as the works of the ancient and modern astronomers were alike familiar to him. But, after enjoying this preferment for some time, Greaves was deprived of it by the parliamentary visitors, on account of his strong royalist predilections, and died on the 8th of October 1652, of a fatal disorder, which appears to have been brought on by excessive application. Besides his papers in the Philosophical Transactions, the works of Greaves printed separately are, 1. *Pyramidologia*, or a description of the Pyramids in Egypt, London, 1646, in 8vo; 2. A Discourse of the Roman Foot and Denarius, ibid. 1649, in 4to; 3. Elementa Linguæ Persicæ, ibid. 1649, in 4to; 4. Epochæ celebriores Astronomis, Historicis, Chronologis Chataiorum, Syro-Græcorum, Arabum, Persarum, &c. usitatæ, ex traditione Ulug Beig, Arab. et Lat. London, 1650, in 4to; 5. Chorasmiæ et Mawarnalnabræ, hoc est, Regionum extra fluvium Oxum, descriptio, ibid. 1650; 6. Astronomicæ quædam, ex traditione Shah Cholgii Persæ, una cum hypothesibus Planetarum, ibid. 1652, in 4to. In 1737, Dr Birch published the Miscellaneous Works of Greaves, in two vols. 8vo, containing some of those above mentioned, with additions, and a biographical notice of the author.

GREECE.

Greece.

Introductory observations.

Greece and its inhabitants, after a long period of oblivion, have at length become objects of profound and general interest to the most enlightened nations of Europe. It was singular, indeed, that whilst classical scholars were immersed in the study of its poets, orators, and historians, the country that gave birth to so many literary treasures, though neither distant nor inaccessible, seemed to have been as completely forgotten, as if it had been blotted from the map of Europe. The learned contented themselves with supposing that the modern country was inhabited by rude and unknown tribes, governed by fanatical Turks, whose barbarous rule exposed travellers to continual insults and pillage, and had swept away all traces and memorials of the ancient glory of Greece. Besides, the country was not known to be distinguished by its natural beauties; and being confounded with the torpid mass of the Ottoman empire, its political importance was reduced to nothing. Till a very late period, the only intelligible accounts we had of the country were drawn from Strabo and Pausanias. The inquiries of Spon and Wheler, Le Roy, and Stuart, which at length brought some of its precious antiquities to light, were chiefly addressed to artists and scholars. Chandler's Travels were not much better adapted for general use. But the work which, more than any other, contributed to render all subjects connected with Greece and its antiquities popular, was the *Travels of Anacharsis*. Previous to the appearance of this work, however, various circumstances had contributed to bring the Greeks more conspicuously forward on the theatre of European affairs. While the general diffusion of education was increasing the number of those who felt an interest in classical subjects, the rise of the power of Russia, the connection she endeavoured to form with the Greeks, and her projects against Turkey, held out a probability that Greece might speedily regain some share of political importance. The Greeks themselves, by the desperate efforts they made in 1770, and again in 1790, gave a proof to the world, that their existence as a people, and their national feelings, had survived those destructive revolutions which were supposed to have overwhelmed them. When the political enthusiasm created by the French Revolution made the most gigantic plans of political change appear easy, the emancipation of this long neglected country from the Turkish yoke was looked to as one of the most certain and gratifying triumphs of the new principles. Before the interest arising from this state of things had expired, circumstances of a different kind directed public attention more immediately to Greece. The host of English travellers who had been accustomed to roam over the Continent, shut out from their usual routes by an extraordinary combination of events, were forced into less frequented tracts, and numbers of them visited Greece. By these, and by a few individuals from other parts of Europe, a great part of the country has been explored, and a vast mass of information given to the public. Its topography and statistics are now better known than those of many of the nearer and more accessible parts of Europe; the classical interest of the country has been augmented tenfold, by vivid descriptions of its monuments and its scenery; and the stirring events of the revolution lately completed, have greatly strengthened its claims to the attention and the sympathies of western Europe. It is now found that the modern Greeks, instead of being the mixed progeny of obscure and barbarous tribes, possess a respectable degree of civilization, and great capacities of improvement; that they have preserved the features and national character of their ancestors with surprising distinctness; and that their dialect does not deviate much farther from the language of Plato and Demosthenes, than that of Chaucer does from the English of the present day. Independently, too, of its other attractions, Greece surpasses Italy, and perhaps every other country in the world, in the beauty of its scenery. Its antiquities are not, like those of the latter country, accumulated chiefly upon a single spot. They are scattered over a wide surface, associated with a variety of scenery, and present memorials of many separate communities, distinguished by differences of character, habits, and civilization. Its monuments, compared with those of Rome, breathe a purer taste, a finer moral spirit, and bespeak a sublimer genius; they tell of brighter and better times, of characters and actions more surprising, generous, and romantic. Some of them transport the mind back to those remote times where truth and fable are blended,—to those delightful fictions which bear the impress of the genius of the people more distinctly than the real events of their history. No country, in short, presents greater attractions to a well-informed traveller; and as, in future, it will certainly be included in every classical tour, we may reasonably expect that, in a short time, every part of it will be completely explored.

In this article we shall first describe Greece in its full extent, according to the boundaries recognised in ancient times by the Greeks and Romans. We shall then give a brief sketch of the history of the late revolution; and conclude by a statistical view of the new state, which forms only a portion of ancient Greece.

The reader is therefore to understand, that this article consists of two parts. The *first* applies to the portion of Greece still ruled by the Turks, but alludes occasionally to the districts forming the new state, as they existed before the revolution. The *second* relates exclusively to the latter districts, that is, to Independent Greece, of which Otho is now king. The arrangement is inconvenient, but unavoidable, as the new state comprises only one third of the country, and the condition of the people is so much alike in both parts, that in the description of arts, manners, &c. they could not be properly separated. The history of the several ancient states will be found in other parts of this work, under their respective heads.

Name.

The name of Greece was originally restricted to a small territory northward of the Gulf of Corinth, called also Hellas. Afterwards it included Attica, Eubœa, Peloponnesus, Epirus, and Thessaly; and ultimately Macedonia and Crete. In the brilliant periods of Grecian history, the extent of the country might be considered as coincident with the limits of those states which sent deputies to the Amphyctionic Council, and in this sense Ætolia and Acarnania, as well as Epirus, Macedonia, and Crete, ought to be excluded.[1] But, though we shall notice these divisions, our object at present is rather to take the appellation in its most extensive sense, and to follow what may be considered the natural limits of the country; because the territories included within these limits are associated by certain political relations; and because many of the most interesting subjects of inquiry and discussion relating to the ancient, and still more to the modern state of Greece, connect themselves most naturally with this arrangement.

Extent.

The continent of Greece, including Albania and Mace-ce.

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[1] Cellarii *Geog. Antiq.* lib. ii. cap. 18; Strabo, lib. viii.; Potter's *Antiq.* b. i. chap. 16.

onia, is nearly shut in on the north by a chain of moun- ins known anciently by the names of Rhodope, Scomius, nd Orbelus;[1] it is bounded on the west by the Adriatic nd Ionian Seas, on the south by the Mediterranean, and n the east by the Ægean Sea, or Archipelago. It extends rom 36. 10. to 42. 40. of north latitude; and from 19. 45. o 24. 40. of east longitude from London. Its length, from ape Matapan to Mount Orbelus, or Argentaro, is 450 nglish miles; its greatest breadth, from Durazzo to Ca- ale, at the foot of Mount Pangœus (a branch of Rhodope), 35 miles; and it embraces an area of 57,750 square miles, xclusive of all its islands except Eubœa. But, as our leas of the extent of the country have always a reference o those ancient states which comprised but very minute ortions of its surface, it is necessary that its dimensions hould be described more in detail.

nd ns.

The country recognised as Greece before the rise of e Macedonian power, comprehended the Morea or Pelo- onnesus, Attica, Eubœa, Bœotia, Phocis, Doris, Ætolia, carnania, Thessaly, and Magnesia; and even several of e states included within these limits had little or no share n those splendid actions which have shed so much glory ver the country. The surface of Peloponnesus, which ncluded seven different states, is about 8950 square Eng- sh miles in Danville's map; that of the countries just amed, without the peninsula, including Eubœa, is 14,800; nd both together amount to 23,750 square miles; an ex- ent of surface not exceeding two fifths of England, or ne fifth of the British isles. If to this we add 16,000 quare miles for Albania or Epirus (including the basin of e Drino), 18,000 for Macedonia, and 1000 for the Cy- ades, the whole surface of Greece and its islands will be 8,750 square miles, which is almost exactly the area of ngland. While Greece preserved its independence, how- ver, all these territories were never united into one body olitic, nor was their confederated force ever applied to the rosecution of any common enterprise. The communities hose warlike achievements and brilliant career in arts nd philosophy raised the Grecian name so high, occupied ut very minute portions of the country; as the follow- g table, deduced from measurements on D'Anville's map, ill show.

	Eng. Sq. Miles.
ttica, including Megaris and Salamis, but not Eubœa[2]	1190
œotia	1530
aconia (without Messenia)	1720
chaia (the twelve cities with their territories)	1140

These states, therefore, were in general about equal in xtent to middle-sized English counties. None of them as so large as Norfolk or Devonshire; and the two ad- oining counties of York and Lancaster were nearly equal o the whole seven states of the ancient Peloponnesus. ttica, indeed, besides possessing at one period Eubœa, ad many colonies in the Cyclades, Thrace, and other arts; and Sparta held Messenia long in subjection; but, n great struggles, these colonies and dependencies often hook off their allegiance, and the parent state was obliged o rely on its own resources. Such was the energy of ese small communities, that Attica, which scarcely sup- orts, at present, a miserable population of 20,000 souls, ent out sometimes colonies of 10,000 men at once (Diod. ic. lib. ii.); and Sparta furnished 50,000 soldiers to fight the ersians at Platæa. The territories of Corinth, when she formed a separate state, were much smaller than any of these; her wealth and power depending chiefly on commerce.

Greece.

Gulfs and mountains.

Greece forms a long and rather narrow peninsula, singularly indented on three sides by arms of the sea, and having a greater proportion of its surface occupied by mountains than any other country in Europe of equal extent, except Switzerland. It has been justly observed, that those physical features which distinguish Europe from the other quarters of the world belong in a peculiar manner to Greece, and distinguish it in the same proportion from the other parts of Europe. Of these arms of the sea, the most considerable are the Gulfs of Contessa, Salonica, Volo, Ægina, and Nauplia, on the east; those of Kolokythia and Coron on the south; and those of Lepanto and Arta on the west. Of the mountains, the first in order are those which pass along the northern frontier. Mount Argentaro, the ancient Orbelus, placed at the northern extremity of Greece, near the forty-third degree of latitude, may be considered as the centre of the whole system of mountains in European Turkey. From this nucleus an elevated chain, bearing the names of Scomius and Rhodope anciently, passes south-eastward, and sends off branches on both sides, one of which, Pangeus, advances southward to the Ægean Sea, nearly opposite to the Isle of Thasus, and shuts in Greece on the east. From the same central nucleus another great chain passes south and south-eastward, under the ancient names of Scardus, Pindus, Cithæron, and Parnes, and terminates at Cape Colonna, the southmost point of Attica. This chain, which includes the celebrated mountains of Parnassus and Helicon, divides the northern continent of Greece into two parts of nearly equal breadth, and gives birth to all the most considerable rivers, which flow off on its opposite sides, but in no instance cross it. On the east side, besides many small lateral ridges, it sends off two principal branches, which enclose Thessaly on the north and south; these are the Cambunian Mountains, which, connecting the central ridge of Pindus with the lofty group of Olympus, separate Macedonia from Thessaly; and Mount Œta, which, running eastward to the Maliac Gulf, forms, at its termination, the famed pass of Thermopylæ. Mount Othrys, a little farther north, may be considered as a subordinate chain to Œta. Mount Olympus is separated only by a narrow ravine from Ossa and Pelion, which enclose Thessaly on the east. On the western side of the central chain, the whole country to the Ionian Sea, northward of the Gulf of Arta, is covered by a series of ridges, not running off laterally, but disposed in lines nearly parallel to the central chain, and separated by deep valleys. One of these ridges, nearest the coast, and terminating in a promontory, in latitude 40. 30., was known anciently by the name of Acroceraunus; another farther north, and more inland, was Mount Tomarus. A long and narrow ridge occupies the Island of Eubœa, and is evidently continued in the outermost chain of islands included under the name of the Cyclades. Another chain of these islands may be considered as a prolongation of the great central ridge from the promontory of Sunium or Colonna.

The mountains in the Morea or Peloponnesus, which are as numerous as in the north of Greece, present rather a singular configuration. A long ridge, bent into a circular form, encloses the central plateau or basin of Arcadia; and five spurs, or subordinate ridges, run off from the different sides of this circular chain to the five prominent points of the peninsula.

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[1] Throughout this article we use the ancient or the modern names, according as either happen to be better known than the other. general, the ancient divisions of the country, being more minute and more accurately defined than the modern, serve better for e purposes of description. The greater number of modern travellers have felt it necessary to adopt this practice.

[2] In the maps of Barbie du Bocage, Laconia is considerably larger, and Attica and Achaia considerably smaller, than here stated. ut we have followed D'Anville, as his maps are pronounced, by a very competent judge (Sir William Gell), to be much more accu- te than any others since constructed.

Elevation of mountains.

The elevation of some of the Grecian mountains has been estimated, but not accurately measured. Mount Orbelus, the northern boundary of the country, has its summit covered with snow all the year,[1] and must therefore exceed 8000 feet in height; but none of the other mountains seems to reach the circle of perpetual congelation. The elevation of the great central chain of Pindus is loosely estimated by Dr Holland at 7000 feet.[2] That of Olympus, one of the loftiest summits in Greece, was computed by the ancient philosopher Xenagoras to be ten stadia and a plethrum, an elevation not materially different from that of 1017 toises, or 6500 feet, assigned to it by Bernoulli. The famed Parnassus seems to be considered by Dr Clarke and Dr Holland as rising above most of the other Grecian mountains; but as its summit is destitute of snow during a part of the year, its height cannot exceed 9500 feet, and is probably much less. This mountain is still called Parnassu by the peasants residing on it, but in the low country of Livadia it bears the name of Lakura.[3] The celebrated Athos, which is now the seat of twenty-two monasteries, rises to the height of 713 toises, or 4350 feet. (Walpole, p. 204.) Several of the Albanian mountains are estimated by Dr Holland to be from 3000 to 4000 feet high. The mean height of the mountains of the Morea is estimated at 1200 feet; on the west side they attain a height of from 3000 to 4500 feet; Mount Cyllene rises to the height of 4500 feet, and Mount Oleno to 6000; Mount Taygetus, in its range from Cape Matapan to Arcadia, varies from 3000 to 7200 feet. The plain of Tripolizza, in Arcadia, is about 2000 feet above the sea, and the insulated rock of the Acro-Corinthus about 1900. (Boblaye, *Annales des Sciences Naturelles*, Feb. 1831.)

Geology.

A great part of the surface of Greece is occupied by a formation of compact limestone, of a whitish or bluish grey colour, approaching at times to the nature of chalk. It forms in some places long sharp continuous ridges, in others round or craggy summits, and it presents strata highly inclined. It contains a few organic remains, with many flint nodules, and some beds of gypsum on the western side; and occasionally masses or beds of a calcareous conglomerate. The Acropolis of Athens consists of the last-mentioned rock. The compact limestone, which forms the entire mass of Parnassus and Helicon, rests on mica slate near Athens. The hills of Attica consist generally of primitive limestone; and the same species of rock, with clay slate, serpentine, sienite, porphyry, abound in Negropont, the central parts of Pindus, Olympus, and Athos, and all round the Gulf of Salonica. Farther north, in Mounts Scomius and Rhodope, granite and gneiss are found. In general, primitive rocks are most abundant on the east side of Greece, and the secondary on the west. Tertiary deposits are found in Elis, Laconia, and Argolis; and trachytes and other igneous rocks exist in Ægina, Milo, Santorin, and on the continent at Methana in Argolis. M. Boblaye states that four, and in some cases five, successive terraces of shingle are seen at many parts on the shores of the Morea, each of which had once formed the sea beach, indicating that the land had been elevated by a corresponding number of sudden movements upwards. (Boblaye, *Annales des Sciences Naturelles*, Feb. 1831; Holland's *Travels*, p. 89, 319, &c.) It is to the peculiar constitution of the great limestone formation that Greece owes those physical features which so remarkably distinguish the country; the numerous caverns, fountains, subterraneous river courses, hot springs, and gaseous exhalations, which gave birth to so many of the popular superstitions of the ancients.

Rivers.

The rivers of Greece, flowing within a narrow territory, are much inferior in size even to the larger branches of the Danube. They may be fitly compared with those of Great Britain for the length of their courses and the quantity of water they convey. The classical rivers, however, which are chiefly in the south, are generally mere brooks, such as would find a place only in a county map. The largest rivers in Greece are the Axius, now the Vardar, in Macedonia; the Drinius, now the Drino, in North Albania; the Peneus, now the Salympria, in Thessaly; the Achelous, now the Aspropotamo, in Ætolia; the Alpheus, now the Roufia, and Eurotas, now Vasilipotamo, in the Morea. These and some others have permanent streams; but the greater number are mere mountain torrents, short, but rapid in their courses, and dry in summer.

General aspect.

The general aspect of Greece is characterized by a very singular distribution of its mountains. These are usually neither placed in parallel chains nor in massive groups, but are so disposed as to enclose extensive tracts of land, which assume the appearance of large basins or circular hollows. The bottom of these basins consists of an alluvial plain of the richest soil, and level as the ocean, through which sometimes rise steep insulated rocks, like the summits of vast natural columns. Nature had thus marked out the country into a number of distinct districts, admirably calculated to become the seats of small communities. The plain, with its rich alluvial soil, furnished subsistence for a dense population; the insulated rock became the Acropolis or citadel of the chief town, a place of refuge in war; and the surrounding mountains were barriers against invasion. In proportion as access from without was difficult, internal communication was rapid and easy. A crowded population, dispersed over the sides and the area of this natural amphitheatre, lived as it were in the continual presence of one another. Their country, a word of undefined import in large empires, conveyed to them as distinct an idea as that of their own homes. Its whole landscape, with its trophies, temples, monuments, and fields of renown, were constantly under their eyes. Their patriotism, concentrated within this narrow sphere,—attached to visible objects by early and habitual associations,—kept alive by frequent struggles with neighbouring communities, for independence or glory, and still more by the proud sense of individual importance, inspired by their republican institutions,—was not, as in larger empires, a vague and languid feeling, but an ardent and steady passion, of which nothing in the modern world can give us an adequate idea. The same circumstances had an influence on their political condition. Conquest, which forces nations of different habits, characters, and languages, into combination, is the great parent of slavery. In such heterogeneous masses union becomes impossible. The despot, glittering in barbaric pomp, and surrounded by foreign guards, appears in his subject provinces like a being of another order, not to collect the sentiments or redress the wrongs of the people, but to silence all complaints, and enforce obedience to his own lordly will. Though hated by all his subjects, he can still employ the wealth and the physical force of one nation to trample on the rights of another, and is thus able to hold the whole in slavery. But the small Greek communities, protected by the barriers of their gulfs and mountains, escaped this evil destiny. The people, united by identity of manners and language, by common interests and continual communication, could combine with the utmost facility to resist the first encroachments of their rulers. They were able to apply freely the lights of reason to all their common concerns, to model their government according to their circumstances and their views of common interest, and to make the end for which it existed the measure of the powers bestowed upon it. The forms of government they adopted, though not contrived by absolute wisdom, were probably in principle better adapted to their situation than any other that could have been suggested. And never did the powers of the human mind display themselves with such energy and grandeur under any other system in the history of the human race.

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[1] *Travels in the Morea, Albania, and other parts of the Ottoman Empire.* By F. C. Pouqueville, M. D. (translation), London, 1813, p. 443.

[2] *Travels in the Ionian Isles, Albania, Thessaly, Macedonia*, &c. during 1812 and 1813. By Henry Holland, M. D. 1815, p. 207.

[3] *Memoirs relating to European and Asiatic Turkey*, edited by the Reverend Robert Walpole, A. M. 1817, p. 72; Clarke's *Travels*, 4th edition, 8vo, 1818, vol. vii. p. 260; Holland's *Travels*, p. 394. Article CLIMATE in this work.

Of the plains we have mentioned, some terminate in the ocean, and seem to owe their existence to the retiring of the waters. Such are those of Macedonia, Athens, Argos, Laconia, Messenia, and Ambracia. Others are completely surrounded by a rampart of mountains or high grounds, except at a single point where the waters have found or forced a passage. Of this description are the three remarkable valleys of Thessaly, Bœotia, and Arcadia. Each of these forcibly suggests the idea of a vast inland lake, where the waters, accumulating for a long period, had at length burst through the barrier that confined them, and left the bottom dry. There is also an analogy between these valleys and some of the inland seas of Greece, such as the Gulfs of Corinth, Arta, Volo, and the channel of Negropont, which are marine lakes completely land-locked, and communicating with the Mediterranean by a single passage, which may at one period have been closed. It may even be conceived that the Archipelago itself, at one period, was completely shut in by a barrier of high lands, of which Cerigo, Creto, Scarpanto, and Rhodes, are portions or fragments; and that its numerous isles are either the summits of mountains which then diversified its surface, or of detached rocks like those of Meteora in Thessaly, which have resisted the incessant action of the waters.

The valley of Macedonia, which extends in a semicircle round the head of the Gulf of Salonica, is the largest and most fertile district in Greece. Its produce has been supposed to be nearly equal to that of all the rest of the country. The rivers in the lower parts, which overflow annually, render the country marshy, and subject to the malaria. It contains a considerable number of ancient remains, but they have only been partially examined. A large tumulus still marks the site of the battle of Pydna, which reduced Macedonia to a Roman province. Thessaly, separated from Macedonia by Olympus and the Cambunian Mountains, is a vast circular basin, of fifty or sixty miles diameter, enclosed on all sides by mountains, and next in fertility to Macedonia. The whole of its waters flow off by the river Peneus. The celebrated Vale of Tempe, a deep ravine, formed by precipitous cliffs six or eight hundred feet high, and separating Mount Olympus from Ossa, affords a passage for this river to the sea on the east. The vale is about five miles long, and so narrow, that the river in some parts occupies the whole breadth of its bottom; the scenery is more striking by its grandeur than its beauty. The rocks, which are of bluish-grey marble, have a shattered appearance, and, wherever the surface admits of it, are covered with trees and shrubs. Some of the ancients believed that this defile was formed by an earthquake. Were any natural convulsion to close it up, Thessaly would again be converted into a lake; and Xerxes, when he invaded Greece, threatened the Thessalians with this catastrophe if they opposed him. The rocks of Meteora, at the upper side of the Thessalian plain, are objects of a very remarkable kind. They rise from the level surface of the country near the Peneus, and cover a triangular space of two miles each way. They consist of a great collection of lofty rocks, in the various shapes of cones, pillars, rhomboids, and irregular masses, all standing detached from one another, with faces generally as perpendicular as a wall. Their height varies from one to three or four hundred feet, and the deep winding intervals between them are filled with trees and brushwood. On the summits of some of these rocks monasteries are suspended in mid air, as it were on the tops of very tall pillars. Some of the monasteries occupy the whole surface of the rock they rest on, and persons ascending to them are swung in a basket or net, and dragged up by a rope passing over a pulley. The rocks are composed of a conglomerate, consisting of fragments of granite, gneiss, and other primitive substances, disposed in horizontal strata. The narrow district on the eastern side of Mounts Ossa and Pelion is the ancient Magnesia, and is now called Zagora. At the south extremity of Thessaly lies the famed Pass of Thermopylæ, which is merely the narrow space between the flank of Mount Œta and the sea. The part of this space nearest the sea is occupied by a marsh, between which and the cliffs the breadth of firm land is still about sixty paces, as stated by Livy. The hot springs mentioned by Herodotus, the remains of the wall built by the Phoceans, and a tumulus, believed with good reason to be that of the Spartans, are all yet to be seen. The length of the pass is about five miles. The country of Phocis, which lies immediately south of the pass, is one of the most rugged in Greece, being occupied almost entirely by the branches and declivities of Mounts Œta, Parnassus, and Helicon. Bœotia is a large circular valley, enclosed by Parnassus on the west, Helicon on the south, Cithæron on the east, and a range of high lands on the north. A low ridge running north and south divides it in two. The lake Copais, which occupies the bottom of the western and larger division, and receives all its rivers, sends off its waters by subterraneous passages to the sea on the north-east. In summer this lake has the appearance of a green meadow covered with reeds. Bœotia has more than once been inundated by obstructions in these subterraneous channels. The country is very fertile, but is higher and colder than Attica. It is often covered with thick fogs, as described by the ancients; and, from the abundance of its marshes, is very subject to malaria. Attica, which adjoins to Bœotia on the east, is comparatively arid and barren, hilly rather than mountainous, but distinguished peculiarly by the dryness and elasticity of its atmosphere, and the beauty and serenity of its climate. The isthmus of Corinth, which connects Attica with the Morea, is occupied towards the north by high rocky hills, which render it strong as a military post; but in the south, where its breadth is about four miles, the surface is low, seldom exceeding a hundred and fifty feet. The remains of the ancient wall, and of the canal begun by Nero, are yet visible. The Morea consists of an elevated central plateau or valley, namely, Arcadia, and of five separate districts, formed by the exterior declivities of the mountains which surround the central plateau, and by spurs or branches which run off from these mountains. The central valley of Arcadia, so famed for its pastoral character by the ancients, is, like the inland districts of Thessaly and Bœotia, high and cold, often covered with fogs, arising from the moisture of its soil, and hence also subject to malaria. All its running waters escape by the single channel of the Alpheus; and it has sometimes suffered from partial inundations. Its scenery, in the opinion of Lord Byron, is by no means deserving of its ancient celebrity. Argolis, lying in a semicircle round the Gulf of Nauplia, embraces but a small portion of level country, which, however, is remarkably rich, but very unhealthy. The city of Argos still exists in its ancient plain, and, till ruined by the revolution, was one of the best built towns in the Morea. The ancient

Laconia, consisting of the long open valley of the Eurotas, is very thinly peopled. The ruins of Sparta, four miles south-west from the village of Mistra, are extensive, but afford no fine specimens of architecture; the spot is entirely deserted. Messenia, which lies round the head of a gulf, has a pretty large plain, of a very rich soil. Elis, on the west, and Achaia, on the north of the Morea, are in general hilly, and rather dry. In general, the west of Greece has a different physical character from the east. Ætolia, Acarnania, and Epirus (the modern Albania), present none of those circular basins so characteristic of the east and south sides of the country, except the valley surrounding the Gulf of Arta. Ætolia and Acarnania consist of long valleys open to the south, and rising into mountains in the north. Albania has the same features on a larger scale. Its mountains, which are more numerous than those of any other district of Greece, cover the country in long parallel ridges, and are separated by deep valleys, some of which open to the south, and others to the west, but none to the north. The Cyclades, and other islands in the Ægean Sea, are almost all steep and rocky.[1]

Scenery.

The mountains of Greece, which cover so large a proportion of its area, are partly wooded and partly naked, and the woods abound more on the west side than the east. The low country susceptible of tillage probably does not amount to more than two fifths of the whole surface, and of these two fifths, judging from the corn, olives, cotton, tobacco, &c. required for the population, one twelfth or fifteenth part may be actually in cultivation. It is generally bare of wood, and, from the want of enclosures, the profusion of weeds and brushwood, the thinness of the population, and the ruinous condition of the few cottages, combined with the crumbling remains of the noble structures of the ancients, has a desolate, melancholy, and deserted aspect, which harmonizes well with the fallen fortunes of the country. In the end of summer, from the excessive heat which dries up the streams, the hills and fields appear parched. In many quarters of the country, however, there are copious perennial springs, which gush out suddenly from the limestone rock. Greece combines in the highest degree every feature essential to the finest beauties of landscape, except large rivers, which are perhaps incompatible with the general character of its scenery. Travellers of taste have wanted words to describe the magnificence of the views it affords. Its mountains encircled with zones of wood, and capped with snow, though much below the Alps in absolute height, perhaps are as imposing from the suddenness of their elevation. Rich sheltered plains lie at their feet, which want nothing but an industrious population to fill the mind with images of prosperity, tranquillity, and happiness. But it is in the combination of these more common features, with so many spacious and beautiful inland bays and seas, broken by headlands, enclosed by mountains, and specked and studded with islands, in every variety of magnitude, form, and distance, that Greece surpasses every other country in Europe, and perhaps in the world. The effect of such scenery, aided by a serene sky and delicious climate, on the character of the Greeks, cannot be doubted. "Under the influence of so many sublime objects, the human mind becomes gifted as by inspiration, and is by nature filled with poetical ideas." Greece became the birth-place of taste, science, and eloquence, the chosen sanctuary of the muses, the prototype of all that is graceful, dignified, and grand, in sentiment or action. The poetry of the north, nursed amidst bleak mountains, amidst oceans covered with fogs and agitated by storms, is austere and gloomy; but the muses of Greece, awakened into life in a rich and beautiful land, amidst bright and tranquil seas, are gay, joyous, and luxuriant. You almost conceive (says Chateaubriand), as it were by intuition, why the architecture of the Parthenon has such fine proportions, why ancient sculpture is so unaffected, so simple, so tranquil, when you behold the pure sky and delicious scenery of Athens, of Corinth, and of Ionia. In this native land of the muses, nature suggests no wild deviations: she tends, on the contrary, to dispose the mind to the love of the uniform and the harmonious.[2]

Climate.

The climate of Greece seems to be distinguished from that of Spain and Italy in the corresponding latitudes, chiefly by having the characteristics of an inland region in a higher degree; that is, the extremes of summer and winter are more severe. In Attica, which has a drier atmosphere and more uniform temperature than the rest of the country, the average rain is about twenty-one or twenty-two inches, and the greatest heat, in each of the four years ending with 1807, was 104, 99, 93, 94. The greatest cold was from 28 to 32 of Fahrenheit. The mean deduced from all these extremes is 63·5. This agrees very nearly with the temperature of a spring in the isthmus of Corinth, observed by Dr Clarke to be 64, and with the temperature given in Professor Leslie's table, which is 64·4. At the southern extremity the annual temperature, according to the same authority, is 65·3, and at the northern extremity about 60. But local diversities have a greater effect than mere difference of latitude, on the distribution of the seasons. In Attica, which, being freely exposed to the sea, has in some measure an insular climate, the winter sets in about the beginning of January. About the middle of that month snow falls, but is seldom seen for more than a few days, though it lies for a month on the summits of the mountains. Gentle rains fall about the middle of February, after which spring commences; and the corn, which is a considerable height in March, is cut in May. In the beginning of March, the vines and olives bud, and the almonds are in blossom. In the great interior plains and valleys, which are girt with mountains, and cut off from the direct influence of the sea, the winters are much colder, and the summers, making allowance for the difference of height, are warmer. At Tripolizza, in Arcadia, the snow has been found eighteen inches thick in January, with the thermometer at sixteen degrees Fahrenheit; and it sometimes lies on the ground six weeks. Dr Clarke was informed, that in the winter preceding his visit, the peasants at the foot of Mount Cithæron in Bœotia were confined to their houses for several weeks by the snow. At Yanina, situated in an inland plain, 1000 or 1200 feet above the sea, the snow lies to a considerable depth in the winter, and sometimes falls as late as April. The neighbouring lake was so firmly frozen over in 1813, that it was everywhere crossed on the ice. The summits of the central chain of Pindus, and most of the Albanian mountains, are covered with snow from the beginning of November to the end of March. These various facts show that the winter in Albania, though shorter than in England, is as severe; but that the summer is a vast deal hotter, the extreme summer temperature being fifteen or eighteen degrees higher at Athens than London; while Bœotia and Thessaly are probably still hotter than Attica. Though we have no accurate data to establish a comparison between the climate of Greece and those of Spain and Italy, yet the fact of cotton being successfully cultivated, on a large scale, in Macedonia, as far north as the latitude of Rome and Valadolid, where it does not succeed in the two last countries, is a proof that the summer temperature in Greece is higher than either in Spain or Italy. The coldest weather in all parts of Greece is accompanied with a north-east wind. The north and north-west winds are distinguished by their serenity and dryness. The zephyr or west wind is famed for its balmy softness; the south-east, south, and south-west winds are all humid, and the east wind still retains the character of a morning breeze, as described by Aristotle. The sirocco is felt in Greece. It blows from the south-east, and produces its usual effects on the human constitution; a sense of oppression, a dull headach, with lassitude and uneasiness in the limbs. Earthquakes are very frequent in Greece, but they are seldom very destructive.[1]

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[1] Beaujour, let. 1–4; Holland, p. 280, 291, 234, 376, 420; Clarke, vi. 562, vii. 303; Hobhouse, let. 14, 15, 16; Walpole, 60, 303, 306, 335, 522; Byron's notes to canto 2d of *Childe Harold;* Tournefort, let. 4–8.

[2] Holland, 248, 302, 401, 254, 418; Hobhouse, 83, 461, 201; Clarke, vii. 260; Beaujour, let. 4; Chateaubriand's *Travels* (translation), vol. i. p. 85, 187; Williams' *Travels*, let. 54, 55, 68, 72, 74.

Modern travellers afford us but scanty information respecting the mines of Greece; but, from its geological structure, we may conclude that it is, like Italy, rather poor in metals. The working of the veins which do exist is neglected by the Turks, from want of skill, or abandoned in consequence of the oppressive exactions of the government. It is chiefly on the east side of Greece, where the older rocks protrude through the superincumbent limestone, that metalliferous veins have been found. The silver mines of Laurium, in Attica, which were extensive enough to employ 10,000 slaves, and supported the Athenian navy at one period, are now entirely abandoned. Copper also was anciently found in Attica. Ores of iron, gold, silver, lead, or alum, were wrought in Eubœa and Melos, Naxos, Siphnos, and others of the Cyclades. The gold and silver mines of Macedonia yielded Philip 1000 talents a year. At Nisoro, in this country, there is still worked a silver mine, which affords a scanty produce of from fifty to 400 okes[2] of silver, and 4000 or 5000 okes of lead annually. Marbles of many varieties are abundant in Greece. Those of Paros and Mount Pentelicus, which are both highly crystalline, were employed in the finest works of sculpture and architecture. At Selinizza, in North Albania, there is a very extensive mine of asphaltum, or compact mineral pitch. The bed, seventy or eighty feet thick, and near the surface, is supposed to extend over a span of four miles in circumference. Carburetted hydrogen gas issues from several crevices of the ground near it, and inflames spontaneously; a phenomenon distinctly alluded to by ancient authors, and connected in this and other instances with the superstitions of the Greek mythology.[3]

There are few or no diseases peculiar to Greece. Like all the countries on the shores of the Mediterranean, it suffers greatly from malaria. This prevails chiefly in the months of August and September, and produces remittent or intermittent fevers, which attack those who reside in low situations, near the mouths of rivers, or in the neighbourhood of lakes, marshes, or rice grounds. The ancients were aware that fevers of this description affected certain districts; but, undoubtedly, the sphere of their influence has been vastly extended by the neglected state of the country. Attica, though one of the driest districts of Greece, is not entirely exempted from them. These fevers, recurring frequently, vitiate the system, and produce goitres and scrofulous complaints. Coughs, catarrhs, and apoplexies, are prevalent in some districts; and elephantiasis, and leprous affections, arising probably from deficient and unwholesome nourishment, are more common than in other countries. The plague occurs at irregular periods, and makes great ravages, but is generally believed to be imported from Constantinople, Smyrna, or Egypt. The first appearance of this dreadful scourge spreads alarm and terror through the whole community. The affrighted imaginations of the people represent to them nocturnal concerts of music, voices murmuring amidst the silence of night, spectres wandering about on the roofs of houses, covered with funereal rags, and calling out the names of those who are to be cut off from the number of the living.[4]

Greece.

Agriculture.

A rapacious and tyrannical government, like the Turkish, depresses every species of industry, but is particularly fatal to agriculture, which requires the investment of large capitals, with the prospect of only distant returns, and which yields products that cannot be concealed. The Turkish landlords and farmers are too sluggish and ignorant to attempt the smallest improvement; the other classes are too much exposed to pillage; and all must be affected by the insecure tenure of their lands. In Greece, as in other parts of Turkey, all lands hold immediately of the sultan, and on the demise of the incumbent, vest anew in him. When the Turks conquered the territories they now occupy, the lands were taken from the native proprietors, and a part of them distributed among Turkish colonists in *zaims* and *timars*[5] (the one exceeding 500 acres in extent, the other from 300 to 500), on condition that the possessors, with a stipulated number of followers, should serve in the armies during war. Any of these properties which fell vacant during active service were bestowed upon the volunteers who had signalized their valour in the hope of obtaining such rewards; and there are instances of the same lordship having been eight times disposed of in the course of one campaign. Another part of the land was appropriated for the support of mosques, or as appanages to the great officers of state, the mother and mistresses of the sultan, and the children of the imperial family. The residue, burdened with a territorial impost or land-tax, was left, by an undefined tenure, to the ancient inhabitants. (Thornton, 164.) In general, both Greeks and Turks pay a quit rent to the aga or local governor, besides the land-tax of one tenth to the sultan. We do not find it anywhere stated what proportions these different species of property bear to one another; but it is obvious that a great part of the land is held by persons who have but a liferent interest in it; and though custom may temper a rule so pernicious, and the right of resumption may not be rigorously exercised at the demise of each incumbent, it will still be made a ground for vexatious demands, and render the transmission of property dependent on the caprices of provincial governors. To this must be added the farther insecurity arising from bad laws badly administered; from the extortions practised by every class of public functionaries, civil and religious; and, last of all, from the depredations of bands of robbers, who descend from the mountains, sometimes in parties of five or six hundred, to dispute with the local rulers the right of plundering the unhappy husbandman. Ali, the late pasha of Albania, permitted no sale or transfer of lands within his dominions without his special consent. He held great quantities of land himself; and, not content with buying it from those who were disposed to sell, he compelled others, by quartering soldiers on them, and harassing them by vexatious demands, to part with their lands for an inadequate price. He was believed to be the proprietor of one third of the whole cultivated country under his government. In such circumstances, it need not surprise us that cultivation is badly conducted, the peasants poor and wretched, and the country a wide waste, affording a miserable subsistence to two millions and a half of inhabitants, where three or four times as many lived in comfort and prosperity in the days of Xenophon.[1]

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[1] Holland, 47, 137, 411, 426; Hobhouse, let. 24.; Pouqueville, p. 29, chap. xv.; Clarke, vi. 585, vii. 102; Arist. *Meteor.* l. 2, c. 2.

[2] The *oke* is equal to 2¾ pounds avoirdupois; Dr Holland says 2½; but Beaujour, the best authority on this subject, makes the oke equal to 40 Paris ounces, which are equal to 43·3 English ounces. The cantaar or quintal is generally 44 okes = 121 pounds. The kilo or quilot of corn is 22 okes, or 60 pounds. (Beaujour, let. 24.)

[3] *Travels of Anacharsis*, Eng. edition, 1791, ii. 424, v. 34; Holland, 416, 518; Walpole, 228; Clarke, vi. 348, vii. 462; Tournefort, let. 4. 5.

[4] Pouqueville, chap. xvi.; Clarke. vii. 470; Walpole, p. 13.

[5] The number of these feudal lordships is variously stated. Olivier says there are 914 *zaims*, and 8356 *timars*, in European Turkey. If these are estimated at 500 acres each, they will not amount to more than 1-20th or 1-25th of the whole lands, including mountains.

Corn.

The most considerable proprietors, both Turks and Greeks, live generally in towns, and the land is let to the peasants on a system resembling that of the metayers in France. The farms are let from year to year; the landlord furnishes cottages, cattle, and seed; the tenant labours the ground; and after a tenth of the produce is set aside for the public tax, the remainder is divided into three parts, of which the tenant gets one and the proprietor two. When the tenant has cattle and a house of his own, he gets one half. In the chiflicks or farms belonging to Ali, who was a rigorous landlord, two thirds were taken when the peasant found stock and seed, and five sixths, it is said, when he furnished nothing but labour. Enclosures are extremely uncommon, and scattered hamlets or cottages are scarcely anywhere seen, the peasants living in villages for the sake of security. Both the husbandman and shepherd, when employed in the fields, has always a musket slung over his back, besides a pistol and sword at his side. Their cottages are hovels built of mud, straw, and boards, generally without an opening to let the smoke escape. Sometimes they are without walls, and consist merely of wooden poles laid together in the form of a tent, and covered with turf, like the huts of savages. Women are employed in the labours of the field in Albania and Maina, but rarely in other parts. The cultivation of corn land is generally rude and slovenly; but in some districts, where, from local circumstances, the people are well protected, it is neat and clean, though not skilful. Cotton and olive grounds and vineyards, which are laboured chiefly with the hands, are managed with more care; and, in general, that part of the cultivation which depends on manual labour, and requires neither capital nor good implements, is best executed. The management of sheep and goats is also better conducted than that of arable land, doubtless because store farms are generally in situations more capable of defence, and their stock is easily removed. In gardening, the Greeks turn up the soil with a mattock, being unacquainted with so common an instrument as a spade. The implements of agriculture are few and simple. In light lands like those of Messenia, the plough consists merely of a share pointed with iron, without any other parts attached to it. It is dragged by one horse or two asses. In stronger soils the share is fixed into a plough with one handle and two mould boards, and in some cases with block wheels. In Albania the plough consists of a pole, a share, and one handle, all of wood except the share, which is pointed with iron. In Bœotia, Thessaly, and Albania, and in Greece generally, the plough is drawn by two oxen, sometimes by asses or buffaloes, very seldom by horses. A hundred stremata of land require four oxen if the soil is light, or eight oxen if heavy. The strema is stated to be forty square paces; if yards are meant, it will be very nearly one third of an acre. The corn, cut with a sickle, is separated from the straw in the ancient mode, by treading it under the feet of oxen or horses. Fallowing is practised, and manures are used, though the small quantity of ground in tillage will, of course, render it unnecessary to cultivate poor soils, which require much artificial nourishment. In some few parts of Macedonia and Thessaly a sort of clumsy car with solid wooden wheels is used, but everywhere else wheel-carriages seem to be unknown, produce and goods of all kinds being carried on the backs of horses, mules, or camels.

The most common crops are wheat, barley, maize, and rye; besides these, oats in very small quantity; rice in marshy spots, millet, peas, beans, tares, sesamum, and anise, with cotton and tobacco. Turnips, if raised at all, are confined to gardens, and potatoes seem to be entirely unknown. The corn, sown in November or February, is high in the beginning of March, and is cut in May. It is sometimes sown as late as April, and reaped in two months. After a crop of barley, cotton is sometimes sown and reaped the same season. The soil of Attica is too light for wheat; and hence barley, as in ancient times, is still the prevailing crop. In the Ionian Isles, and probably in the moister parts of Greece, wheat is protected from the effects of heavy dews by two persons dragging a long rope over the field, so as to shake the husks. In the rich soils of Macedon, to save the wheat from being injured by superabundant nourishment, it is usual to let it be eaten by sheep early in the season, a practice familiar to the ancient Greeks. Notwithstanding the wretched system of culture, the produce is large. The most fertile parts are the plains of Thessaly, Bœotia, Sicyon, Argos, Messenia, Arcadia, and Macedonia. The soil of the latter, in the opinion of Beaujour, is superior even to that of Sicily. An arpent[2] of this soil usually produces from twenty-five to thirty quintals (hundredweights) of wheat. In the Arcadian plains wheat of several kinds yields twelve for one; in those of Argos ten for one; in Eleusis, the primitive seat of agriculture, and in Thessaly, twelve for one. The produce of good soils, generally in favourable seasons, is estimated by Mr Hawkins at ten or twelve for one; and of the best soils, in very favourable seasons, at from fifteen to eighteen for one. If these estimates are well founded, considering the rude system of cultivation, they are proofs of a very great degree of fertility. In England, the average return from the seed, notwithstanding its highly improved agriculture, is believed not to exceed nine for one. The very best soils yield from six to seven quarters of wheat per acre, weighing from twenty-four to twenty-eight hundredweight; but from ordinary soils, the average produce per acre is only about twenty or twenty-one bushels, weighing from ten to eleven hundredweight. Greece exports corn to a considerable extent.[3]

Pasture.

Greece, abounding in mountains covered with herbage, is eminently a pastoral country; and the management of sheep is better understood than the other branches of rural economy. The modern breeds, however, have declined much from the ancient in beauty and value. The flesh is but indifferent, the wool of inferior quality, and the weight of the sheep is only from thirty to fifty pounds. The flocks of Arcadia and Livadia, especially those which feed upon Parnassus, are considered superior to the others. A black-woolled breed is very common. In Greece, as in Spain, the flocks migrate from the inland mountains to the low valleys near the sea at the approach of winter. Attended by the owners, with their servants, they come down in October in

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[1] Thornton. chap. iii. v.; Beaujour, i. p. 3; *Travels in Sicily, Greece, and Albania*, by the Rev. T. H. Hughes, 1820, p. 82.

[2] An arpent is nearly equal to 1¼ English acre.

[3] Beaujour, let. 1, 5; Pouqueville, chap. xvii. p. 45; Walpole, p. 60, 290, 226, 150, 146; Holland, 36, 504, 248, 482; Hobhouse, p. 138, 135, 227, 354; Eton's *Survey*, p. 220; Williams, ii. p. 354, 411; Clarke, vi. 546, vii. 339; Hughes, ii. 81; Wheler (ed. 1682), p. 330; *Travels of Anach.* chap. lix.

Greece.

ast numbers to the low country, where they enjoy the ght of pasture under the laws or customs of the empire, d they return to the hills in April. The goats, which e also numerous, are shorn along with the sheep, and eir hair is made into sacks, bags, and carpets. The flocks e guarded from the wolves by very large and strong dogs, pposed to be descended from the ancient Molossian breed. ttica, which forms only the fiftieth part of Greece, was ated before the revolution to possess 100,000 goats and ,000 sheep, about one tenth part of which are killed yearl. And yet it is not so much a pastoral country as Albaa, Phocis, or Arcadia. The oxen, which are chiefly used r labouring, amounted to about 3000 in Attica: the cows, incipally kept for breeding, were rather less numerous. he oxen of the Morea are low in stature, have long white ir, and weigh from three to four hundred pounds. The ws there give little milk, and are exposed to jackals, hich tear away the teats, and to serpents, which are said suck the milk. About 6000 head of cattle were consumd annually in the Morea; but as both Turks and Greeks efer mutton, the number of sheep killed was incomrably greater. A very fine breed of oxen is found in at district of Albania which corresponds to the ancient haonia, and which has probably derived its beauty from e ancient breed of the country, celebrated by Aristotle, lian, and others. In all parts of the Morea, buffaloes, hich are handsome animals, with fine skins, are used in sbandry, and when unfit for labour are killed and eaten. he horses of the Morea are little to be admired for their auty, but are active, vigorous, and sure footed. The ses, which are numerous, but small and mean, are used beasts of burden; mules and camels are employed in the me capacity, but the latter are brought from Asia, and e not numerous. The annual produce of Macedonia, in ool, is estimated by Beaujour at 700,000 okes (2,000,000 unds); of the Morea, by Pouqueville, at 12,800 quintals ,500,000 pounds): and it sells at about fifteen piastres[1] 8s. 9d.) the quintal. The Morea produces annually about ,500 quintals of cheese (chiefly from the milk of sheep d goats), which sells at seven piastres the quintal, or about e penny per pound.

Cotton is cultivated from one extremity of Greece to the her, but on the greatest scale in the district of Seres in acedonia, a rich and populous plain watered by the anent Strymon, and containing three hundred villages, so ar one another as to present the appearance of one large raggling town. Cotton is a more profitable, but more ecarious crop than corn; requiring clear sunshine, coous dews, and light rains, to make it succeed. An arnt of good soil produces from two hundred to three huned okes (550 to 825 lbs.) of cotton. The plain of Seres one produced 70,000 bales, or seven millions of okes, of tton, of which 50,000 bales were exported. Considerle quantities are also raised in the ancient Chalcidice nother district of Macedonia), in Thessaly, Bœotia, and e Morea. The annual produce of the last, according Pouqueville, was only 59,000 okes, exclusive of two rgoes exported.[2]

Tobacco.

Tobacco, though introduced into Turkey only about the middle of the seventeenth century, is now a luxury in universal use. It is cultivated on a very narrow scale in the south of Greece, but to a considerable extent in Albania and Macedonia, and of a quality much esteemed. The Turkish plant is not however so pungent as that of America, and latterly the produce seems to be diminishing. The quantity annually raised in Macedonia was estimated by Beaujour (between 1787 and 1797) at 100,000 bales, or 10,000,000 okes, valued at 4,000,000 piastres. It occupied about one eighth of the cultivated soil, and afforded support to 20,000 Turkish families. One half of the quantity raised was exported to Egypt, Barbary, and Italy. In 1812, the annual produce, as stated to Dr Holland, was only from 35,000 to 40,000 bales. (Beaujour, let. 3; Holland, 329; Hobhouse, 15.)

Olives.

The olive is cultivated throughout Greece generally, but that of Attica is still distinguished, as in ancient times, by its superior excellence. It requires a dry soil, a sheltered situation, and a warm exposure; and is therefore not adapted to the rich, moist plains of Bœotia and Thessaly. The tree gives fruit the twelfth year, arrives at full vigour about the twentieth, and, when not exposed to frost, is so durable, that the present olives of Palestine are believed to date from the Crusades. An arpent of ordinary olive ground will nourish a hundred and twenty trees, each of which yields in good years twenty, but in average years ten, French pounds[3] of oil, and as this sells at six or eight paras the pound, the whole value of the produce is about L.12 sterling. Before the revolution, Attica yielded annually of this oil 2,400,000 pounds, of which three fourths were exported. It is at present, as it was in ancient times, the staple produce of the country; the tree was indeed considered as a special gift from the gods; and its cultivation was favoured by peculiar protection and encouragement, as far back as the reign of Cecrops. The Morea, according to Pouqueville, yielded 5,570,000 pounds of oil. The amount of the produce of Albania and other districts is not known. If the opinion of the ancients is well founded, that the olive does not thrive at a great distance from the sea, it may be presumed that the plantations in the interior of the country are less numerous than on the coast.[4]

Vines.

Vines are cultivated on a small scale in Attica, Albania, Thessaly, and in most of the districts of Greece, but without the skill and refinement which the ancients had introduced into this branch of rural economy. Dr Clarke, however, observed some vineyards on Parnassus, which were managed with much care and neatness, and afforded excellent wines. In general, the Greek wine, owing to the resin and lime mixed with it, has an unpalatable harshness. Pouqueville estimated the produce of the Morea, in wine and brandy, at 32,300 barrels, of fifty okes each, or about 550,000 gallons. If the vineyards are not more extensive in other quarters, the whole produce of the country must be inconsiderable.[5]

Currants.

The species of grape called the Corinthian grape, or the currants of commerce, is almost peculiar to the Morea and the Ionian Isles, though believed not to be indigenous in these countries. It is found in the greatest perfection along the southern shores of the Corinthian Gulf, on some points of the opposite coast, and in Cephalonia, Ithaca, and Zante. Beaujour thinks it was brought from Naxos about 1580; and it must therefore have been unknown to the ancients on the continent. It succeeds best in plains near the sea, with a western exposure, and prefers a dry, light soil. The mean annual produce of the Morea before the revolution was estimated at 10,000,000 pounds, of which 8,000,000 were exported to the western parts of Europe, chiefly to Britain. They were sold at eighty piastres the thousand pounds, including duties and expenses, which add sixty or seventy per cent. to the first cost. Patras is the centre of this trade. (Beaujour, let. 8.)

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[1] The piastre is equal to 40 paras, and the para is equal to 3 aspres. The value of the piastre, from the progressive debasement the Turkish coin, has been continually sinking; and it is besides liable to fluctuations from variations in the rate of exchange. Dr handler, in his time (1764), reckoned the piastre worth 2s. 6d. English. Beaujour says, that in his time (1787 to 1797), its intrinc value was 28 sous (1s. 2d.), but its value in exchange was, on an average, about 37 sous (1s. 6½d.). Dr Clarke (1800) represents it worth 1s. 4d. Mr Hobhouse (1809) says, that when the exchange is at par, 17½ piastres are equal to one pound, which gives 1s. d. for its value. Dr Holland (1812) generally reckons the piastre about 1s. 1d. Mr Williams (1817) makes it worth 8d. in exhange; and in 1832 Mr Urquhart estimates the piastre at the 75th part of a pound, or 3¼d. (*Turkey and its Resources*, 1833.) In e calculations in this article, the piastres are generally turned into English money, at the value assigned them by the author from hom the facts are taken.

[2] Beaujour, let. 2; Pouqueville, 462; Holland, 227, 248.

[3] The French pound is to the English pound avoirdupois as 100 to 92.

[4] Beaujour, let. 7; Pouqueville, 462; *Trav. of Anach.* chap. lix.; Theophr. *Hist. Plant.* vi.

[5] Clarke, vii. 254; Holland, 212; Hobhouse, 91; Pouqueville, 462; *Trav. of Anach.* chap. lix.

Madder.

Madder grows wild in abundance, but is an object of cultivation in the moist plains of Bœotia, where 1200 sacks (of 275 lbs. each) are raised, of which 700 are consumed in Greece in dyeing spun cotton, and the other 500 are exported. The produce of vermilion from the kermes insect is considerable. The canton of Livadia furnished 6000 okes, and the Morea 22,000 okes, valued at from six to eight piastres the oke. A part is exported.[1]

Silk.

The mulberry tree is becoming an object of increasing importance in Greece, and the produce of silk is considerable. The districts that take the lead in this branch of industry are Elis, Thessaly, and Magnesia, now Zagora. It is chiefly conducted by the women. The annual produce of the Morea in silk was about 79,000 okes, that of Zagora 25,000 okes; which sold at fifteen or eighteen piastres the oke. A part of the silk of Thessaly is sent across the mountains to Albania.[2]

Honey.

The management of bees is an object of considerable attention. This branch of industry is even so far favoured by the Turks, that hives, under a regulation of Soliman II. are not seizable in payment of taxes. Honey is abundant in every part of Greece and Albania, but that of Mount Hymettus still maintains its ancient pre-eminence. It is remarkably transparent, and, in the opinion of Beaujour, is superior to the best honey in France. There were about 3000 hives on this mountain, and 12,000 in the whole of Attica, which yielded 360,000 pounds of honey and 24,000 pounds of wax. About one tenth was consumed within the country, the rest was exported. The honey sold before the revolution at eight or ten paras the pound, the wax at a piastre. The produce of the Morea in honey, judging from Pouqueville's table, does not much exceed one half of that of Attica.[3]

Fruit trees.

The fruit trees which grow in the fields or gardens of Greece, besides the vine and the olive, are, the almond, pomegranate, orange, lemon, citron, banana, fig, with the peach, apricot, quince, plum, and others of a more common kind. The date grows, but does not bear fruit. The process of caprification, or exposing the fig to be punctured by insects, which is minutely described by Pliny, is still in use, and is thought to improve the fruit greatly. The gardening of the Greeks is badly conducted, and many of their fruits want the rich flavour which might be given them by the art of engrafting. Their melons, water melons, and gourds, are excellent, and form a considerable part of the subsistence of the inhabitants. Their culinary vegetables, of which they have no great variety, are spinage, artichokes, cabbages, cauliflowers, carrots, beans, lettuce, celery. The forests produce the oak, kermes-oak, cork-tree, pine, larch, ash, plane, aloe, wild olive, the sweet chestnut, whose fruit is the temporary food of the people in many parts, the *Fraxinus ornus*, or ash which yields manna, the turpentine pine, various trees and plants which yield dyes; and a vast variety of flowers and aromatics.[4]

Wild animals.

The wild animals of Greece are, the bear, wolf, lynx, wild cat, wild boar, stag, roebuck, wild goat, badger, marten, fox, hare, jackal, weasel, and hedgehog. The bears are rarely seen; but the wolves are numerous; and to guard the flocks and cattle from their ravages, great numbers of dogs, of a powerful and fierce breed, are kept all over the country. The peasant who kills a wolf is rewarded, not, as in the time of Solon, out of the public funds, but by a small voluntary contribution. Hares are very abundant, but they are not much hunted, except by the Greeks. The method of *calling* hares, or causing them approach the hunter by a particular cry, and then shooting them, is practised.

Of birds, there are very large vultures, various species of falcons and owls, the cuckoo, roller, king's fisher, ducks of several kinds, the domestic goose and turkey, the stork, which arrives at Athens in March and departs in August, partridges numerous, wild pigeons, quails, snipes, teal, blackbirds, the goldfinch, nightingale, the beccafica, a very small bird, the swallow, martin, &c.

The seas, lakes, and rivers, abound with a variety of fish, and the phoca is found on the coast.[5]

Arts and manufactures.

The mechanic arts are necessarily in a rude state in Greece, though the vices of the government do not operate so injuriously upon them as upon agriculture. Numbers and union give a certain degree of security to the artisans of towns, which the rural inhabitants cannot possess. But, on the other hand, these arts can only flourish when they are bottomed on knowledge generally diffused; and when entirely separated from scientific principles, they unavoidably degenerate into empirical processes, which are continued by servile imitation. Accidental circumstances may improve some, and prevent others from retrograding; but they are not so connected as to advance equally, or carry forward each other. This is obviously the case in Greece. Some of the ruder mechanic arts have been created or preserved by the indispensable wants of society; others have been imported to minister to the luxury of the great; and a few seem to be fragments saved from the wreck of former knowledge. Hence trades and professions equally necessary are exercised with very different degrees of skill, and seem to belong to different stages of social life. On the other hand, travellers sometimes mislead us, by not sufficiently attending to the fact, that the household furniture of the Turks or Greeks, and the implements and accommodations required for every situation and employment, are few and simple compared with ours. Works, however, are executed requiring much more skill than many others, the want of which is sometimes referred to as a mark of barbarism. The agents of the British ambassador could not procure a wheeled cart or a ladder in Athens; but it ought to be recollected, that the Greeks, who inhabit a mountainous country, with steep unpaved roads, have some reason for employing pack-horses instead of wheel carriages, as we did in Scotland sixty or seventy years ago; and if the tradesmen who construct the mosques, the baths, and the palaces of the pashas, would not or could not make a cart or a ladder, it was certainly not from want of skill, but want of practice.

It would be absurd to compare the manufactures and mechanic arts of Greece with those of England or France;

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[1] Beaujour, let. 9, 10; Pouqueville, 462.

[2] Beaujour, let. 11; Pouqueville, 200, 462; Holland, 245.

[3] Beaujour, let. 6; Pouqueville, 203, 462; Holland, 510.

[4] Pouqueville, chap. xvii.; Hobhouse, 69, 227. For an account of the plants of Greece, see a paper by Dr Sibthorpe in Walpole's *Memoirs relating to European and Asiatic Turkey*, p. 235.

[5] Walpole, 73–77; Chandler, 126; Pouqueville, chap. xvii.

but they are probably little, if at all, inferior to those of Hungary or Poland. In the villages and small towns, carpenters use no other instruments than a saw, a hammer, and a hatchet; and it is only in large cities that gouges and chisels for making mortices are employed. Artists, however, and tradesmen, are found capable of constructing water and wind mills, and building bridges. The churches and mosques are often substantially built and well finished, though designed in bad taste. The palaces of the pashas are generally executed in a very sumptuous style; they are beautifully wainscotted, have marble floors sometimes inlaid, are adorned with good carved work and gilding, with paintings not at all despicable, and with various decorations, which would be thought handsome even in the west of Europe. The baths, fountains, and sepulchral monuments, also display some good architecture. In some few cases it is probable these works are executed by foreign artists. Ships of considerable burden are built at Hydra and Spezzia. There are goldsmiths among the Greeks and Turks, who can combine the metals, and execute devices neatly enough upon sword-belts and scabbards, though their workmanship is inferior, in taste of design and delicacy of execution, to that of English and French artists. Knives and forks are made at Athens, daggers and other articles of armoury at Mistra. Good pottery, resembling the ancient in purity, brightness, and elegance, is made at Larissa. The saddles, bridles, and housings of the Turks, are well made, according to their fashion, and elegantly embroidered. The Greeks paint in fresco, by a peculiar process, and are possessed of a method of painting in wax, and fixing the colours with heat, which has been thought to be substantially the same with the ancient encaustic painting. The fabrication of images of saints is a considerable branch of manufacture. They are formed mechanically from a model or prototype, which is handed down from father to son; and hence the remarkable uniformity of feature in these images. The Greeks of Yanina and other places embroider well on stuffs of various kinds; and the artisans of Larissa, Yanina, and Salonica, have long excelled in the preparation of Turkey leather. Soap is made at Tripolizza; the art of dyeing is practised in many places with much skill, and in particular the secret of giving a fast red colour to cotton was long confined to the Greeks of Thessaly, though now known both in France and England. The cloth manufactures of Greece are chiefly of a coarse kind, for home consumption; but they embrace also some articles of a finer description for exportation. A silken robe, of very delicate net-work, made in Greece, is believed by Beaujour to be the same sort of fabric as the ancient *gauze of Cos*, or *cloth of air*, except that the latter was made of linen. Ten thousand of these are annually exported from Salonica to other parts of Turkey. Shawls for turbans, serges, velvets, satins, and various silk and cotton stuffs, are made at Tornavos in Thessaly, at Tripolizza in the Morea, or other places. The carpets of Salonica, though inferior to those of Smyrna in brilliance of colour, are equal in quality, and are much esteemed in the west of Europe. Of woollens, the principal manufactures consist of coarse fabrics, called *abats*, used for clothing by the peasantry, and of carpets or cloaks, an article in universal use among the Albanians, and also in great demand among the mariners of the Levant. These are chiefly made by the Wallachians, and other inhabitants of the mountainous parts of Albania, Thessaly, and Macedonia. But the species of manufacture which probably employs the greatest number of hands is the spinning and dyeing of cotton yarn. In Thessaly and Macedonia, 20,000 bales, or 5,500,000 pounds, of cotton were spun annually. The large village of Ampelakia, which overhangs the defile of Tempe, containing 4000 inhabitants, was entirely supported by this manufacture; and it forms the most considerable branch of industry in Tornavos, Larissa, Pharsalus, and in all the villages on the declivities of Ossa and Pelion. Of the yarn, a large proportion is sent to Germany. In general, the manufactures of Greece are carried on by mere manual labour, without combination, and without the aid of machinery; and, considering the disadvantages they labour under from these circumstances, it is rather matter of surprise that they are so extensive. The most industrious provinces are Thessaly, Macedonia, Albania, the Morea, Attica, and Livadia. The western part of Bœotia, with Phocis, Locris, Ætolia, and Acarnania, are totally destitute of manufactures.[1]

Physic is practised partly by Greeks who have received some education in Italy, and partly by Italians. Many of them, however, have received no education at all, but are adventurers, who, having failed in trade, put on the Frank habit, which all the physicians wear, and commence practitioners. With a few exceptions, they are extremely ignorant and prejudiced; and their practice is limited to the use of bleeding, and a very few remedies. If the disease does not yield to these, the papas is called in, and recourse is had to exorcism. Surgery is chiefly in the hands of the Albanians, who have skill enough to reduce fractures and dislocations, but never attempt amputations, or other operations of any difficulty.[2]

Commerce.

Greece, deeply indented on three sides by arms of the sea, encircled by numerous islands, and having its inland communications obstructed by mountains, has a natural tendency to become a commercial country; and, from various causes, its foreign trade has suffered less from the wretched policy of its government than either its agriculture or manufactures. The foreign merchant always assumes, in a certain degree, the character of a citizen of the world: Having his capital scattered over many countries, only a small part is within the grasp of tyrannical rulers at one spot; and, when oppressed or disturbed, he can, with greater ease than any other person, transfer his wealth and industry to some other place where they will be more secure. Originally, the commerce of Greece was carried on almost entirely by foreigners, whom the Turkish government found itself compelled to treat with some degree of respect; and the Greeks, who latterly engaged in it, partly by procuring protections from foreign powers, and partly from the force of custom, insensibly acquired a share of the consideration and the privileges enjoyed by the class to which they belong. What contributed perhaps still more to their security was, that they were exempted from any immediate collision of interest with the Turks, who, from their aversion to foreigners, arising out of their religious bigotry, almost entirely abandoned commercial pursuits. The only exception to this was, that the beys and pashas, with the usual short-sighted cupidity of despotic power, monopolized in many cases the sale of the most considerable articles of export, such as corn and oil; and they of course greatly cramped the growth of these branches of trade. The Greeks are gifted in a peculiar degree with the practical sagacity and address required for conducting mercantile transactions; and finding the paths to distinction, and the pursuit of national objects, closed against them, their activity and enterprise flowed more abundantly into the channel of commerce. The ruin brought upon many foreign houses engaged in the trade of Greece, by the fluctuations and revolutions in the west of Europe during the last thirty years, threw a great portion of it into the hands of the Greeks themselves. And the annihilation of the commerce of France, Spain, and Italy, for a long period, by the ascendency of the British marine, gave the Greek traders a new and extraordinary importance as neutrals. Before the revolution, there were individual houses of this nation who had branches established in three or four of the chief commercial towns of Europe, and their ships made voyages as far as America. Within this period, too, the small barren rocks of Hydra and Spezzia, off the coast of Argolis, became the seats of an extensive and flourishing commerce, and rose suddenly to extraordinary wealth. In 1812, the former had 25,000 inhabitants entirely supported by trade, with about three hundred trading vessels, some of them as large as 500 tons.[1] The larger vessels were generally built at Fiume. Funds were supplied for fitting them out by capitalists residing in the island, who had acquired fortunes in trade, and lent out their money at ten, fifteen, or twenty per cent. The captain was generally a principal owner, and every person on board, down to the cabin boy, had a share in the speculation. (Holland, 424.) The Hydriotes purchased the right of electing their own magistrates from the porte, and they some years ago expended ten thousand pounds in building their town-house. (Hobhouse, p. 599.) Spezzia approached to Hydra in commercial importance, and Psyra had also acquired consideration by trade. The same cause which raised these places to consequence created a new trade of a very singular kind at the port of Salonica. Colonial goods, when the usual channels by which they were admitted to the Continent were closed in 1810, 1811, and 1812, were sent to Salonica by sea, and thence forwarded overland to Vienna by a route of 700 miles in length. The goods were transported on horseback; the journey generally occupied thirty-five days, and the expense was supposed to add about 100 per cent. to the import price of the articles at Salonica. In 1812, thirty cargoes came direct from England to Salonica, besides a still greater number from Malta and Gibraltar, and cavalcades of a thousand horses sometimes set out at once for Germany. (Holland, p. 323.) The Greek vessels were found trading in Egypt, Syria, Asia Minor, the Black Sea, and the Sea of Marmora; and a vast number of small craft plied among the islands of the Archipelago, and between these islands and the Continent. Thiersch estimates, that the internal and coasting trade of Greece employs 2000 small vessels, and 40,000 mules and asses. (*Etat actuel de la Grèce*, 1833, ii. p. 72.)

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[1] Beaujour, let. 1, 2, 14, 15, 16; Thornton, 16–28; Clarke, vi. 273, 280, vii. 344; Hobhouse, 75, 69; Eton, 232; Holland, 123, 133, 265, 288; Pouqueville, chap. xvii.

[2] Pouqueville, 194; Hobhouse, 535; Holland, 164.

The commerce of Greece with the other parts of the world is chiefly carried on by sea; but with Germany a considerable traffic is maintained by land. The town of Salonica, which is situated in the centre of the most fertile, populous, and industrious districts, Macedonia and Thessaly, is the principal seat of this commerce. As a trading city it rivals Smyrna, and is probably inferior only to the capital. The other most considerable ports in Greece are Orphano, at the head of the Gulf of Contessa, Volo in Thessaly, Athens, Nauplia in Argolis, Calamata, Coron, and Patras in the south and west sides of the Morea, Salona on the north side of the Corinthian Gulf, Arta, Butrinto, Avlona, and Durazzo in Albania. The exports, which consist principally of raw produce, are corn, cotton, tobacco, olive oil, timber, wool, silk, honey, currants, figs, hides, dyestuffs, drugs, with some wine, cheese, butter, live cattle, spun and dyed cotton, some capots or cloaks, carpets, coarse woollens, and a few slight fabrics of silk and cotton. The manufactured articles go chiefly to the other provinces of Turkey. The imports from western Europe consist of manufactured goods, colonial produce, and peltry; those from other parts of Turkey, of coffee, flax, timber, rice, drugs, and some manufactured articles; those from Barbary, bonnets and slaves. Both imports and exports pay a duty of three per cent. if the merchant is a foreigner; but by a strange inversion of ordinary rules, the duty is from five to ten per cent. if he is a native. The goods imported are circulated through the country by fairs held in the great towns, and are transported from place to place on the backs of horses, mules, and sometimes camels. The prices are of course greatly enhanced by the risks attending carriage, and by the high rate of interest paid on capital, which is generally twelve per cent. in commercial transactions, and twenty per cent. in other cases. (Beaujour, let. 23, 24; Holland, 227, 326.)

In the ten years from 1787 to 1797, about one half of the foreign trade of Greece was with Germany. It was chiefly conducted by Greeks, and Vienna and Salonica were the principal entrepôts. The Germans took cotton, raw and spun, from Greece, and returned light woollens, linens, muslins, glass, cutlery, &c. to the value of one third of their imports, and the other two thirds in specie. The Italian commerce, which is next in importance to the German, is carried on chiefly with the ports of Leghorn and Venice. It supplied Greece with fire-arms, glass, paper, silks, &c.; Russia sent silks and peltry; France, woollens, bonnets, gold lace, sugar, coffee, and indigo; Holland, cloth and spiceries; and England, woollens, muslins, linens, metal wrought and unwrought, watches, trinkets, jewellery, and colonial produce. (Beaujour, let. 17, 23.) Except Russia and England, all those states make a part of their returns in specie. The late long wars, however, have made a considerable change in the distribution of this trade. The new establishments of Britain in Malta and the Ionian Islands must have transferred to her a part of what was formerly in the hands of the French and Italians.

Cotton.

Cotton, according to Beaujour, ranks first among the staple exports of Greece, and four fifths of the trade in this article is conducted at Salonica. On an average of the ten years ending 1797, the district of Seres in Macedonia, where the most extensive cotton plantations in Greece are, furnished 50,000 bales, or 5,000,000 okes, for exportation, of which three fifths went to Germany. The price varied from 80 to 160 aspres the oke, or averaged about a piastre. But in 1809 the export of cotton from Salonica amounted to 110,000 bales, or 11,000,000 okes, and the price having risen to sixty, eighty-five, and even ninety paras, must have averaged nearly two piastres the oke. The export of the Morea, which, according to Pouqueville, consisted, about 1800, of two cargoes, probably 400,000 okes, must have increased from the same causes, and might be estimated at 600,000 okes. About 72,000 okes were shipped from Salona in 1805. Considerable quantities of cotton are raised in Albania, and more in Thessaly; and though a great proportion of these is consumed within the country, a part is exported by the ports of Volo, Arta, and probably also by Butrinto and Avlona. If we add for the exportation of these districts a quantity double of that of the Morea, or 1,200,000 okes, we may form a loose estimate of the whole export of cotton from Greece, which would thus amount, about 1809, to 12,872,000 okes, or 35,398,000 pounds,—a quantity nearly equal to what was exported by the United States in 1805. The value of this, estimated at one and three fourth piastre the oke, would be 22,526,000 piastres, or about L.1,200,000 sterling (taking the piastre at 1s. 1d., the value given by Dr Holland, from whom most

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[1] Holland, 424. Mr Hobhouse, who travelled in 1809, says, that Hydra could furnish men for 80 vessels of 300 tons, Spezzia for 60 (p. 600). With a small allowance for increase in the intervening period, perhaps the two statements are not inconsistent.

f the statements are taken). The opening of the Conti-
ent, however, in 1813, for the admission of West Indian
nd American cottons, produced a great diminution in this
ranch of trade; but the details are interesting, as showing
e commercial spirit of the people, and indicating the
rides their trade may be expected to make under more
avourable circumstances.[1]

The trade in tobacco, of which Salonica is also the chief
eat, seems to have latterly declined. Beaujour estimates
e annual export of this article, between 1787 and 1797,
t 60,000 bales, which went chiefly to Egypt, Barbary,
taly, and Germany; but Dr Holland, who travelled in
812, estimates it only at 30,000 bales, or 3,000,000 of okes.
he Morea, and the southern parts of Greece, generally
aise little tobacco, but import a great part of what they
se from Macedonia and Anatolia. Albania and Thessaly,
owever, yield a large produce, and export to some extent.
Vc have no account of the precise quantity, but if we sup-
ose it to be one fifth of what is shipped at Salonica, the
hole export of this article would amount to 3,600,000
kes, which, valued at thirty-six aspres the oke (about 1¾d.
e pound), including custom-house duties, would amount
o 1,080,000 piastres, or L.67,500.[2]

The exportation of corn to foreign countries is prohibit-
d in Turkey, but is carried on to a great extent clandes-
inely, by the beys and pashas themselves, or by merchants,
o whom they sell, for a large sum, the privilege of violating
e law. During the unsettled state of the west of Europe
e trade of Greece in corn seems to have increased ra-
idly. According to Beaujour, the export from the fertile
rovinces of Thessaly and Macedonia, by the ports of Sa-
onica, Orphano, and Volo, consisted annually of eighty
argoes to other parts of Turkey, and forty to France and
taly, making in all 1,200,000 kilos. In 1809 Dr Holland
stimates the export from Salonica alone at 1,000,000 kilos
f wheat, 500,000 barley, and 100,000 maize, altogether
qual to about 200,000 quarters. About fifty cargoes of
heat and maize were sent from Arta to Sicily, Malta, and
e Ionian Isles; 100,000 kilos from Salona, and 250,000
rom Livadia. The Morea, according to Pouqueville, sent
ut eight cargoes, or, according to Scrofani, about 240,000
ilos. If we put these quantities together, taking the car-
o, according to Beaujour's valuation, at 10,000 kilos, and
llow for the exports of Thessaly by the Gulf of Volo
which are not included in Dr Holland's statement), and
f North Albania by Avlona, Durazzo, and other ports, a
uantity equal to what is shipped at Arta, we shall have
or the whole export of continental Greece in corn before
e revolution 3,190,000 kilos, or 400,000 quarters. The
reater part of this consisted of wheat, the price of which
as latterly from five and a half to six and a half piastres
e kilo. Beaujour states the value of bread corn in his
ime at two and a half piastres; and Scrofani reckons the
rain of all kinds exported from the Gulf of Arta worth
hree piastres the kilo. If we assume the average in 1809
o be four and a half piastres, the value of the whole ex-
ortation would be about 14,950,000 piastres, or L.809,700
terling.[3] This may be considered as the true value of the
rain, only a small share of which, however, goes into the
ocket of the grower, imposts and exactions by the public
fficers absorbing the greater part. Considered in refer-
nce to the extent and circumstances of the country, the
xportation now stated is very large. Estimating the whole
opulation at 2,500,000, and allowing a septier of corn (about four and a half bushels) to each, according to Beaujour's calculation,[4] the whole consumption will only amount to 1,400,000 quarters; and the corn exported will form nearly one fourth of the entire produce.

Wool.

It has been stated that only a small proportion of the wool of Greece is wrought up in the country; but the amount of the export does not seem to warrant this assertion. From Salonica, according to Beaujour, the quantity exported is about 500,000 okes annually; from Salona, in 1805, it was 140,000 okes; from the Morea, according to Pouqueville, two cargoes, or, according to Scrofani, 340,000 okes. As sheep-farming is a leading occupation in Thessaly, and still more in Albania, the quantity exported from these countries (independently of what is carried inland to Salonica), and from Ætolia and Attica, cannot be less than from Macedonia and the Morea together; and, on these data, the whole export of wool may be loosely estimated at 1,800,000 okes (4,950,000 pounds), which, at the average price of twenty paras the oke, is worth about L.56,000 sterling. Considering the reputed number of flocks in Greece, and the small proportion of the wool said to be used in domestic manufactures, this estimate is probably below the truth. The Jews of Salonica, who were refugees from Spain two centuries ago, obtained from the Ottoman government the privilege of buying up one fifth of the wools grown in Macedonia, at four paras the pound; and this oppressive privilege they were permitted to retain and abuse to a late period.[5]

Oil.

The exports of Attica in olive oil, according to Beaujour, were 150,000 measures (of twelve pounds each), or about 14,000 barrels, at forty-eight okes to the barrel. Those of the Morea, according to Scrofani, were 21,000 barrels; Salona, in 1815, shipped 5000 barrels; and large quantities were sent out from the Gulfs of Volo and Arta, from Avlona, and probably from Salonica and Orphano. Considering the extent to which this tree is cultivated over all Greece, the annual produce for exportation would certainly be moderately estimated at twice the amount of the quantities above enumerated, or 80,000 barrels. The value of this, at twenty piastres the barrel, is L.100,000 sterling.[6]

Currants.

The commerce in currants centres chiefly in Patras, from which, according to Beaujour, 8,000,000 pounds were annually exported, the total value of which, at eighty piastres the thousand pounds, is L.40,000 sterling. Dr Holland states the export from Patras at 5,000,000 pounds, Scrofani at 6,000,000. (Beaujour, let. 8; Holland, 433.)

Miscellaneous articles.

The only exportable commodity worth naming possessed by Attica, besides oil, is its honey, which is famed over all Turkey. Of this article and wax it exported to the value of 100,000 piastres. Twenty or thirty cargoes of timber were sent from the Gulf of Arta, besides large quantities from Macedonia and Thessaly; and from one or other of these districts were also exported silk, wine, hare-skins, honey, opium, drugs, bees-wax, carpets, and some capots, and other coarse woollen cloths. Vermilion and madder are exported from Livadia. Of the nature and extent of this trade we can only form a judgment by referring to that of the Morea. Besides the produce of corn, oil, currants, cotton, and wool, formerly mentioned, the Morea exported on an average, according to Scrofani, silk, to the value of 407,000 piastres; cheese, 459,000 piastres; cattle, 240,000; fruits, 139,000; dye-stuffs, 202,000; wax and honey, 140,000. These, with smaller articles, to the value of 238,000 piastres, make a total of 1,725,000 piastres. From this must be deducted the value of goods sent to other parts of Greece, supposing it to equal the imports of the same description, viz. 316,000 piastres, which leaves 1,409,000 piastres. If we suppose the trade of the north of Greece in these miscellaneous articles to be three times as great as that of the Morea (the ratio of the population is about five to one), or 4,227,000 piastres, we have a sum of 5,950,000 piastres, or L.377,000, to add to the value of the exports of Greece, in the great articles formerly enumerated,[1] and the whole will stand thus :—

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[1] Beaujour, let. 2; Holland, p. 84, 389; Pouqueville, p. 206.

[2] Beaujour, let. 3; Holland, 84, 151, 349; Pouqueville, 411.

[3] Beaujour, let. 4 and 23; Holland, p. 84, 389, 395, 517; Pouqueville, 206; Walpole, p. 226.

[4] The consumption of each individual in England is computed to be about 1 or 1¼ quarter of grain; and though the inhabitants of
reece live much on gourds, melons, chestnuts, and other substances of that kind, the estimate of Beaujour is certainly rather low.

[5] Beaujour, let. 5; Holland, 389. 84, 517, 499; Pouqueville, 206.

[6] Beaujour, let. 6; Holland, p. 84, 349, 389, 517; Pouqueville, 411.

Cotton, raw and spun	L.1,200,000
Tobacco	56,000
Corn	809,700
Wool	67,000
Olive oil	100,000
Currants	40,000
Miscellaneous articles	377,000
Total exports of continental Greece before the revolution	L.2,649,700

We are sensible that so many uncertain elements enter into this table as to detract greatly from its authority; but the reader is aware of the data from which it is compiled, and can judge for himself. The multitude of particular facts, given by different travellers, seem to be of little value, except as materials for some such general estimate; and the writer of an article of this kind is evidently in a better situation to form such an estimate than an ordinary reader.

With regard to this amount, it is proper to observe, that it refers to the period of 1809, when the commerce of Greece was forced up to an unnatural magnitude by the singular state of western Europe. The peace of 1814 reduced both the quantity and value of the cotton and grain exported, probably to the extent of a third or more, and the trade of Southern Greece was almost annihilated by the revolution. We may remark farther, that the sum expresses the value of the articles to the foreign purchaser at the place of export, which includes duties and charges, amounting, in some cases, to one third of the value; and, with regard to the article of corn, a considerable part is carried away without payment, as the produce of a tax; another part is forced from the grower, at a fifth or sixth part of its value, for the supply of the capital; while the sale of the remainder is either monopolized by the beys, or subjected to an arbitrary impost, paid as a bribe for permitting the exportation, in violation of the law. (Beaujour, vol. i. p. 119.) So great a proportion of the value is diverted into the pockets of the various classes of public functionaries, that the effect of the exportation, in stimulating domestic industry and production, is infinitely less than the aggregate amount would lead us to suppose. But when the extent and population of the country is considered, and the multiplied discouragements to industry, arising out of the government and state of society, the trade was surprisingly great, and shows what a high rank Greece may attain, as a commercial state, when her industry is unfettered, and enjoys security under a good government.

Shipping and seamen.

Though still proceeding on conjectural grounds, we may venture a step farther, in order to get at some idea of the naval resources of the Greeks. If we take the imports of the Morea (given by Scrofani) as a basis for the whole country, we should conclude that the trade of Greece, with other parts of Turkey and Barbary, is to her trade with foreign nations nearly as five to four. And, in a period of war (1809), when the Greeks appeared in the character of neutrals, it is probable that the whole of the former trade, and two thirds of the latter, would be carried on in Grecian bottoms. In this and other particulars the commerce of Greece bore a general analogy to that of America, both countries exporting raw produce of the same kind, and importing manufactures, and both acting in the character of neutrals. On the ground of this resemblance, we will suppose the coasting trade of Greece and its islands to employ about half the tonnage of its other trade. In 1810 we find the whole tonnage of the United States (foreign and coasting) was, to its exports, in the proportion nearly of one ton to forty-eight dollars; but, allowing for the inferior efficiency of Greek shipping, and the difference in the value of money, although their voyages are shorter, we may assign one ton to thirty-six dollars, as the proportion in the latter. This gives about 340,000 tons of shipping, of all sizes; and since the danger from pirates, as well as their own want of nautical skill, oblige the Greeks to employ an extra number of hands in their vessels, we may allow one man to ten or twelve tons, which will give 30,000 seamen. If we add half as many more for the Greek mariners employed at Constantinople, Smyrna, and other ports beyond the limits of Greece, the whole number of mariners of this nation, in 1809, may be estimated at 45,000, which does not fall greatly short of the number mentioned by Mr Hobhouse. More than one half of this commercial marine must have disappeared during the troubles of the revolution; but more prosperous times may recal it to existence.

Wages of labour.

The proportion between the rate of wages and the price of commodities in Greece affords an illustration of the dependence of the former on the habits of the population. The numerous fasts of the Greek church keep the peasant idle a great part of the year; and the consequence is, that, as he must have the means of subsistence, his wages, during the time he labours, are so much higher. Thus, Beaujour tells us, that, in his time (from 1787 to 1797), the wages of a peasant were from twenty to twenty-five paras a day, and of an artisan, thirty to forty paras; and, at the same period, beef was sold at six, mutton at twelve, and bread at four paras the oke (two and three-fourth pounds); and corn was two and a half piastres the kilo or bushel. Supposing a full-aged labourer to consume six or seven kilos of corn in the year, he observes, that such a person could earn bread for himself, for a whole year, in thirty-six or forty days, and food of all kinds in eighty; that he could provide subsistence for himself and his wife in a hundred and sixty days; and for a child besides in forty days more. The vast number of fasts, as he remarks, are the chief cause of these high wages, which do not enable the labourer to live well, but to live idle, and indulge his superstitious feelings. (Beaujour, ii. 168.)

Provincial governments.

The provincial governments of Greece bear the different denominations of pashalik, mousselimlik, agalik, voivodalik, according as they are administered by pashas, mousselims, agas, or voivodes. The pashas are the first of these functionaries in rank, and govern the largest districts; the others follow in the order in which they are named. The agas often take the title of Bey, though that belongs properly to military commanders one degree higher. The most essential distinction between them regards the extent of the districts they govern; for they are all independent of one another, and accountable separately to the general government. Each, as vicegerent of the sultan, exercises the full powers of sovereignty within his own district. This seems to be the theory of the government; but as theory and practice seldom coincide in Turkey, we find that in some districts the beys or agas are, to a certain extent, dependent on the pashas. The limits and the numbers of these provincial governments are often in a state of fluctuation, in consequence of the hostilities which the beys and pashas carry on against one another. The enterprising ambition of Ali, the late pasha of Albania, nearly obliterated all the ancient political divisions of Northern Greece. In 1812, the provincial governments consisted of five pashaliks, two voivodaliks, and a number of smaller districts, governed by beys, or officers of inferior rank. These were, 1. The pashalik of Albania, comprehending the territories which formerly constituted the pashaliks of Lepanto, Arta, Yanina, Delvino, Ocrida, Avlona, with the mousselimlik of Larissa, and several towns and small districts governed by beys, agas, or voivodes; the whole comprehending the ancient Epirus, Acarnania, Ætolia, Phocis, the greater part of Thessaly, the southern division of Illyricum, and the western divisions of Macedonia and Bœotia. 2. The pashalik of Scutari, consisting of the country watered by the Drino, a part of the ancient Illyricum. 3. The pashalik of Salonica, including all the lower part of Macedonia, except the districts belonging to the pasha of Albania. 4. The pashalik of Negropont, consisting of the eastern part of Bœotia, and the island of Eubœa or Negropont. 5. The pashalik of Tripolizza, comprehending all the Morea, except some maritime towns and districts. The pasha had under him twenty-four officers, governing the different cantons, some named beys, and others codjia-bashees or elders. 6. Attica and Livadia were each governed by a voivode. 7. The high country of Macedonia is divided among a number of beys or agas. 8. The small territory of Zagora, the ancient Magnesia, was under the government of the Greek primate of the country. 9. The district of Maina, in the Morea, was disjoined from the pashalik of Tripolizza, and though nominally subject to the capitan pasha, actually enjoyed a great degree of independence under the sway of its own beys, who are twelve in number, and live much in the condition of feudal barons. 10. All the Greek islands, with some maritime districts on the mainland, were under the authority of the capitan pasha. This enumeration of the provincial governments is not very complete, but may give an idea of its interior government before the revolution.[1]

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[1] Beaujour, let. 6, 9–11; Holland, 84, 389; Clarke, vii. 465–8; Pouqueville, 411.

The civil polity of the Turks is in substance the discipline and arrangements of a Tartar camp applied to the government of a nation. The pasha, like the commander-in-chief, determines every matter, civil, military, and judicial, with summary dispatch, and without reference to any other rule than his own untutored conceptions of right and wrong. Questions not of a criminal nature, however, between subject and subject, are decided by the mollah or judge, whose jurisdiction extends over both Turks and Christians. In the tribunals of these functionaries, bribery is almost open and avowed, and false witnesses form something like a regular profession. The gainer of a suit pays the whole expenses. The Turks themselves, aware of the notorious corruption of the courts, rather submit to injustice than seek legal redress. Avanies, or vexatious prosecutions instituted against Christians, for the purpose of compelling them to pay a sum of money as the price of abandoning the suit, are a regular source of revenue to the Turkish inhabitants of towns. The police of the Turks is as rude as their judicial system. An officer accompanied by soldiers traverses the markets in the great towns, and if he detects any person selling with false weights, the defaulter receives the bastinado for the first offence, is nailed by the ear to the door of his own shop for the second, and hanged for the third. Their attempts to correct evils often produce others of much worse description. If a complaint is made by some person of consequence, of a robbery committed, an enormous fine is levied on the district where it happened; or, what is still worse, a party of soldiers is sent out, who, under the pretext of searching for the robbers, oppress and plunder the peasants without mercy. An officer, named *dervendji-pasha*, charged with the inspection of the roads and bridges, makes an annual tour through the country, accompanied by a party of soldiers; but his inspection serves no other purpose than to extract money, under the name of fines, from the people, to fill his own pockets, while the roads and bridges are utterly neglected. Indeed all classes of public officers practise extortion, and Turks, Greeks, and Jews, are almost equally sufferers. Public offices are regularly sold to the highest bidder, and those who buy them of course reimburse themselves by one means or another. As the appointments are annual, the price is paid over again every year; and the only method of redress which is open to a city or district that is oppressed, is to offer a greater sum for the removal of its governor than he gives to obtain the renewal of his office. Very often, after an aga has amassed great riches, the Porte allures him into some large town, by the bait of a splendid employment, and there strips him of his wealth, and perhaps awards him the bowstring. The pashas live surrounded with a degree of pomp and splendour, which contrasts strangely with the squalid wretchedness of the people they govern. They are approached with prostrations, like eastern monarchs. Their places of residence are vast buildings, forts without, and palaces within, capable of containing a thousand or twelve hundred men. Besides a strong body of soldiers, they are filled with an immense retinue of servants, including menials, tradesmen, and artists; such as coffeemakers, sherbetmakers, confectioners, bathers, tailors, barbers, dwarf pages, black slaves, buffoons, musicians, puppet-showmen, wrestlers, conjurors, dancers, an imam (or priest), and, lastly, the executioner, the pasha's confidential servant, without whom he never stirs abroad, and who is the only person privileged to sit in his presence. In addition to all this, the harem, or women's apartments, forms a separate establishment, with its own train of servants. A pasha of Salonica, not peculiarly profuse in his habits, has been known to expend L.24,000 per annum on his domestic establishment. The mousselims, agas, and beys, support the same state in proportion to their circumstances. Wars are as common among these petty rulers as among the old feudal barons, and as destructive in their effects. The Porte, by a miserable policy, foments their quarrels, to weaken them individually, and increase their dependence on itself. The people, ruined by exactions, or the ravages of the military, abandon their homes, and fly to the mountains and forests, where they commence robbers. In some places the rural inhabitants live in houses which are built like small forts with draw-bridges and battlements. In addition to all the evils common to them with the Turks, the Greeks have many peculiar to themselves. They are made to feel their degradation by the most opprobrious distinctions. They are marked out by a peculiar costume, and are not allowed to wear certain articles of dress, or clothes or slippers of a light colour, or to paint their houses of those colours which the Turks use. It is death for a Greek to marry a Turkish woman, or to strike a Mahommedan even in self-defence. One of the lowest Turks will dismount from his horse, force a Greek from his shop, load him with his baggage, and compel him to follow him, without the poor Greek daring to utter a complaint. The wealthiest individuals of this nation are exposed to the most galling insults in their own houses. Dr Holland mentions, that while he was sitting with the Archbishop of Larissa, the most considerable Greek in Thessaly, a Turk of a surly and forbidding aspect, and evidently of the lowest class, entered the room, seated himself unceremoniously on the sofa, filled his pipe, and took coffee from the attendants. The archbishop was evidently embarrassed, but made no comment. After a short interval, he took a coin from his purse, and put it silently into the hand of the Turk, who immediately disappeared. In general, the inhabitants of the districts which are appanages of the great officers of state, of the *timars* or fiefs held under the sultan, and of the lands belonging to the church, are less oppressed than the others. The islands of the Archipelago, where Turkish governors do not reside, are also less disturbed; and mountainous districts, such as Maina, which are capable of being defended, are sometimes nearly in a state of independence. Local differences, indeed, in the political condition of the people, are numerous in Greece. Where the Christian inhabitants have wrested certain privileges from the Turks, they generally enjoy them undisturbed, from the mechanical adherence of the latter to habits once formed. Very often the degree of freedom and security which the Greeks enjoy depends on their numbers. In towns where they form a large part of the population, as in Athens, their numbers and union give them consequence, and their superior knowledge and address enables them successfully to elude or oppose the sluggish tyranny of the Turks.

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[1] Beaujour, let. 1; Pouqueville, chap. x.; Thornton, p. 122; Hobhouse, let. 14, 17.

The redeeming feature in the civil polity of the Turks was their municipal institutions, which, growing out of the anarchy of the government, proved to some extent a compensation for its oppressions. The conquering nation, too proud and indolent to concern itself much about the local and domestic concerns of the subject race, or to resort to disguised and indirect taxation, was content to fix the amount of tribute which each district should pay, leaving the rayahs to raise it in what manner they pleased, and to adjust such disputes as arose among them by the laws or usages to which they were accustomed. Hence every considerable Greek village, or every three or four where they were small, form a municipality, the inhabitants of which meet and choose, by open suffrage, magistrates under the name of primates or elders. They consist generally of the richest men in the district; sometimes they are chosen annually; sometimes for no definite period; but if they misbehave, they are deposed by the votes of the people, without regard to any term. Their functions are numerous and important. They apportion the tax imposed upon the whole community to each individual according to his property, and for this purpose they make it their business to ascertain each man's means of living, his industry and profits. It is their duty, by admonition or reproof, to prevent the negligence or misconduct of any individual from adding to the burdens of the rest. They assess and collect the poll-tax, house-tax, land-tax, and other imposts, which, in their mode of collection and repartition, vary in almost every village, but always depend on a scale of property. They manage the municipal funds raised for indemnifying families upon whom Turks have been billeted, for supplying provisions to troops passing through the place, and for defraying the expenses of the local administration. They borrow money on their own responsibility to discharge occasional demands of the government, or unexpected emergencies. They distribute lands left uncultivated or without heirs; they legalise contracts by affixing their signatures to them; and, jointly with the priests (also popularly chosen), they adjust quarrels, settle civil disputes, and exercise in some degree the powers of police judges. The village communities in Turkey, in short, resemble those in India. They are small associations framed on a republican model, paying a fixed annual tribute to a superior ruler, but possessing the power of regulating their internal affairs, almost uncontrolled. Such institutions, as they unite the people, by a sense of common interest, in furthering the good of each other, operate strongly to secure property and develope industry; and such was no doubt the secret of the wonderful prosperity exhibited by Hydra, Spezzia, Ampelakia in Thessaly, Seres in Macedonia, and other villages in Greece. Though Mr Urquhart, who first brought the nature of these municipalities fully to light, has perhaps overrated their advantages, there is no doubt that they contributed greatly to counteract the evils springing from the ignorance and rapacity of the Turkish government.[1]

Military force. The Turkish government being purely military, the privilege of carrying arms is considered a mark of distinction, and is reserved entirely to the Turks. Nearly the whole of this part of the population belongs either to the *toprakli* (feudal militia) or to the corps of janizaries. A Mahommedan unconnected with any military corps is, equally with Christians, liable to capitation-tax and other imposts; and this law, though not rigorously enforced, induced most of the Turks to enrol their children in their infancy. Hence in the cities every Turk was a janizary. But only a very small number of these were embodied; the whole corps of janizaries in actual pay in the empire having been only about forty thousand, according to Mr Thornton. They served in garrisons, and generally followed some trade. Their pay was originally about one shilling a day, and, though it continued nominally the same, was ultimately, from the depreciation of the coin, reduced to a fractional part of this sum. Small companies of *topgis* or artillerymen were also placed in the garrisons, but they were totally ignorant of gunnery; and very often the guns were without carriages. The *yamacks* or unembodied janizaries, and spahis, served merely to fill vacancies in the standing corps, and furnish extraordinary levies in time of war. These levies were made at the rate of one man out of ten persons of the families attached to the military bodies. When called upon for active service, they marched without uniforms, armed with fowling-pieces, pistols, lances, or such weapons as they could find. The Albanians, from greater practice in war, were better organized, though destitute of what would be considered discipline in regular armies. Many of the pashas, indeed, keep in their service a corps of Albanians, who have become the principal and far the most efficient part of the Turkish military in Greece. We do not find any accurate account of the amount of the military force actually kept on foot in Greece, or of the contingent furnished by it for the general service of the empire. But the pashalik of Salonica, with the mousselimlik of Larissa, which have a population of 500,000 souls, Greeks, Jews, and Turks, supplied, in time of foreign war, 15,000 men; and as the proportion of Mahommedans is much greater in these districts than anywhere else, perhaps the contingent for the whole country, including Albania, would not exceed three times this number. But so inefficient was the military administration, that generally not more that one half of the individuals called upon actually joined the army. The late pasha of Albania, the most formidable military power in Greece, had seldom more than 8000 men in pay, according to Mr Hobhouse. But Dr Holland, who wrote at a later period, when Ali's dominions were much more extended, estimates his standing army at 15,000, and thinks he could, for a short time, maintain 30,000 men in arms. As nearly one half of the peninsula of Greece was, at the latter period, subject to Ali, containing a population of

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[1] *Turkey and its Resources*, by D. Urquhart, chap. ii. 1833.

,200,000 or 1,300,000 souls, the estimate seems extreme-y moderate ; and the whole military force of the country pplicable to any emergency, calculated on the same scale, vould be 60,000 men, or one tenth of the males able to ear arms. The Albanians of all classes possess arms. Those in active service use a sabre in addition to the gun, istols, and poniard which the peasantry carry. Pouque-ille speaks of them as being formed in chiliads or bodies f a thousand men each, which are subdivided into com-anies ; but these companies do not consist of a fixed num-er. They have few cavalry ; and their infantry is with-ut tactics, discipline, or regular order. But they have he military virtues in a degree not surpassed by any na-ion in Europe ; and their impetuous courage has often natched victory from an enemy superior in numbers and echnical skill. They are strong, hardy, active, and en-erprising ; they delight in combats ; are daring in action, ven to rashness, and firm in the midst of dangers.[1]

Such was the composition of the Turkish military force n Greece previous to 1826, when the reigning sultan sup-ressed the formidable corps of janizaries, and organized n army on the principles adopted in Western Europe.

ue.

The public revenues of Greece, like those of other ude countries, consist of a number of imports, raised n a very simple plan, and often so much the more op-ressive for this simplicity. The expedients adopted in ther states to lighten and equalize the pressure of taxes, nd to mitigate their injurious effects on industry, are otally unknown in Turkey. Most of the taxes were nposed in rude times by men skilled in nothing but he use of the sword ; and the paramount authority of ustom, which in Turkey controls equally subject and so-ereign, will not allow of any material alteration. There re, however, local variations, both in the amount of the axes, and in the mode of their imposition. 1. The first f the Turkish taxes is the *miri* or land-tax, which affects qually Turks and Greeks, and consists of one tenth of he gross produce of the soil. Beaujour estimates its ac-ual amount at one twelfth. Vineyards and gardens, with round under cotton, madder, and mulberries, generally ay a composition. 2. A tax on moveables, that is, shops, ouses, furniture, &c. affecting all other classes but Turks ; is assessed in a very arbitrary manner, varying much in ifferent towns, and is estimated by the Greeks to absorb fourth part of their gains. 3. A tax on consumable com-nodities, cattle, provisions, fire-wood, liquors, &c. levied at he gates of towns, at rates probably not uniform. Sheep nd goats pay one para, an ox one piastre, wine two, and randy four paras the oke ; compositions are accepted for ther articles. 4. The karatch or capitation-tax, imposed n all males not Mahommedans, who are above twelve ears of age according to some, above five or eight ac-ording to others. The rate varies from two to ten pias-res, according to the supposed wealth of the person, and nay vary to a still greater extent, as it is levied on the asis of an ancient roll or census, and, when the popula-on of a district diminishes, the rate is raised in order o afford the same annual amount. The officers judge of child's age by putting a cord round its head. The per-on paying receives a ticket, which he is obliged to pro-uce at the gates of towns, and if he fails, he is compelled o pay anew, perhaps with the addition of the bastinado. . A duty on exports and imports, amounting generally o three per cent. when the merchant is a foreigner, and ive or six per cent. when he is a native subject. 6. The roperty of all public officers at their death, and of all persons who die without heirs, devolves to the pasha, on behalf of the grand seignior. By a composition, however, the heirs of a public officer are sometimes allowed to retain his property. 7. Each pasha has generally a number of farms and villages attached to his place, of which he draws the rents. Ali, pasha of Albania, was reported to be the proprietor of four hundred villages, which yielded him L.200,000 per annum. Mr Hughes thinks that one third of the whole cultivated territory belonged to him. 8. The arbitrary requisitions made of horses, forage, and provisions, for the public service, are a productive source of revenue. 9. Large sums are drawn from the sale of public offices, including those of the dignitaries of the Greek church. The inferior clergy are also compelled to pay a sum at their installation. 10. In some provinces, perhaps in all, there is a duty on legal proceedings, amounting to one tenth of the value of the disputed property. 11. *Avanies*, or vexatious prosecutions, and fines levied on districts for crimes committed within their bounds, on the ground that they might have prevented them. This last practice is made a pretext for many grievous acts of extortion and cruelty, the inhabitants being subjected to military execution when they are unable to pay. 12. Sums are wrung from the tributary classes as a composition for working at the highways and fortifications ; but the money passes wholly into the pockets of the public officers. 13. A considerable revenue is derived from escheats, forfeitures, and confiscations ; and a trifling amount from the produce of the mines, all mines being regarded as the grand seignior's property. Lastly, the *istira*, or regulation by which the cultivators are compelled to furnish corn for the supply of the capital, at one fourth or one fifth of its market value, operates as a tax on the husbandman, though it bring little into the treasury of the prince. Many of these taxes are farmed ; but certain districts, as Maina, and certain bodies of men, as the Jews of Salonica, are allowed to make a composition with the government, under which they assess or collect taxes, wholly or in part, themselves. Were we to judge of these taxes by the amount paid in to the government, we should pronounce them extremely light. But the unequal and often arbitrary mode of apportioning and collecting them is sufficient to render the lightest impost oppressive ; and the numberless fraudulent demands for which they afford a cover on the part of the revenue officers greatly aggravate their pressure. From isolated facts stated by various writers, we are warranted to believe that the gross revenue, or the money drawn from the people, is generally double, sometimes triple, of what is paid even to the provincial governments.[2] To the credit of the present sultan it must be said, that since 1824 he has done a great deal to regulate the finances, and remedy the evils of the old system.

We have no account on which the smallest reliance can be placed, of the whole produce of the taxes of Greece ; and the statements with regard to those of particular districts are too contradictory to be received without suspicion. Mr Hobhouse heard the revenues of Ali estimated at six millions of piastres, exclusively of casual levies, a very comprehensive head. Attica has been said to remit annually to Constantinople 700 or 750 purses, of 500 piastres each. According to Pouqueville, two millions of piastres were raised in the Morea, of which only one half was paid in to the pasha. There is very little consistency in these statements. If we take the first as a basis, and assume that Ali's territories comprehended one third of Greece at the period alluded to, the revenue of the whole peninsula might be estimated at eighteen millions of piastres, or L.1,100,000 sterling, exclusive of what are called casual levies. But, from the vigour of Ali's government, his revenue was probably greater in proportional amount, and collected at a less expense, than that of any other provincial ruler. A different mode of calculation would conduct us to a similar result. In the least advanced countries of Europe, such as Spain, Portugal, Austria, Russia, and Sweden, the public revenue, compared with the population, is generally at a rate varying from 8s. to 15s. sterling per annum for each inhabitant; and as Greece is certainly near the bottom of the scale in point of productive industry, her revenue can scarcely exceed the lowest of these rates. Calculating on this principle, and supposing the population to be two millions and a half, the net revenue before the revolution would be L.1,000,000 sterling, and this sum doubled may represent the gross amount extracted from the pockets of the people.[1]

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[1] Thornton, chap. v. ; Beaujour, let. 4 ; Hobhouse, let. 12, 13 ; Pouqueville, chap. x. xxxiii. ; Holland, p. 111.

[2] Thornton, chap. vi. ; Beaujour, let. 1 ; Pouqueville, chap. x. ; Holland, p. 115 ; Hobhouse, p. 296 ; Hughes's *Travels*, vol. ii. 82.

Population. Of the various estimates given of the population of Greece, that of Beaujour has been most generally followed. This writer assigned a population of 700,000 souls to Macedonia, 300,000 to Thessaly, 400,000 to Epirus, 200,000 to Ætolia, Phocis, and Bœotia, 300,000 to the Morea, and 20,000 to Attica, making a total of 1,920,000. We speak of the country as it existed before the revolution. The population of the new kingdom of Greece will be afterwards given. In two particulars this statement seems to require correction. The population of the Morea, since the desultory war of 1770, appears to have been gradually increasing. Scrofani and Pouqueville, who had good means of information, estimate it at 400,000 Greeks, 15,000 Turks, and 4000 Jews. Again, Beaujour appears not to have included under the name of Epirus the district watered by the Drino, or even Northern Albania; and the researches of Mr Hobhouse and Dr Holland have shown that the parts of this country he did include are more populous than he imagined. Perhaps on these grounds we may raise the entire population to 2,400,000. Probably the number of inhabitants was not greater in Strabo's time, if we may judge from the account he gives of the deserted state of the country (lib. vii. p. 322); and the government of the Turks, with all its train of abuses, is probably not more destructive to Greece than that of the Romans was. This population is very unequally distributed. It is densest in the southern parts of Macedonia, in the eastern parts of Thessaly, and in the central and northern districts of Albania. Acarnania is almost a desert; Ætolia is thinly peopled; Attica, including the city, has not more than twenty-five or thirty inhabitants to the square mile. The plain of Argos, and the hilly region of Maina, are the most populous parts of the Morea. As might be expected from the insecure state of the country, single cottages or scattered hamlets are scarcely anywhere to be seen. The inhabitants are always collected into villages or cities; and those who are engaged in husbandry waste a great part of their time and labour in travelling to and from their lands. Hence, in the agricultural districts, the proportion of the inhabitants who live in towns seems unusually large, considering the small resources that trade and manufactures afford. Of 500,000 persons inhabiting the pashalik of Salonica, and the mousselimlik of Larissa, one third, according to Beaujour, live in the large towns. The most fertile districts are not uniformly the most populous. A barren soil in mountainous parts, which afford the means of defence, is often laboriously cultivated, while the rich plains below are neglected.[2]

It would be interesting to compare the modern with the ancient population of Greece in point of numbers. But inquiries with regard to the latter seem to lead into a labyrinth of difficulties, partly from the want of sufficient data, partly from the multitude of errors that have crept into the numerical expressions in the text of ancient authors, and partly from the civil distinctions of citizens, slaves, and strangers, which render the application of particular statements uncertain. It would baffle human sagacity to build any satisfactory conclusion on the mass of discordant details collected by Hume. We shall proceed more securely, if we ground our reasonings on some single statement that is pretty well established. From a variety of circumstances which elucidate and fortify each other, Hume deduces that Athens contained at one period 284,000 inhabitants.[3] Let us suppose this to include also the rural population. Attica was comparatively a barren district; and, exclusively of Eleusis, Megara, and Salamis, did not occupy more than one sixtieth part of the countries to which our statements apply in this article. Its commerce and colonies, however, more than compensated for the inferiority of its soil. Now, if we suppose the other and more fertile, but less improved parts of Greece, to have been peopled only to one fourth of the density of Attica, this would give a population of eight millions and a half for the whole country. Mannert, a German writer, whose opinion is entitled to great weight, estimates the entire population of Attica at 550,000, chiefly on the authority of Athenæus.[4] Without relying much on these calculations, we may observe, that if one amidst a multitude of small states had such a mass of population, her neighbours and rivals must have possessed something like a proportionate strength to preserve their independence. And, considering the strong feeling of emulation which pervaded these small republics, we may be certain that, before the arts of industry could be so far advanced in Attica as to enable such a mass of people to subsist on so small a surface, the neighbouring states must have been considerably improved.

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[1] The ancient Athenian revenues consisted of, 1. Contributions from the allies, which amounted to 600 talents in the time of Alcibiades; 2. Customs at the rate of two per cent. on imports and exports, which yielded about thirty-six talents; 3. Confiscations of the property of individuals; 4. Rents and produce of mines and marble quarries; 5. Capitation tax on the Μετοικοι, or strangers permanently resident in the city. Xenophon estimates the whole at 1000 talents, or L.250,000. (Walpole's *Memoirs relating to Turkey*, p. 435.)

[2] Beaujour, let. 1; Holland, p. 113, 251, 280; Hobhouse, p. 176, 201, 487; Pouqueville, chap. x.

[3] This conclusion is not without its difficulties. But if it involves any errors, they are errors of defect, and not of excess; for any different construction of the text of Athenæus would give a larger number. (See Hume's *Essay on the Populousness of Ancient Nations.*) We may adopt another mode of calculation. The Spartans were the only power who regularly employed their slaves (helots) in their armies, and whose military force may therefore be taken as a criterion of their whole population. They sent, of Lacedæmonians and helots together, 50,000 to fight the Persians at Platæa. The men were collected and sent off within the space of a day or two, and as the Messenians were shortly after in a state of revolt, it may be presumed that none of that nation were in the army. (Herodotus, lib. ix.) If we suppose that this army contained one half of the males of a military age (and probably no country ever sent a larger proportion beyond its own confines), the whole population of Laconia would be 400,000; and that of Peloponnesus, in the same ratio, would be 2,000,000. Supposing the parts beyond the isthmus to be peopled only to three fifths of the density of Peloponnesus, the whole population of Greece would be 8,300,000, an amount not materially different from the other. After all, it must be confessed that so general a conclusion, built on so narrow a basis, is scarcely better than a confession of total ignorance. It may be observed, that the greatest army which England ever sent beyond her own frontier, previous to the present times, was that with which Edward II. invaded Scotland, consisting of 100,000 men.

[4] Geographie der Griechen und Roemer, achter Thiel, p. 294.

We have stated that a small proportion of the inhabitants of Greece live scattered through the country. Were this circumstance not attended to, the number of large towns mentioned by travellers would lead us to conclude that the country is more populous than it really is. We subjoin the names of some of the most considerable towns, with the estimated population :

ALBANIA.

Yanina	35,000	Hobhouse.
Argyro Castro	20,000	do.
Berat	15,000	Holland.
Scutari	12,000	Hobhouse.

MACEDONIA.

Salonica	70,000 60,000	Holland. Beaujour.
Seres	30,000	do.

THESSALY.

Larissa	20,000	do.
Vodina	12,000	do.
Trikala	11,000	Holland.

ATTICA AND BŒOTIA.

Athens	15,000 12,000	Clarke. Hobhouse.
Livadia[1]	10,000	Holland.

MOREA.

Patras	10,000	Holland.
Argos	8,000	do.
Tripolizza	15,000	do.
Misitra	16,000	Pouqueville.
Hydra (Island)	25,000	Holland.

The towns of Greece contrast strikingly with those of Western Europe in their general appearance. Founded rather as places of security, than with a view to commercial advantage, their sites are generally elevated and picturesque. Instead of the long and uniform lines of buildings seen in our cities, the houses often stand detached, and appear irregularly scattered over the ground. The tall, airy minarets also, which break the outline in an agreeable and fanciful manner, and the groups of cypresses surrounding the mosques, which are seen blended with the buildings, give them a character of repose and softness, combined with richness, and even magnificence, which has a fine effect in the landscape. On a near inspection, however, their beauty vanishes. The mean buildings, the streets narrow and dark, seldom paved, and covered with offal and filth of every kind, grievously offend both the senses of sight and smell. The houses of the poorer classes are miserable hovels, built of mud and straw ; those of the peasants in the country are often formed, like the huts of savages, of wooden poles rudely put together in the shape of a tent, and covered with turf. The houses of the better classes in towns are of wood, sometimes with a foundation of stone. They are pretty generally of two storeys ; the upper storey sometimes projecting beyond the lower, in the manner of the old wooden buildings in Edinburgh, and the roof again extending far beyond the face of the upper wall, apparently for the purpose of giving shade and shelter to the streets below. The style of building is extremely uniform. The larger houses are built round a square area ; the under storey, used as stables and warehouses, has seldom any windows on the side towards the street, or it is shut in on that side by a wall, so as to give the house the appearance of a jail. The upper storey presents in front an open gallery, with small windows, latticed with cross bars of wood, and serves chiefly to communicate with the apartments behind. The furniture consists of a very few articles, of a rich, or rather gaudy description : a divan or raised seat, from ten to fifteen inches in height, stuffed and covered with silk, and cushioned behind for the back, extends round three sides of the room. A handsome carpet covers the rest of the floor. These, with a table of very plain construction, and two or three large mirrors in the corners, are generally all that a well-furnished Turkish room contains. The walls are sometimes wainscotted, and adorned with landscapes, or purely ornamental paintings. The roofs exhibit gilding and carved work. Many of the houses of the rich have gardens attached to them, inclosing fountains. The dwellings of the wealthy Greeks are in no respect different from those of the Turks. There is a total absence, in the Greek towns, of that noise, bustle, and activity which give such an animated character to our cities. There are no wheel-carriages of any kind seen, but loaded camels or horses are passing to and fro, through the dust or mud. Hawks and storks are flying about the trees, mosques, and houses ; and great numbers of gaunt and half-wild dogs, which have no owners, are prowling about, picking up the offal thrown into the streets. One of the most interesting objects in a Greek town is always the bazar or market. This consists of one, two, or more streets, filled entirely with shops or wooden booths. The dealers in the same class of articles are all ranged together. One street is occupied by those who deal in jewellery ; another by those who deal in pelisses and shawls ; a third by the retailers of common cotton goods ; a fourth by the dealers in groceries, tobacco, &c. ; a fifth by those who sell pipes, amber, mouth-pieces, &c. ; and so on. These bazars are often shaded by wooden trelisses interlaced with vines, or by branches of trees laid across from the roofs of the opposite shops or booths.

Different races.

The population of Greece is composed chiefly of three different races, not more distinct in their origin than in their manners and character. These are the Turks, the Greeks, and the Albanians, with whom are intermixed a smaller number of Jews, Armenians, and Wallachians. It is extremely difficult to estimate, with any accuracy, in what proportions these different races are combined. The scanty information given by travellers on this subject is often rendered ambiguous by the indiscriminate application of the name of Greeks to persons attached to the Greek church, whether they are of that nation or Albanians. Except in some towns and very limited districts, the Turks nowhere appear to constitute the majority of the population. They are most numerous in Thessaly, Macedonia, and Negropont, are thinly diffused through the rest of Greece and Albania, and are scarcely seen at all in the islands. In the districts of Salonica and Larissa, where they most abound, they scarcely exceed, according to Beaujour, one third of the inhabitants (180,000 out of 500,000) ; in Athens, according to Dr Holland, they amounted to one fifth before the revolution ; in the Morea, they formed one twenty-eighth part by Pouqueville's enumeration ; in Livadia, there were few of them ; in Acarnania and Ætolia, still fewer. In Yanina, they are less numerous than the Greeks ; and throughout Greece generally, except in Thessaly and Macedonia, there were very few Turks among the rural population. Since the revolution, the Turkish inhabitants have almost disappeared from the country south of Mount Œta. If there are any exceptions, they must be trifling. Without pretending to accuracy on a point where accuracy is unat-

Turks.

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[1] The population of Livadia is computed from the number of houses, reckoning five persons to a house.

tainable, we may perhaps estimate the Turks on these grounds at one fourth of the inhabitants in Thessaly and Macedonia, and at one tenth in the other parts of Greece and Albania, on an average. The whole number of Turks computed on this principle would be 450,000, which is between one fifth and one sixth of the entire population.[1]

Albanians and Greeks.

It is more difficult to form any satisfactory conclusions as to the respective numbers of the Greeks and Albanians. Colonies or parties of the latter people have, from time to time, settled in various districts of Greece. Nearly all of these belong to the Greek church; and they have, with very few exceptions, preserved their native manners, dress, and language, though many of them are also able to express themselves in Greek. Colonel Gordon informs us that Attica, Bœotia, Phocis, Argolis, with the isles of Hydra, Spezzia, Salamis, and Andros, are inhabited by Albanians. They have also several villages in Arcadia, Achaia, and Messenia. In the rest of the Peloponnesus, in all the other islands, in Ætolia, Acarnania, a great part of Thessaly, and Lower Macedonia, the population is exclusively Greek.[2] Mr Urquhart gives an estimate of the different races inhabiting European Turkey, which we subjoin, though his rash and precipitate mode of judging divests it of any high claims to authority.[3]

Osmanlis, Turkish race and language, all Mussulmen	700,000
Greeks, Hellenic race and language, all Christians	2,050,000
Albanians, Skipetar race and language, two thirds Mussulmen	1,600,000
Sclavonic race and dialects (Bosniacs, Tulemans, Servians, Bulgarians, Mirdites, and Croats), one third Mussulmen, two thirds Christians	6,000,000
Vlachi, or Wallachians, Greek church	600,000
Gypsies 200,000, Jews 250,000, Armenians 100,000, Franks 50,000	600,000
	11,550,000
Wallachia and Moldavia	1,500,000
	13,050,000

We are satisfied that the entire population of European Turkey does not exceed nine or ten millions; and in the above table the proportional number of the Sclavonic race seems to be much exaggerated.

Wallachians.

The Vlaki, or Wallachians, are next in numbers to the Greeks, Albanians, and Turks. Like the Albanians, they first appear in the history of Greece about the eleventh century. They are a tribe of mountaineers, chiefly employed as shepherds, living permanently on the great ridges of Pindus and Olympus, and their branches; but, like the Albanians, descending into the plains of Thessaly, Macedonia, and Southern Greece, during the winter, with their flocks. They have a language of their own, which, from the great proportion of Latin words it contains, has led to a belief that they are the descendants of the Roman colonies planted in Mœsia and Dacia by the emperor Trajan and his successors. The rugged country they inhabit has kept them unmixed with other tribes, and enabled them to maintain a considerable degree of independence. They are hardy, but less ferocious than the Albanians, sober, industrious, cleanly, and in high repute as shepherds throughout Greece, both for their fidelity and skill. Some of the higher classes go abroad as merchants; and the lower classes furnish some of the best artisans in Greece and Turkey at large; but wherever their occupations carry them, a strong national spirit recals them ultimately to their native mountains. Within their own country they have considerable manufactures of coarse woollens. They are of the Greek church, and the men generally speak Romaic, or modern Greek, besides their own language; but the women know only the latter.[4]

Bulgarians.

The mountainous districts in the north of Macedonia are inhabited by Bulgarians, who occupy the whole region, from these parts to the Danube, and the neighbourhood of Constantinople. They are a people of Sclavonic origin, profess the Christian religion, and have a language distinct from that of the other people settled in Greece. They live chiefly by their flocks, are rude and ignorant, but brave. They possess only a small portion of the country at present; but for a considerable period between the eighth and eleventh centuries, they were masters of nearly the whole of Greece, and have left traces of their establishment there in the language, and in the names of places.[5]

Jews.

Small bodies of Jews are found in most of the considerable trading towns of Greece, engaged as usual in the lower branches of commerce. There are none in Athens, and this fact is accounted for, as in some other places, by the supposition that the native Athenians outdo them in their favourite profession of usury. There is a considerable number in Yanina; but they are nowhere so numerous as in Salonica, where they have been settled for some centuries. Their number in this city is estimated at 12,000; the peculiar privileges they enjoy, however, have not raised their character; for they are proverbially distinguished throughout Greece for chicanery, dishonesty, and immorality. Considered as a branch of the general population of the country, they are too inconsiderable to be of the least importance. Armenians are also found in some of the towns, but in a still smaller proportion than the Jews.[6]

Gipsies.

Bands of Tchinganies, Zinganees, or gipsies, distinguished by the habits and occupations peculiar to them in other countries, wander over Greece. They are subjected, however, to the capitation tax. Some of them make a profession of Mahommedanism, but they are held in great contempt by the Turks. Some of the more wealthy Turks keep negro slaves, who are imported from Barbary and Egypt.[7]

Greek church.

The Greek church appears at the present day covered with the accumulated abuses of ten or twelve centuries. It was founded in an age of theological casuistry and dogmatism; it has never felt the benign influence of general knowledge, or the salutary control of rival sects; but the bigotry or crooked policy of Christian princes, the barbarism of Mahommedan conquerors, the pious frauds of monks or fanatical priests, the credulity and superstition of an ignorant populace operating uncontrolled, have been continually loading it with new errors, new absurdities, and new corruptions. Though its priests are more numerous than in any other church, its rites and forms infinitely complicated, and its fasts absorb about two thirds of the year, it is scarcely possible to trace one genuine idea of Christianity in the minds either of the clergy or laity, or one trait of its influence in their conduct. The subtlety of understanding by which the Greeks are distinguished, and still more their proneness to superstition, have made them hold fast by their national faith amidst all the calamities they have suffered. And their barba-e.

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[1] Beaujour, let. 1, 4; Holland, p. 343, 395, 412; Pouqueville, p. 119; Hobhouse, p. 206; Leake's *Researches*, p. 375.

[2] Gordon's *History of the Greek Revolution*, vol. i. p. 34.

[3] *Turkey and its Resources*, p. 272.

[4] Leake's *Researches*, chap. iii.; Holland, p. 226, &c.

[5] Leake, p. 375–381; Pouqueville, chap. xxxviii.

[6] Beaujour, let. 25; Holland, p. 320; Chandler, chap.

[7] Holland, p. 266, 509; Pouqueville, p. 323.

sm has never yet been carried so far as to reduce the
umbrous machinery of their religion to any degree of
mplicity.

nes
es.

The Greek church agrees so closely with the Roman in
s doctrines, and even in its forms, that it is rather diffi-
ult to discriminate them by any intelligible distinctions.
he Greek church holds the doctrine of the Trinity, with
ome unimportant peculiarities. In the number of its sa-
raments, the invocation of saints, the belief of the real
resence, the practice of auricular confession, and in ad-
itting masses and services for the dead, it agrees per-
ctly with that of Rome. The sacrament of the Lord's
upper is administered to infants newly born, and, in the
lace of confirmation, they substitute the chrism or sacred
nction, being a part or appendage of the baptismal cere-
ony. The sacrament of the Holy Oil, or Euchelaïon, is not
onfined, like the extreme unction of the Roman Catholic
hurch, to the sick and dying, but is given to devout per-
ons upon the slightest malady, or even in perfect health.
n Holy Thursday the Greek archbishop, like the pope,
ashes the feet of twelve priests or monks. It is rather
oubtful whether the Greek church admits a purgatory,
least in the same sense as the Roman Catholics; and
ey themselves, at the present day, are too ignorant to
e able to tell. The most palpable distinction between
e two churches, in the eyes of the common people, is,
at the Greeks abhor the images used by the Catholics,
d employ only paintings in their churches. They have
ur liturgies; and the service, which consists chiefly of
rayers, hymns, recitative chants, and frequent crossings,
ithout any sermon, often occupies five or six hours. The
ant of seats in their churches, during the long service,
supplied by staves or crutches, which are used for lean-
g on, and form part of the church furniture. Their mu-
c is without instrumental accompaniments, but is allow-
d to have considerable beauty. The floor of the church
generally of earth, the altar of stone, the sanctuary se-
arated from the nave by deal boards, and an enclosure of
ales set off at the other end for the women. The church
generally in the form of a Greek cross. The choir is
ways placed towards the east, and the people turn their
ces in that direction when they pray. The books of
ffices include biographies of saints, and are numerous and
ulky. The clergy are distinguished by a great variety
striking vestments, to which many mystical virtues are
scribed. The Panagia, or Holy Virgin, has succeeded
the worship formerly paid to Minerva. There is scarce-
a cottage in which her picture, with a lamp burning
efore it, is not seen in a wooden case or a niche of the
all. The secular Greeks have four Lents, which are ob-
erved with various degrees of strictness; and the caloy-
s, or monks, have two more. The first of the secular
sts lasts two months, the second forty days, the third,
hich depends on moveable feasts, varies in its length,
e fourth endures from the 1st of August to the festival
the Assumption. Every Wednesday is a fast, because
was on that day Judas received the money for betray-
g Christ; and every Friday in remembrance of the cru-
fixion. A vast number of saints' days are also observed,
that of the whole year there are only about a hundred
d thirty days free of fasts or festivals. During these
sts the women are employed in gathering snails, and
arching for herbs of different kinds. The change of
od is enforced, without exception, on infants, old peo-
le, and the sick. Some of the festivals are celebrated in
e open air during several days, with the firing of guns,
ngs, dancing, banqueting, and the most extravagant re-
lry. As confession generally takes place on these occa-
ons, as a preparation, they are a harvest to the papades,
ho make a charge for absolution proportioned to the mag-
itude of the sin, and the supposed wealth of the sinner.

Greece.

Monks.

The Greek clergy are of two classes, the caloyers or monks, and the papas or priests. Monasteries, which are very numerous throughout Greece, are generally built in rocky and inaccessible situations for the sake of defence. They are supported partly by farms cultivated by lay brothers, partly by donations and perquisites received from the pious, partly by the exercise of mechanical trades, and the fabrication and sale of crosses, pictures of saints, psalters, &c. Their cells and prisons are universally dirty, as their minds are overrun with ignorance and superstition. In the vast establishment of Mount Athos, however, where before the revolution five or six thousand monks were assembled, and in the monastery of the Apocalypse, in Patmos, there are seminaries where some slight theological studies are pursued. The Patriarch of Constantinople, and all the superior Greek clergy, are generally taken from these places. Novices are admitted into monasteries as early as ten or twelve years of age. The noviciate lasts two years, in the most regular monasteries; after which the novice changes his habit, and becomes one of the professed. The monks who distinguish themselves by superior sanctity may be advanced to a still higher class, called Megaloschemoi, who are thought worthy of being compared to angels. Their general diet is fish, pulse, roots, olives, and wine; during their fasts, which occupy nearly the whole year, pulse, roots, and water only. But, notwithstanding this mortified style of living, they are the sleekest and best fed people among the Greeks. Convents for women are rare. There are some anchorets, who live three or four together, in houses depending on convents; and a few ascetics, who live solitarily in caves in the mountains. Convents of all kinds are under the superintendence of the bishop of the diocese. The expectations, long indulged, of finding some of the lost classics in the libraries of these establishments, have been at last entirely dissipated. Professor Carlyle examined the libraries of the whole twenty-two monasteries on Mount Athos, containing altogether 13,000 manuscripts, a greater number, certainly, than exists in all the other monasteries in Greece, and found not a single unedited fragment of any classical author. (Walpole, p. 196, 220).

Secular clergy.

The officiating clergy consist of two classes, the patriarch, archbishops, and bishops, and papades or parish priests. All those of the first class are taken from the monasteries, and are not allowed to marry. The papades are allowed to marry once only previous to their consecration, but not afterwards. Hence, before entering into orders, they are generally careful to choose healthy partners, who are likely to live many years. The superior clergy have some little learning, are generally decent in their characters, and attentive to the duties of their stations, which are numerous and difficult; as, besides having to control the licentious and fanatical priests, they are umpires in all disputes among those of their communion, and exercise an extensive civil authority under the Turks. They enjoy the title of δεσποτης, or lord, and are treated with extraordinary reverence. They are, in fact, the princes of the Greeks at the present day; and hence the first families send their children to the monasteries of Athos or Patmos, on purpose to qualify them for these dignities. The Turks having reserved to themselves the investiture of the prelates, openly put the offices to sale, and hence the most indecent broils arise among the candidates. The Patriarch of Constantinople, who ruled the whole Greek church in European Turkey, and nominated all its inferior dignitaries, was said to pay sixty thousand crowns for his office. His income does not exceed L.3000 per annum; and that of bishops in general L.300. Dr Holland, however, was informed that the Archbishop of Larissa had a revenue of L.9000, but he doubts whether the amount was not exaggerated. The patriarch draws his revenue from contributions upon the archbishops and bishops, who are supported by a tax on each house within the dioceses inhabited by Greeks.

The inferior clergy are appointed papas, or parish priests, by a species of parochial election; and before arriving at this office, they pass successively through the subordinate stations of reader, chanter, subdeacon, and deacon. No farther promotion, however, awaits them. Their means of living depend as much on their knavery as on their diligence in pastoral duty. They are supported chiefly by perquisites derived from absolutions, benedictions, exorcisms, sanctifying water, administering sacraments, selling amulets, sprinkling the streets and tombs, blessing the sea, granting divorces, for most of which a certain price is fixed. The profits of excommunications, which are large in proportion to the terror they inspire among all classes, belong to the superior clergy, who alone have the power to issue them. By a shocking abuse of religious functions, the priests, when well paid, grant divorces at the instance of one party on the slightest pretence, and break the most sacred ties for a paltry bribe. Nearly all authors who have alluded to the Greek priests agree in describing them as the most depraved part of the population. They are coarse in their manners and dirty in their persons, ignorant, greedy, and corrupt, and instead of cherishing virtuous habits in the people, they enervate and debase them, by practising on their credulity, and filling their minds with wretched superstitions, and perverted ideas of duty. It is not uncommon for them to lay aside the sacerdotal character, and become menial servants or public dancers, or to join bands of pirates or robbers. They are besides excessively numerous; and the people, who are extremely credulous and superstitious, are entirely under their influence. Athens, with 7000 or 8000 Christian inhabitants, had formerly 200 churches, of which about fifty were used every Sunday, and the rest occasionally. (Wheler, p. 350.) In Albania the priests are much less numerous, and much less respected. In a word, the swarm of worthless priests is the moral pest of the country, and contributes more, perhaps, to keep the people in a state of ignorance and degradation than all the other evils in their condition.[1]

Antiquities.

The antiquities of Greece open so wide a field, that, in an article of this kind, we can do nothing more than allude to the various classes of objects comprised under the title. Among these we may, without much impropriety, rank many of the cities themselves, which not only exist on the very spots they anciently occupied, and bear the same names, but, deriving their most striking characters from natural objects, which remain unchanged, they still present to the eye, at a distance, the same general aspect and outlines. With regard to the interior of the cities, also, though the august temples of the gods have disappeared, and filth and meanness meet the eye everywhere, little doubt will remain with those who have read what the ancients have left us on the subject of their private houses, and what modern travellers have told us respecting the disinterred buildings of Pompeii, that the houses at the present day, with their square enclosed courts, their projecting roofs, and dead walls, and all that is most peculiar in their plan and interior arrangements, are copies, though miserable copies, of those of the ancient Greeks; and it is probable that some of the modern dark and narrow streets of Athens come much nearer in appearance to what they were in the age of Pericles than the admirers of antiquity are willing to allow. Among the cities which occupy their ancient sites, and bear their ancient names with little alteration, may be mentioned, Athens, Thebes, Livadia, Larissa, Pharsalia, Salonica, Corinth, Argos, Nauplia, Patræ; and a great number of others of less note, might be added. The ancient buildings of which remains now exist belong to three different eras: 1. The very ancient structures to which the name of Cyclopian has been given, consisting of vast masses of unhewn stone, put together without cement. They are not numerous. The ruins of the citadels of Tyrins and Mycenæ, which are of this description, have remained in their present state for 3000 years, and present the most perfect specimen in existence of the military architecture of the heroic ages.[2] 2. The works of the classical ages, consisting of temples, baths, porticoes, theatres, columns, stadia, fountains, which are extremely numerous, and executed in a great variety of styles, exemplifying the infancy, progress, perfection, and decline of the arts. Of the two or three hundred temples enumerated by Pausanias, many of which were models of the most exquisite beauty and symmetry, that of Theseus at Athens was the only one tolerably entire; and it was destroyed by the Turks in 1827. Others are found in various stages of dilapidation; and the far greater part have vanished from their sites, and only left traces of their existence in their innumerable fragments of inscribed and sculptured marbles scattered over the fields, or stuck into the walls of forts, churches, and clay-built cottages. 3. A number of square towers, of a rude construction, built on the tops of hills, for military purposes, are the only memorials left by the Latin princes who ruled Greece for two or three centuries before the Mahommedan conquest. 4. Next in importance to the remains of ancient edifices we may rank the statues, bas-reliefs, and inscribed marbles; a great number of which, generally somewhat mutilated, have been brought from Greece to enrich the museums of Western Europe; and a much greater number, no doubt, lie buried under the soil. 5. Vessels of terra cotta, or ancient pottery, consisting of vases, amphoræ, lamps, &c. of exquisite workmanship, adorned with coloured designs illustrative of the arts, habits, and mythology of the ancients, and often in high preservation. The quantity of these found among the ruins of ancient cities is incredibly great. 6. Coins of gold, silver, and copper, which are great in number and variety, every considerable town having its separate coinage. 7. Amongst the most interesting remains are the tumuli, erected to commemorate great victories. These simple but expressive monuments, formed of conical mounds of earth, but long since divested of their sculptured ornaments, still mark the fields of Marathon, Leuctra, Platæa, Cheronæa, Thermopylæ, Pharsalia, and Pydna. 8. We ought also to class among the antiquities of Greece a vast number of fountains, caves, rocks, and other natural objects, which owe their interest, not to any beauty or importance they possess in themselves, but to the legends associated with them in the history and mythology of the ancient Greeks. With regard to the antiquities of Greece in general, it may be observed, that the finest, the best preserved, and the most numerous specimens of ancient art are found at Athens. Salonica, it is said, ranks next to it in this respect: but its monuments are deficient in the interest derived from classical associations. In general the southern and eastern parts of Greece, and the islands, abound most in antiquities. Albania and Ætolia contain but few, and these not of much interest.[3]

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[1] Tournefort, let. 3; *Constantinople, Ancient and Modern*, by James Dallaway, sect. xxiv.; Pouqueville, chap. xii.; Hobhouse, let. 32.

[2] In Sir William Gell's *Itinerary of Argolis*, a good account of these remarkable ruins is given, illustrated by excellent drawings.

[3] On the subject of the Antiquities of Greece, the reader may consult the following works: *Les Ruines des plus beaux Monumens de la Grèce*, par M. Le Roy, fol. 1758; *The Antiquities of Athens*, by Stuart and Revett, 4 vols. fol. 1762–1816; *The Ionian Antiquities*,

There are five languages spoken in Greece at the present day: 1. The Turkish, which is in use among a few of the Turks, but the great majority speak Romaic. 2. The Bulgarian, a dialect of Sclavonic, spoken by the tribes of Bulgarians who inhabit the northern parts of Macedonia. 3. The Wallachian, in use amongst the Vlaki, who occupy the branches of Pindus and Olympus; a language of uncertain root, but containing a large mixture of Latin, and some Italian. 4. The Albanian or Skipetaric, spoken by the natives of Albania, and by some of the colonies of this people in the south of Greece. It is an unwritten tongue, and abounds in nasal sounds. Its basis is supposed to be the ancient Illyrian, with which is intermixed a large proportion of Latin, and smaller proportions of Romaic, Sclavonic, Italian, and Turkish. 5. The Romaic (*Ρωμαικη*) or modern Greek, spoken by all the Greeks, by most of the Turks, and by a part of the Albanians. This is the name given to the language by the Greeks, who call themselves *Ρωμαιοι*, or Romans, a denomination derived from the establishment of the Roman empire for so many ages at Constantinople, which they consider as the capital of Greece. The Romaic bears a much closer resemblance to the Hellenic than the Italian to the Latin. Indeed we have been informed by one of the best modern Greek scholars in Europe, that if we take the Attic as a standard, the ancient Doric differs as much from it as the present living dialect. The peculiarities which distinguish the Romaic from the ancient Greek cannot be fully explained without many details; we shall, therefore, only notice some of the most prominent. These are, 1. The disuse of the aspirates in speaking, though they are retained in writing. 2. The adoption of the first numeral *ενας μια ενα*, for an indefinite article, as in the French. 3. In substantives it discards the dual number, and the dative case; makes some alterations in the oblique cases; marks cases sometimes by prepositions; and often changes the Hellenic masculine and feminine into neuter. 4. The degrees of comparison are formed as of old, by adding -*τερος* and -*τατος*, but sometimes by *πλεον*, *plus*, as in the French. 5. Diminutives are much used, as in the Italian. 6. Considerable changes and substitutions have been made in the tenses of the verbs; the infinitive and the middle voice have been suppressed, and two auxiliary verbs introduced, *θελω*, *I will*, and *εχω*, *I have*. 7. The Hellenic pronouns are retained, but with many modifications. 8. Some new words have been adopted from the Turkish, Latin, and Italian; others have been formed from Hellenic roots; and many old Hellenic words have changed their meaning, attributives being used as substantives, and *vice versa*. The pronunciation of the Romaic deviates widely from that of the ancient Greek as taught in our schools. The Β is sounded like our V, whilst the place of Β is supplied by *μπ*. The Δ is sounded like *th* in *that*, and *θ* like our *th* in *think*. The vowels *η*, *ι*, *υ*, and the diphthongs *ει*, *οι*, *υι*, are all pronounced like the Italian *i*. Great liberties are also taken with the orthography of the Romaic. Vowels are substituted for one another, and letters or syllables suppressed or added, according to the fancy of the writer, at the beginning or end of words. In addition to all this, there is a perplexing diversity in the style and construction. Those who write in Romaic, having no good models before them, readily fall into provincial vulgarisms; and as they often derive their ideas of composition from works in Hellenic, Italian, or French, they adopt, to a greater or less extent, the idioms of these languages. It is said, however, that the dialects of the spoken Romaic in Greece have not so marked a difference as those of the distant provinces of France or England. The purest dialects, or those which approach nearest to the Hellenic, are found in some of the least frequented islands of the Archipelago, in the mountainous parts of Greece, at Yanina, and among the well-educated Greeks of Constantinople. The Romaic of Athens is full of corruptions derived from the Italian and French; and the Athenians of modern times, though still distinguished for quickness and subtlety of understanding, are reproached by their countrymen with an indifference or want of capacity for literary pursuits. A great number of books, chiefly translations, have been printed in Romaic within the last fifty years; and even previously to the revolution there was not a Greek community, in a moderate state of opulence, which did not support a school for instructing their children in the ancient Greek, and often in other branches of polite education.[1] Since tranquillity was restored, the cultivation of the modern tongue has not been overlooked; and the object of their best scholars now is to bring it back as near to the standard of the ancient as may be practicable. The name of Romaic is going into disuse; the modern language being denominated *Greek*, and the ancient, for the sake of distinction, *Hellenic*.

Physiognomy, &c.

There is a national likeness observable in all the Greeks, though, upon the whole, the islanders are darker and of a stronger make than those on the mainland. They have a larger facial angle than the other nations in the south of Europe, to whom they are manifestly superior both in countenance and form. Their faces are just such as served for models to the ancient sculptors, and their young men, in particular, are of that perfect beauty, which we should perhaps consider as too soft and effeminate in those of the same age in our northern climate. Their eyes are large and dark, their eye-brows arched; their complexions are rather brown, but quite clear; and their cheeks and lips are tinged with a bright vermilion. The oval of their faces is regular, and all their features in perfect proportion. Their hair, which is dark and long, is shaven off on the fore part of the crown and side of the face, and they wear a thin long mustachio on the upper lip. Beards are worn by the clergy, the codjia-bashees, and other men in authority. Their necks are long, but broad and firmly set, their chests wide and expanded, and their waists rather slender. Their legs are strong and well made; their stature above the middling size; and they are muscular, but not brawny, nor inclined to corpulency. Both the face and form of the women are very inferior to those of the men. Though they have the same kind of features, their eyes are too languid, and their complexions too pale, and, even from the age of twelve, they have a flaccidity and looseness of person which is far from agreeable. They are generally rather below the middle size, and when between twenty-five and thirty, are commonly rather fat and unwieldy.

Dress.

The dress of Greeks of the wealthier classes closely resembles that of the Turks. A cotton shirt made like a woman's chemise, cotton drawers, a vest and jacket of silk or stuff, a pair of large loose trousers drawn up a little above the ankle, and a short sock, make the inner part of their dress. Next above this is a long shawl wrapped in wide folds round the loins; and a large gown or pelisse, with loose sleeves, forms the outer garment. The head is covered with a calpac instead of a turban. They wear slippers or quarter boots, which the privileged

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by Chandler, Revett, and Pars, 2 vols. fol. 1769–1797; *The Unedited Antiquities of Attica*, by the Society of Dilettanti, fol. 1817; Chandler and Clarke's *Travels*, already referred to; and Mr Edward Dodwell's *Classical and Topographical Tour in Greece*, 2 vols. 4to, 1819.

[1] Leake's *Researches*, chap. i. The works published in Romaic have been chiefly printed at Vienna and Venice; a few at Moscow, Buda, Paris, and other towns. See a list of these works in Hobhouse's *Travels*, chap. xxxiii. and Leake's *Researches*, p. 77.

Greeks may have of a yellow colour, but even they are not permitted to wear robes of green, the favourite colour of Mahommed. The common people have their trousers descending but a little below the knee, with bare legs, and a slipper pointed and turned up at the toe. Above this they have a jacket, and on their heads the little red Albanian scull-cap.

The dress of the females approaches much nearer to that of the Frank ladies, and need not here be particularly described. That of the richer females is profusely ornamented with gold and silver trimmings. They wear bracelets of precious stones, and strings of gold coins round their arms and necks. They colour the inside of the eye-lashes with a composition, and use washes and paints to improve their complexion. With the young women it is a prevailing fashion to dye the hair of an auburn colour. When abroad, the Greek ladies are muffled up in a wrapping cloak, and wear a long veil, which, however, they frequently throw aside when not in the presence of the Turks. They live almost as much secluded as the Turkish ladies. Indeed before marriage they are rarely seen by any male, except of their own family; and even the lover rarely sees his mistress till she become his bride. But afterwards the ladies enjoy the privilege of being introduced to people of their own nation, and to travellers. When in the interior apartments, a young woman divests herself of her outer robes; and, in the summer season, may sometimes be surprised reclined on a rich carpet or sofa, with her feet bare, and her whole form rather shaded than concealed by trousers of gauze, and a muslin cymar.

Women.

The women can seldom read or write, but are all of them able to embroider very tastefully; and they can generally play on the Greek lute or rebeck. Their dancing they learn without a master, from their companions; and their favourite national dance, the Romaika, is thought to bear a striking resemblance to the ancient Cretan dance, invented in the time of Theseus. Most of them are acquainted with a great number of songs or recitatives, accompanied with tales, which are combined and taken up by different individuals in succession for hours together. The Greek women evince a great quickness of understanding, and much aptitude for the acquisition of languages and other branches of education, when an opportunity offers. But their early marriages (for they are sometimes married at thirteen or fourteen) are prejudicial to their mental improvement. They are, however, assiduous housewives and tender mothers, and, notwithstanding the scandalous imputations of some travellers, generally chaste. The state of bondage and seclusion in which they are kept naturally enfeebles their characters, and they are excessively credulous, weak, and superstitious, slaves to a thousand vain apprehensions, believing in sorcery and witchcraft, and receiving implicitly the dogmas and fables of their church. They are much guided by ominous dreams and celestial revelations; and at births, marriages, and other memorable domestic events, they have recourse to many spells and superstitious rites, to guard against fairies or wicked spirits. The evil eye is particularly dreaded; and the herb garlic is in high repute as a charm against this and other imaginary misfortunes. At funerals, women hired for the purpose accompany the bier, howling in a manner rather ludicrous than mournful, proclaiming the virtues of the deceased, and calling aloud to the corpse, "Why did you die? You had money, you had friends, you had a fair wife and children; why did you die?" On the ninth day after the funeral, the nearest relation gives a feast, with music, dancing, and every other sort of merriment. Many of the rites and ceremonies now in use, and not a few of the observances connected with religion, have evidently been transmitted unaltered from pagan antiquity. (Hobhouse, let. 31.)

The Greeks affect a great deal of parade in their style of living. Those who are in office are addressed by pompous titles, keep great numbers of servants, dignified with the names of secretaries, physicians, couriers, &c. and have large houses, which are in general shabbily furnished, and very dirty. Both Greeks and Turks contrive to support a respectable appearance by very slender means. The Greeks, like the Turks also, are all smokers, and addicted to the use of the hot bath. The men generally bathe once a week, the women at least once a month. Their diet, when not restricted by their fasts, consists, amongst the poorer classes, of bread made of barley, wheat, or Indian corn, pilau, or boiled rice mixed with butter, eggs, sheep's milk curdled, cheese made of sheep or goat's milk, dried fish, olives, gourds, melons, and various other vegetables. On holydays, lamb, mutton, kids' flesh, or fowls, are served up. The rich have a greater variety in their dishes and cookery. The mutton, which is the kind of animal food most in use, is seldom good, and is generally roasted or stewed, rarely boiled. Pastry is common, but is very indigestible, being sweetened with honey, and not well baked. Boutaraga, caviar, and macaroni, are generally met with on the table, and a dish of snails is not uncommon. The bread is coarse and under baked. Salted olives are a standing dish, and gourds and melons in their season. Great quantities of vegetables are consumed, such as cabbages, cauliflowers, spinach, artichokes, &c. which are generally prepared with oil or butter, and seasoned with pepper, mint, marjoram. Oranges, pears, olives, citrons, medlars, pomegranates, are served up as a dessert. During dinner the Greeks drink wine, and a spirit made from barley, resembling whisky; but they rarely indulge to excess. Coffee is much in use, but is taken rather as a refreshment than as a part of diet. In general, says Dr Holland, the Greeks have an appearance of comfort in their dwellings, clothing, and in the various habits of life, not much inferior to that of other nations in the south of Europe.[1]

Travellers seem now to be nearly agreed as to the intellectual and moral qualities of the Greeks. It is allowed that they have much acuteness of understanding, polished and agreeable manners, a sprightly wit, and great natural eloquence; but, on the other hand, their apologists cannot deny that, though strict in their fasts, they are lax in their morals; that their vanity forms a lamentable contrast with their humbled condition; and that they have more than an ordinary share of duplicity, meanness, and bigotry.

A great proportion of the Greeks are engaged in foreign or domestic trade; and as merchants they are reported to be vigilant and dexterous, but overreaching and deceitful. Those who get into power, as archons or codjia-bashees, are as rapacious and tyrannical as the Turks. All classes are devoutly attached to the doctrines of the church, and hold other sects in such contempt that they regard themselves and the Russians as the only Christians. The few well-informed men among them are generally sceptical, as will always happen where religion is debased by absurdities which shock the understanding. One of the best features in their character is the strong national spirit which animates them, and the lively interest they take in the fate of their country. The Greeks settled in Russia and Italy, and some of those at Constantinople, have expended a considerable part of their fortunes in supporting schools, and in printing works designed to enlighten their countrymen; and the sacrifices made during the revolution, by men of all classes, proves that their patriotism is strong and ardent. Though the deeds of the ancient Greeks live n their memories, and are often in their mouths, they have a very confused and erroneous idea of their character. They associate the glory of their ancestors much more with the empire of Constantine and his successors, than with the Greek republics. And their bigotry has so far perverted their ambition, that the overthrow of the Turks would gratify them more as the triumph of their church than as the establishment of their independence. In private life the Greeks have much social feeling; and, though easy in their manners, are strict observers of forms. Two men in saluting first touch their foreheads, then place their right hand on their hearts, and kiss each other. They make the most ceremonious and particular inquiries after each other's families. It is rare to find a Greek living single, except as a widower, for they seldom marry a second time. They are fond of titles and distinctions, in proportion to their want of real strength and dignity of character. Every archon and codjia-bashee, though he has but the shadow of official dignity, is "most illustrious," or "most noble." A bishop is styled "your beatitude," a priest "your holiness." They are avaricious; but they desire money only for the purpose of ostentation. Their veneration for wealth ndeed supersedes, in some measure, the strongest natural ties. Children who get rich sometimes employ their own fathers as menial servants, and are waited upon by them at table. Parents teach their children to kiss their hands, and to address them by the title of signor, which implies superiority, and is therefore preferred to more endearing appellations. All classes, but especially the lower, are ively and gay, excessively fond of dancing, music, and pastimes. They delight in poetry, and have a remarkable facility in versifying. Of popular songs they have a great variety relating to love and drinking; some of them written by living authors who have distinguished themselves n this species of composition. They have also some pieces of a greater length, and of a dramatic form. Their music, which is plaintive but monotonous, is sung with a nasal tone. The fiddle and three-stringed guitar are the instruments most in use. Strolling bards, still bearing the ancient name of rhapsodists, frequent the houses of the wealthy, singing love songs, or celebrating in rude verse the exploits of some warrior, and accompanying their voices with the lyre. Foot races, wrestling, and the disc, are still, as n ancient times, favourite amusements.

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[1] Hobhouse, 226; Pouqueville, chap. xv.; Holland, 268.

The Greeks of the present day, though unquestionably much debased, are rather objects of compassionate sympathy than indignation. The cardinal vices of their character, dissimulation, meanness, and superstition, are so distinctly referrible to their political situation, as to warrant a belief that a favourable change in the one would speedily be followed by an improvement in the other. Experience tells us that misery and persecution increase men's attachment to their religion; and that, among a people so attached to their religion, possessing lively imaginations, but grossly ignorant, and where the only pittance of knowledge to be found is in the hands of priests, superstition must take root and flourish; and when we recollect that the national faith of the Greeks, rendered venerable in their eyes by its antiquity, has descended through a period of fifteen centuries, exposed to the continual action of all the causes that could corrupt it, without one lucid interval of free inquiry and diffused knowledge, we cannot be surprised that the vital principles of religion have totally disappeared amidst the rubbish of senseless forms, mystical rites, and vain pageantry. Again, with regard to the civil condition of the Greeks, it may be observed, that the slavery in which they are held is of the most demoralizing kind. Uninstructed though they be, they are enlightened compared with the Turks. But knowledge, when doomed to dependence on ignorance and rudeness, unavoidably degenerates into craft and duplicity. Instead of raising the character of the individual, it furnishes him with new powers of servility and deceit, and makes him more deeply conscious of the ignominy of his condition. A human being can never feel his self-degradation so complete as when he is the slave of another whom he despises. What is still worse in the state of the Greeks, the lord and vassal are separated by difference of faith; and the rancour of religious bigotry inflames the contempt and hatred naturally generated between the oppressor and the oppressed. Human nature, in such painful circumstances, has but two resources; resistance at the hazard of extermination, or entire submission. The suffering party must either bend to its hardy destiny, and endeavour, by flattery, duplicity, and management, to molify the violence of the oppressor, and by cunning and dissimulation to elude his tyranny; or it must assume a courage from despair, and extort better terms by the obstinacy of its resistance. The Jews, the most degraded portion of European society, illustrate the one case; the Albanians the other. Though too many of the Greeks chose the less honourable alternative, and sunk to a state of abasement resembling that of the Jews, they have also shown themselves capable of acting the more rugged and difficult part when favoured by circumstances. The inhabitants of the hilly country have everywhere forced the Turks to respect their privileges; and the firm and unconquerable spirit displayed by the Mainotes of the Morea, and the Suliote Greeks, in defence of their rights, is worthy of the most brilliant days of Sparta or Rome.

NARRATIVE OF THE GREEK REVOLUTION.

In the course of last century, the Greeks made two unsuccessful attempts to liberate themselves. The first was in 1770, during a war between Russia and the Porte. The Russians, in pursuance of a plan previously concerted, landed a small force of 2000 men at various points in the Morea. The Mainotes and other Greeks instantaneously rose in arms, and got possession of the open towns, butchering the Turks with every circumstance of cruelty. Before they had mastered any of the fortified places, however, a great force of Albanians pouring in, defeated them, and retaliated, with dreadful severity, the cruelties committed on the Turks. The inhabitants of some entire towns and villages were massacred, and the country was almost desolated. Though the Greeks acted with much vigour at the outset, it was observed that their spirits sank at the first check they received. But it is impossible to reprobate too strongly the cruelty and perfidy of the Russian government, which, by sending such an inadequate force, exposed the Greeks to certain destruction, for the sake of operating a paltry diversion in its own favour; and, at the conclusion of a peace, took no effectual means to protect them from the rage of their enemies.

In 1790, the Greeks of Suli, in Albania, rose in arms, upon an understanding that assistance was to be received from Russia. A deputation went to Petersburg to offer the crown of Greece to Prince Constantine, brother of the present emperor, whom they saluted *βασιλευς των Ἑλληνων*. They were to collect their various troops from Suli, Livadia, Attica, and the Morea; to march through Thessaly and Macedonia, where they were to be joined by other reinforcements; and to meet the Russians at Adrianople with 300,000 men (as they gave out), after which the combined army was to proceed to Constantinople, and drive the Turks out of Europe. But in the end little was done. The Russians sent a trifling sum of money, which was chiefly embezzled by their own agents, and soon made peace, without concerning themselves about the peril into which they had brought the Greeks. The Suliotes defeated the Pasha of Yanina; and, aided by their rocks, defended themselves, performing prodigies of valour against the Albanian Turks. A squadron of twelve small vessels, which they had fitted out at Trieste, signalized itself in the Archipelago, and after spreading terror amongst the Turks, was overpowered and destroyed by a greatly superior force. This second enterprise, in short, ended like the first, without any other effect than that of exposing the Greeks to renewed outrages from the Turks. The brave tribe of the Suliotes, on whom the Greeks placed great reliance, as the best soldiers of their faith, were reduced to a remnant by Ali in 1803, after a contest of many years.

Though the hopes of the Greeks were cast down for a time by this event, various causes were silently operating a change in their situation, and preparing the way for a more successful effort. Amidst all the hardships of their lot, knowledge had been steadily increasing. The influence of Russia over the Porte was visibly extending, and promised them sooner or later the means of exchanging Mahommedan for Christian rulers. But what was of more immediate importance, the establishment of Russian ports on the Black Sea, and the destruction of the French shipping by the wars of the revolution, created a trade in corn between Odessa, Marseilles, Leghorn, and Trieste, which falling into the hands of the Greeks, had raised up a class of capitalists amongst them, and given them possession of a commercial navy. From a few small barks engaged in coasting traffic, a short period saw them in possession of some hundred large well-rigged merchantmen, making long voyages. Greek houses were established at the ports mentioned, as well as at Smyrna, Salonica, and Constantinople. As patriotic feelings were universally diffused, a part of the wealth thus acquired was expended in founding schools and libraries, and the number of Greek youths sent to the universities of Western Europe was greatly increased. The ancient classic writers of the country were studied with new ardour, and lessons of freedom, magnanimity, and patriotic devotion, eagerly imbibed from their pages. Amongst the educated Greeks, those especially who had studied in France, Russia, and Germany, a more just idea was acquired of the relative weakness of the Porte, and the advantages which any people contending with it might derive from those arts and improvements, the growth of an advanced civilization, which the Turks despised. The conviction thus gained strength, that nothing more was necessary to accomplish the liberation of the Greeks, than a combined and organized effort by themselves, aided if possible by the countenance of some great Christian power. This idea gave birth to the *Hetairia*, a secret association, which is supposed to have originated about the beginning of the present century, but remained obscure and feeble till 1815. About that time Count Capo d'Istrias, a Greek by birth, who enjoyed a considerable rank in the Russian service, established a Philomuse Society, ostensibly to promote Greek literature, but really to serve as a cloak for the Hetairia. In a little time he withdrew from its apparent guidance, but without ceasing to promote its objects privately. The Hetairia had a complex and artful organization. It was divided into five orders: those of the first or lowest receiving merely a general intimation that a scheme was in contemplation to regenerate Greece; and the information communicated of the society's designs becoming more special and distinct through the other grades, to the fifth or highest, called the Grand Arch, which was composed of sixteen members, and alone possessed a full knowledge of the society's plans, the power of issuing general orders, and fixing the time and mode of execution. All the members were sworn to secrecy on their knees, at the dead of night, and bound to kill any one of their brother members who should be guilty of treachery. The grand arch had its seat at Moscow, from which it corresponded with persons in all parts of Europe. The society spread its ramifications through the southern parts of Russia, had numerous members in Odessa, Yassy, Bucharest, and in Greece Proper, and some at Vienna, Paris, and Leghorn. Most of the primates of the Morea joined it in 1819. This conspiracy had been spreading its roots through European Turkey for five years before the Ottoman government knew of its existence; and when at length apprised of the fact by an accidental circumstance, its usual apathy, and its contempt of the Greeks, prevented it from taking any precautions to avert the threatened danger. It has been said that the Hetairists had fixed upon the year 1825 for beginning the revolution; but the statement rests on no good authority. Whatever might be their intentions, the rebellion of Ali Pasha, by embarrassing the Porte, and neutralizing one who would have been a formidable enemy, presented an opportunity too favourable to be lost, and precipitated the commencement of hostilities.

In the autumn of 1820 a Turkish army advanced into Albania. Most of Ali's officers and armies having deserted his standard and joined the enemy, he shut himself up in a fortress at Yanina, after destroying the town, and prepared to stand a vigorous siege. Aware of the designs of the Hetairists, he stimulated them to take up arms, by a promise of money and assistance; and though they did not confide in it, they resolved to embrace the advantage which the position of affairs held out. The first movement was in a distant quarter. By previous concert a number of Greeks assembled at Yassy in Moldavia in the end of February 1821, and on the 6th of March Prince Ipsilanti, who held the rank of major-general in the Russian service, crossed the Pruth, and joined them. After proclaiming the independence of Greece, he left that town on the 13th, with eight hundred horsemen, proceeding towards Bucharest, but lost time foolishly on the road, and did not enter the capital of Wallachia till the 9th of April. Dissensions in the mean time broke out in his small army; and though the spirit of the people was good, and the lethargy of the Turks left him a clear space for action, his incapacity and indecision rendered him unable to improve these advantages; and a proclamation issued by the Russian consul, in which the insurrection was strongly condemned by the emperor, on whose assistance they had relied, completely disheartened the insurgents. About the end of April, a body of Turks put themselves in motion from Silistria, occupied Bucharest, and followed the insurgents northward. Some trifling skirmishes took place in the neighbourhood of Tergoivisht, rather to the disadvantage of the Greeks; and a rash and unsuccessful attack made by one of their officers at Piteshti caused a panic in the army, followed by a disastrous retreat. In this action the greater part of the Sacred Battalion, composed of Greek youths from various parts of Europe, was destroyed, after a brave resistance. Ipsilanti shortly afterwards stole away from his troops, and sought refuge within the Austrian boundary. A partisan warfare was continued a little longer. One small corps retreated to Yassy, and thence to Skuleni on the Pruth, where, under Athanasius of Agrapha, they sustained an attack from a body of Turks six times more numerous, refusing to fly, though the means of retreat were open to them, till three fourths of their number were destroyed. Another small party under Yorgaki, or George the Olympian, shut themselves up in the monastery of Secka, where they resisted the Turks for six and thirty hours. At length, when the enemy got into their rear, and success was hopeless, the gallant chief, having refused the safe retreat which the Turks offered him, called his followers together, and exhorted them to seek a glorious death sword in hand.

inding that instead of seconding his heroic resolution, ey were preparing to fly, he retired to the chamber where s powder was deposited, and uttering a short prayer, ew himself up, with four of his attendants. George was native of Mount Olympus, and in his conduct during is short campaign showed a prudence and courage which ould have fitted him admirably for heading the insurrecon; but the Greeks are slaves to titles and family names, d George, who had no pretensions to rank, held only a bordinate situation. Quiet, modest, averse to intrigue, e seems, says Mr Gordon, to have been a real hero, inspird with sincere devotion, sublime courage, and an enthuastic love of his country. With his death, on the 26th f August, all resistance ceased in the principalities. The tention of the insurgents was to erect European Turkey to a province for Prince Ipsilanti.

From the beginning of 1821 secret conferences were eld by the more zealous Hetairists of the Morea, and a pirit of insubordination began to appear amongst the peoe. At length, on the 2d of April, the standard of indendence was hoisted at Kalavrita, a town about thirty iles south-east from Patras, by Germanos, archbishop of ripolizza, and Andreas Londos. Two days afterwards the ghting began at Patras, where the Christian inhabitants se on the Turks, and, during a bloody struggle of some ys, a part of the town was burned. The Turks, however, tained the citadel, from which the Greeks had no means f expelling them; and Yusuf Pasha crossing the straits f Lepanto, the armed insurgents suddenly fled, leaving eir brethren in the town to be butchered by the Turks. he insurrection spread with such rapidity over the Morea, at seven days after the first shot was fired, a Greek sete assembled at Calamata in Messina, under the presiency of Petras Mavromichalis, bey of Maina. A partisan arfare was carried on for some time against the small boes of Mahommedan settlers living in the country, most of hom ultimately sought refuge in Tripolizza, the capital of e Morea. Meanwhile three thousand Albanians coming om the north, victualled the Acrocorinthus, and advanng to Argos, routed a body of Greeks posted there, killing even hundred of them, and afterwards burned the town. he Kihaya Bey then proceeded to Tripolizza, and seemed solved to act with vigour. The Greeks, who had now sembled a considerable force, were divided as to the ode of acting; but it was finally determined to fight, and ey accordingly posted themselves at Valtezza, near the emy. The Kihaya Bey, leaving Tripolizza with five thound troops, attacked them on the 27th of May, but was pulsed in several attacks made on the village in that and e following day, and finally fled to Tripolizza, with the ss of two pieces of cannon and four hundred men. This ctory, though small, had a great moral effect in raising e courage of the Greeks. The three great seats of Greek mmerce, Hydra, Spezzia, and Psyra, entered into the volutionary cause about the same time with the towns n the mainland. A small fleet of Hydriot and Spezziot vesls visited the other isles of the Ægean, proclaiming the dependence of Greece, and was everywhere received ith enthusiasm; whilst light-armed ships scoured the seas, d captured every Ottoman trader.

In Rumelia the insurrection broke out a few days later. he Armatolis, a sort of stationary Christian militia, in e mountains of Acarnania, Ætolia, and Thessaly, kept up y the Turkish government for the purposes of police, ere unwilling to risk the loss of their pay. The peasants f Attica and Bœotia, however, took the field in the beinning of May; and on the 7th of that month, scaling the w wall which surrounds Athens, took possession of the wn, and drove the Turkish inhabitants into the citadel. n Epirus, the remnant of the brave Suliotes, reinforced by ther Greeks, and encouraged by Ali Pasha, harassed the Seraskier Kourschid Pasha, by cutting off his convoys of provisions. The scene of these hostilities was chiefly in the ancient Thesprotia, and it was carried on with great activity in May by Marco Bozzaris. From this district it spread into Acarnania and Ætolia; the independent flag was hoisted in Messalonghi in June, by several of the Armatoli chiefs; Vrakhori, a Mahommedan town twenty miles north of Messalonghi, was carried very gallantly, and some weeks afterwards Zarpandi in the same district; Salona was next taken; and the Turks in three months were deprived of a large proportion of the posts which they had occupied south of Mount Œta. Kourschid Pasha, however, made a vigorous opposition, and success often changed sides. In this desultory warfare the summer passed away. The Rumeliots, in the various actions fought, showed themselves much better soldiers than the Moreots, and this reputation they continued to maintain during the war. Whilst these events were passing, Mavrocordato arrived at Messalonghi from Leghorn, and, after conferring with the primates, went to Tripolizza, where the Moreot leaders were assembled for the siege. Finding he was an object of jealousy to Demetrius Ipsilanti, he returned to Messalonghi in September, and laboured to organize the insurrection in Rumelia. In the mean time the Pasha Omar, with a body of four thousand Turkish troops, marched from Thessaly, routed a party of seven hundred Greeks at Thermopylæ, a second larger party under Odysseus at Seripu, and destroyed Livadia, the most flourishing town of Rumelia. He then advanced to Athens, and on the 30th of July relieved the citadel, in which sixteen hundred Turks had been blockaded for eighty-three days, by a motley army consisting of Attic peasants, Æginetans, and other islanders. The armed Greeks retired to Salamis and Ægina, and the Albanians of the pasha's army plundered and wasted the country. The Greeks now collected in small corps in the hilly districts of Bœotia and Phocis, straitening the communications of the Turks, and cutting off their supplies. A strong reinforcement coming to the latter from Thessaly, was routed at Thermopylæ by Odysseus, with the loss of eight hundred men. The pasha shortly afterwards withdrew from Attica and Bœotia, and the Athenians from Salamis re-occupied the town, and resumed the blockade of the citadel in November. In the extreme north the insurrection had been unfortunate. The Macedonian Greeks, who had taken refuge in the peninsula of Pallene, had their line of defence at Isthmus forced by Aboulaboud, and, except a portion who escaped by sea, were either killed or made prisoners. The monks of Athos capitulated to the same pasha, after two thousand of them had left the mountain. The people of Magnesia, when dividing the booty they had taken from the Mahommedans, were surprised and routed by the Pasha of Drama. A part sought shelter in the forests of Pelion, and part fortified themselves in the peninsula of Trikeri, or fled to the neighbouring isles of Scopelos and Skiathos. The thirty-five neat and flourishing villages of the district were mostly burned by the Turks. The Olympians, or Greeks of Pieria, also rose in arms, but at too late a period. The Pasha Aboulaboud had previously subdued the Christians of Athos and Macedonia, and being able to bring his whole force against them, routed them, and burned the 120 villages they possessed in the valleys of Olympus.

The Greeks of Macedonia, cruelly used by the Pasha of Salonica, were driven by despair to take up arms. Unable, however, to make head in the plain country against the Ottoman cavalry, they retreated to the peninsula of Cassandra, abandoning seventy villages, which the Turks burned. We must explain, however, that the rage of the Turks was excited to fury by the discovery of a plot formed by a Hydriot captain, to fire the arsenal at Constantinople, kill the sultan, and raise the Greek population.

The government, alarmed by this event, seized and executed the leading individuals of the Fanariot families, whilst some thousands of the other Christian inhabitants were massacred in their houses, without the least regard to legal forms. The death of the patriarch, a very old man, much esteemed for his virtues, and of a number of the other high clergy, created a great sensation. Salonica, Adrianople, and Smyrna, were the scene of similar barbarities. The last of these towns, in particular, was consigned to a general sack, like a city stormed. Kydonia, a Greek town with thirty thousand inhabitants, which had grown up in a few years, and was renowned for its college, where three hundred students received a superior education, falling under the suspicion of the Turks, was burned to the ground, and its people were forced to seek refuge in Psyra and other isles. The Greek ships, which were merely merchant vessels, carrying from twelve to twenty-four guns, would have been impotent against any navy but the Turkish; but by their superior seamanship, and a bold and skilful use of brulots or fire-ships, they often baffled or defeated strong squadrons of large men of war. Their first exploit of this kind was the burning of a Turkish seventy-four on the coast of Mytelene in June. This paralysed the operations of the capitan-bey for a little; but setting forward again, he arrived at Samos, the poor but brave inhabitants of which, forty thousand in number, had slain their Ottoman rulers, and now harassed the Turks of the neighbouring continent by frequent descents upon the coast. A large land force was collected to subdue them, and the capitan-bey attended with the fleet to co-operate. But the Turks were defeated with great loss in an attempt to land a thousand men, and a second armament was intercepted by the Greek fleet, who burned ten transports, whilst the soldiers escaped to the shore. The troops after this refused to embark. The Greek and Turkish fleets manœuvred in presence of each other, but parted without fighting, after the former had burned several fire-ships without effect.

Demetrius Ipsilanti, second brother of Alexander, travelling in disguise from Russia, landed at Hydra in June, and thence sailed over to the continent, where he was welcomed with extraordinary demonstrations of joy. He brought a small supply of money and arms, and a commission from his brother, investing him with the supreme command of the army. Patriotic, upright, brave, and accomplished, he unfortunately wanted the energy necessary for the post he assumed, and soon found himself thwarted in his views, and rendered incapable of effecting any thing, by the jealousy of the bishops and military chiefs. Prince Mavrocordato, another Greek of noble descent and considerable talents, arrived in the Morea a few weeks later. The Turks at this time were driven out of the open country, but held nine fortresses in the Morea, Patras, the castle at the adjoining straits, Navarin, Coron, Modon, Nauplia, Acrocorinthus, Monemvasia, and Tripolizza. The Greeks wanted both materials and skill for conducting regular sieges, and merely kept most of these places blockaded less or more strictly. Monemvasia, and afterwards Navarin, surrendered in August, in consequence of famine. The one capitulation was pretty faithfully kept; the other was most disgracefully violated by the massacre of the Turks, to whom a safe retreat had been guaranteed. The siege of Tripolizza was pressed with a little more vigour, as it was the capital of the peninsula, and contained a number of wealthy Turks, whose property was looked to as the prize of conquest. The city was defended by a wall fourteen feet high and two miles in circuit, flanked by a few towers with cannon, and its population was increased by refugees to 25,000 souls. The besieging army amounted to about 4500 men, which was less than the number of adults within the walls; it gradually swelled, however, as the increasing scarcity in the town multiplied the chances of a surrender. The contest was carried on by trifling skirmishes, till the Turkish cavalry, which was the only force dreaded by the Greeks, being entirely ruined, the besiegers were enabled to invest the place more closely. Famine was now doing its work upon the unhappy Moslemins, who were negotiating for a capitulation on the 5th of October, when some Greeks mounting a part of the wall which had been neglected (there was no truce), entered the town, and were immediately followed by the rest of the army. The place was completely sacked, and of ten or twelve thousand inhabitants, young and old, of both sexes, still remaining in it, about eight thousand are supposed to have been slain. A number of women were carried off as captives, and a few officers were spared for the sake of the ransom expected for them. Some Turks sold their lives dearly, and a party of forty cut their way through the Greeks, and escaped to Nauplia. The booty in money, shawls, jewels, dresses, pistols, sabres, and other articles, was very great, and led to petty contests amongst the victors. The town presented the aspect of a ruin. As a small counterpoise to this loss, the capitan-bey destroyed the village of Galixidi, near Salona, and carried off thirty-four small trading vessels, the property of its industrious inhabitants. The Ottoman fleet at the same time revictualled Modon, Coron, and Patras. The Greeks made an attempt to surprise Nauplia, which would have succeeded but for the cowardice of the Moreots; and a large body blockading the castle of Patras were, owing to their gross carelessness, surprised and routed by a party of Turks who crossed at Lepanto. Thus terminated the year 1821.

The Turks of Crete, inspired with alarm by the appearance of Greek cruisers in the adjacent seas, began to strip the Christian inhabitants of their arms, and to butcher many of them in cold blood. A number of the latter, comprehending the brave and hardy mountaineers of Sphakia, were driven by this cruel usage to fight for their lives. In July, August, and September 1821, the insurgents, about twelve hundred in number, repeatedly defeated large bodies of Turks; but the pasha at length collecting an army of ten thousand men, overpowered them, and burned most of their villages.

A national assembly convoked by Prince Ipsilanti had met at Argos about the end of 1821, but finding that position insecure, it removed to Piada, near the ancient Epidaurus, in January 1822. The assembly chose Mavrocordato president, and adopted an organic law or constitution, framed on republican principles. The government was to consist of a senate of seventy members elected annually by the people, and an executive council of five persons. The constitution enacted equality of rights, the freedom of the press, and toleration in religion. The government was then organized. The executive council consisted of Mavrocordato, president; Kanakaris, Logotheti, Delhyani, and Orlando, members; and Theodore Negris, secretary. Seven ministers were also appointed for finance, foreign affairs, war, &c., whose names it is unnecessary to give. After passing a decree for a loan of 5,000,000 of piastres, the assembly closed its session on the 20th of January. The government thus erected proved a mere phantom. It had no means of coercing the military chiefs, who set its powers at defiance, and disdained even to pay it marks of outward respect.

The citadel of Corinth, a post of great importance, surrendered on the 26th of January 1822, when the Turks were inhumanly slaughtered, in violation of a compact to convey them away in safety. The Greek government fixed itself here for some months, and issued a variety of decrees, which were very little attended to. The death of Ali, pasha of Yanina, who was shot by the Turks in February, after ving himself up on a promise of personal safety, made a onsiderable change in the position of the Greeks. Kourhid Pasha shortly after sent an army of 17,000 men to tack the Suliotes, who, though numbering only 4000 warors, including Epirots, made so obstinate a resistance with e aid of their rocks and woods, that the Turks were finally ompelled to retreat with a heavy loss, and the pasha had o resource but to turn his active hostilities into a blockade. avrocordato arrived at Messalonghi in June, commissioned act as captain-general of Western Greece. Anxious to ccour the Suliotes, he marched northward with 3000 men Petta near Arta. Here he was attacked by 10,000 Turks, d in consequence of the treachery of Gogos, one of the rmatoli chiefs, his little army was overpowered, and lost ur hundred men, including two thirds of the small corps of sciplined Philhellenes. He made his way back to Messalonghi; and the Suliotes, reduced to extremity, signed a pitulation with the pasha, by which the existing remnant three hundred and twenty men, and nine hundred women nd children, were transported to Cephalonia, with their arms nd baggage, at the pasha's expense, with a douceur of two undred thousand piastres superadded. Released from this oublesome enemy, Omar Pasha approached Messalonghi October with ten thousand men. The town had scarceany defences, and the garrison being under four hunred men, he might have carried it by a *coup-de-main.* e spent some weeks, however, in a state of inaction, or trifling negotiations, and this interval Mavrocordato digently improved, by raising new works, whilst a reinforceent of men from the Morea increased the garrison to upards of 2000 men, and the Greek fleet brought supplies of mmunition and arms. The rainy season too having set in, read sickness through the Turkish camp; and the pasha, ow aware of his error, and anxious to retrieve it, attemptd to carry the works by escalade before daylight on Christas morning, when he supposed the Greeks would be at eir devotions. They had previous information, however, nd beat back the Albanians at every point, with the loss f six hundred men. The pasha now began his retreat, obructed by the swoln rivers, and harassed at every step y the Acarnanians, who where up in arms; he reached revisa with the wrecks of his army in February 1823.

In the Ægean Sea the spring of 1823 was marked by he most unfortunate and tragical event which distinguishd the revolution; the entire destruction of the happy and rosperous Greek community of Scio. This island conined 100,000 Christian inhabitants, whose peaceful haits, intelligence, industry, and wealth, exhibited a picture f civilization unrivalled in the other parts of the Turkish mpire. They were unwarlike, but being mildly governd, they desired no change. When the Hydriot fleet apeared, they entreated the admiral to leave their coast, and ot compromise them with the Porte. Two adventurers, owever, one of them a Sciot by birth, who had spent is life abroad, the other a Samian, in an evil hour, planed an expedition to dislodge the Turks, which was too eeble and ill supported to accomplish its object, but strong nough to alarm the Porte, and bring ruin on the unhappy landers. Leaving Samos in March 1822, with a flotilla f eight brigs and thirty launches, filled with one or two housand men, the two adventurers, Bournia and Logoheti, disembarked near Scio, and entered the town without xperiencing any resistance. They were coolly received y the inhabitants, who dreaded the vengeance of the urks; but the citadel with a stout garrison held out gainst them, and disturbed them by frequent sallies. A onth passed away thus, when the Ottoman fleet suddenappeared before the town, and driving off the few Greek hips stationed there, conveyed over a part of an army of hirty thousand men collected on the opposite Asiatic oast, which is only ten miles distant. The Turks carried the town by assault on the 15th of April, putting to death the men, young and old, without mercy, and not even sparing women and children. A part of the town was burned, and what escaped the fire was destroyed otherwise. For a month crowds of armed barbarians wandered over the island, wasting and plundering. It was calculated that 25,000 of the Sciots were slaughtered, and 45,000 dragged into slavery; 15,000 were saved at first in the Mastic villages, the property of the sultan, but were afterwards massacred; the rest escaped, or were absent when the catastrophe occurred; but those who saved their lives lost every thing else, and the most opulent families of which Greece could boast were thus reduced in an instant to beggary. In August the island did not contain above 1800 Greeks, out of the 100,000 who peopled it in March. If the Hydriot fleet had appeared in proper time, the Turks could have been prevented from disembarking, and, with moderate diligence, the town might have been secured against a sudden assault. But the insurrection was no less rashly planned than ill conducted, and the horrors in which it terminated filled all Greece with unavailing lamentations. A strong fleet sailed from Hydra when it was too late; but it achieved nothing except burning the Turkish admiral's ship, in which more than 2000 men perished. This exploit was accomplished in a very gallant manner, by Canaris, a high-spirited patriot, whose name, and that of Miaulis, are associated with the most brilliant achievements of the Greek navy in the history of the war.

In Eastern Greece a desultory warfare was carried on in the spring of 1822. The Greeks of Mount Œta, Othrys, and Pelion, harassed the Turks in the south-eastern plains of Thessaly, but without gaining any advantage. An attempt was made to dispossess the Mahommedans of Eubœa, but it miscarried. The Athenians had tried to bombard their citadel, but they wanted skill and an adequate supply of projectiles; they then mined parts of the wall, but could not produce a practicable breach. At length, however, famine did their work. The Turks capitulated on the 22d of June, and though their personal safety was guaranteed, a large number of them were, as usual, massacred in cold blood, and the rest were saved with difficulty by the Frank consuls.

Koursehid Pasha had been collecting a large force in Thessaly, but the Greeks, with their usual negligence and want of foresight, though apprised of the fact, made no defensive arrangements till the enemy was in the heart of their country. The Turkish army, twenty or thirty thousand strong, chiefly cavalry, with a small body of infantry and artillery, crossed the Sperchius, seized the defiles of Mount Œta, and entered Bœotia in the beginning of July. Odysseus, who had charge of the Pass of Thermopylæ with 4000 men, either from weakness or treachery, offered no resistance. The Pasha Dramali, the commander of this army, burned Thebes, passed Cythæron and the Dervend of the isthmus unopposed; and the impregnable castle of Corinth, though victualled for three months, fell into his hands by the pusillanimity of the garrison, without firing a shot. From Corinth he pushed on to Nauplia, the Greeks everywhere leaving their houses and flying in the utmost consternation at his approach. No one thought of fighting, till Demetrius Ipsilanti threw himself with a small party into the ruined castle of Argos, not with the hope of making an effectual resistance, but in order to gain time, and induce the fugitives to rally. The manœuvre succeeded. A pause took place in Dramali's operations, during which Colocotroni arrived from the interior with a considerable force, which he drew up between the mountains and the sea near Lerna, strengthening his position with some hasty works calculated to render useless the cavalry, which was the pasha's right arm. After skirmishing for one day, with little success, the Greeks wisely resolved to wait the effect of scarcity upon their enemies, having previously burned all the standing corn. The Turks soon exhausted their stock of provisions by their wasteful habits, and Dramali had neglected to secure his communications with Corinth and Northern Greece, by guarding the passes. The insalubrity of the soil, and the inconsiderate use of unripe fruit at the same time, gave birth to fevers, which cut off numbers of his men; whilst the cattle brought for food, and the cavalry horses, died in thousands from want of fodder. Pressed by these evils, and unable to force the entrenchments in his front, he began his retreat on the 5th of August. The Greeks, however, who had divined his purpose, stationed some thousand men in the mountainous defiles, who assailed him in his flight, and, besides killing 2000 of his soldiers, captured all his treasure and baggage, with a vast number of horses, mules, and camels. Many more of the Turks died at Corinth, where marsh fevers prevailed, and amongst these the commander, Mahmoud Dramali. A great number of the survivors were destroyed in an attempt to reach Patras by land; and at the commencement of winter only a small remnant was in existence of the formidable army which, three months before, seemed powerful enough to overwhelm Greece.

The Palamede, or castle of Nauplia, pressed by famine, capitulated in the end of December; and for once the Turkish prisoners were allowed to depart in safety. The Greeks who held the citadel of Athens gave up the command of it to the crafty and treacherous Odysseus, a choice of which they had reason to repent. The Turkish fleet, instead of supporting the army, sailed round the Morea to Patras, and on its way back to the Hellespont a ship of the line was burned by the intrepid Canaris.

In February 1823 a second Greek congress assembled at Astros in Argolis, and was attended by 260 deputies. Feuds ran so high between the parties that it was difficult to prevent bloodshed. It broke up at the end of April, having appointed Petro Bey president of the executive council, and fixed Tripolizza as the seat of the government. Its decrees, however, were treated with contempt by the military chiefs, who soon compelled the executive to seek refuge in Salamis. The transient gleam of prosperity caused by the retreat of the Turks had kindled a violent spirit of disunion; and the nation was now rent into factions, headed by men like Colocotroni, Petro Bey, Londos, Delhyani, Odysseus, Ghouras, and Panourias, who, having been originally *klephts* or robbers, retained the craft, ferocity, and rapacious habits of their primitive vocation, and, when the enemy was no longer present, thought of nothing but plundering the people, and assassinating one another. The men of better principles, Mavrocordato, Ipsilanti, and Conduriotti, armed only with resolutions of the national congress, had no power to awe these ruffians and their military bands into obedience. The country, in fact, was everywhere a prey to anarchy, and as early as 1823 the wiser part of the people began to broach the scheme of inviting a foreign prince to accept the sovereignty of Greece.

In the early part of the year 1823 the Turks of Eubœa made predatory incursions into Attica and Bœotia; whilst the Greek mariners of Psyra and Samos made descents on the coasts of Asia Minor, plundering the towns, and carrying off wealthy Mahommedans prisoners for the sake of the ransom obtained for their liberation. In June, however, a Turkish army of 6000 men broke into Phocis and Doris, and advanced to the neighbourhood of Athens. The Greeks, as before, avoided battles, but encamping on the heights, cut off detachments and foraging parties; and ultimately this force melted away by casualties or desertion, without accomplishing any thing of importance. An expedition undertaken by Odysseus to drive the Turks from Eubœa miscarried; and the Christians of that isle having risen in arms, were vanquished, and compelled to seek refuge in the isles of the Ægean, after witnessing the destruction of the 150 villages they possessed. The principal effort of the Turks, however, was made in Western Greece. The Pasha of Scodra led an army of 5000 Mirdites or Albanian Christians into Acarnania. Messalonghi at that time was without men or arms, and almost defenceless. Marco Bozzaris, a brave Suliote, with a small corps of his countrymen, finding himself unable to arrest the pasha in his march, conceived the bold idea of surprising him in his camp. The attack was made in the night time; but of the three parties of Souliotes, two slunk back; and the third, led by Bozzaris, consisting of only 350 men, after storming several tambourias, and making a horrible slaughter of the enemy, finding itself unsupported, retired with the loss of one third of its number, including its intrepid commander. The Pasha of Scodra now joined Omar Vrioni, and the two approached Messalonghi; but the town was by this time garrisoned and provisioned; and the Ottoman commanders having an extravagant idea of its strength, turned aside to besiege Anatolico, a paltry village a few miles distant. They bombarded it for some weeks, till the rains setting in, and spreading sickness amongst their troops, forced them to retire in November. No solicitations could induce the Pasha of Scodra to engage in the invasion of Greece a second time.

In Crete the insurrection opened in 1823 with a promise of success, which was not realized. Affendouli, the former chief of the insurgents, having lost his influence, resigned; and Tombazi, a Hydriot, and an able but rapacious man, was elected leader in his place, and dignified with the Lacedemonian title of Harmost. He arrived in Crete with 1200 Rumeliots and Moreots, and a few small armed vessels, early in the summer, and being joined by the Sphakiots, gained several advantages over the Turks. Kissamos, a fortified post, fell into his hands by capitulation, but his troops were routed at Khadeno, and failed in an attack upon the Mahommedans of Selino. The sea being in the mean time open, the Pasha of Egypt disembarked two successive bodies of disciplined troops. The last of these, which landed at Canea in September, routed the insurgents in the neighbourhood of that town, and carrying fire and sword throughout Sphakia and the other disaffected districts, completely extinguished the insurrection. In the course of the year the capitan-pasha sailed as far as Patras, and afterwards paraded his fleet about the Ægean; but the whole extent of his achievements consisted in relieving Carysto, and reducing the Magnesians of Trikeri; whilst some of his smaller vessels were run ashore and destroyed by the Greeks. The citadel of Corinth, after a blockade of nine months, surrendered in November to Nikitas, who, in terms of the contract, faithfully secured the unmolested retreat of the Mahommedans. Whilst the Greeks thus prospered externally, there was nothing but dissensions among themselves. "The members of the executive," says Mr Gordon, "with the exception of Zaimis, were no better than public robbers.... Every corner of the Morea was torn to pieces by obscure civil contests, and hardly any revenue came into the treasury."

The efforts of the Greeks to liberate themselves from the Turkish yoke had from the first excited the sympathies of Western Europe; and in 1823, when their resistance began to rise above the character of a transient rebellion, these sympathies produced small succours in men and money. In England, France, Germany, and Switzerland, subscriptions were raised, the value of which was generally sent out in ammunition or military stores. Small corps of volunteers, actuated by a fine enthusiasm, also went from Western Europe, and though universally disgusted with the treatment which they received, they always fought bravely, and often rendered very important serce. Amongst these foreigners, who received the approriate name of *Philhellenes*, no one was the object of such niversal interest as Lord Byron. His lordship disemrked at Messalonghi with 8000 dollars in specie, on the h of January 1824, and was received with the most extragant marks of joy. Shortly afterwards Lieutenant Parry rived with some small field-pieces, supplies of powder, ot, and tools, sent by the Greek committee in London. is lordship took into his pay a corps of 500 Suliotes, hose insolence and rapacity rendered it soon necessary expel them from the town, or rather to purchase their sence with a sum of money. The Rumeliots who placed them were not much better; and Byron found mself so incessantly teased for money, so distracted by e turbulence of the military, the intrigues and dissenons of the different parties, that his mental anxiety preyg on his frame, produced a shock of apoplexy, by which s health was seriously injured. A fever followed some me afterwards, and carried off this gifted man, on the th of April, amidst the lamentations of the Greeks, who oned in some degree for the vexation they had caused m, by the sincere homage which they paid, and still pay, his memory. After his death the mutual jealousies of e chiefs became more violent than ever, and the summer ssed away in a state of comparative inaction. Mavrordato advanced with 2000 men to the Gulf of Arta in ugust, and skirmished with the Turks, till the rains in ovember forced him to retire. In the east a body of urks, who penetrated into Bœotia and threatened Athens, tired without effecting any thing. Ghouras, who held e citadel of that town for Odysseus, having quarrelled ith the latter, got him into his power, and put him to ath.

The naval campaign of 1824 was signalized by two unrtunate events. The small and prosperous isle of Kas, of which Savary gives so interesting a description, as invaded by an Egyptian force, and entirely ruined, 00 of its inhabitants being sold into slavery. The Porte, eatly exasperated by the active hostilities of the Psyots, whose ships preyed on the Ottoman trading vessels, d insulted the coasts of Asia Minor, sent a powerful et against them under the capitan-pasha, with 14,000 oops on board. The island of Psyra is small and barn; its rocky coasts render disembarkation difficult; and s inhabitants, whose numbers had been increased to fifen or twenty thousand by emigration from Scio, trustg to their courage and the natural strength of their tertory, had taken no pains to secure themselves by artiial works. The small Greek fleet stationed off the harur fled at the approach of the Moslemins, who, under ver of a false attack, landed a strong force at the north tremity of the isle, and gained possession of the hill hich rises above the town. This unexpected success oduced a panic among the timid refugees, which spread om them to the Psyriots; men and women threw themlves into the boats and attempted to escape, whilst the urks entered the town unresisted, and laid it waste with e and sword. In the midst of this miserable rout, a nd of 600 refugees from Mount Olympus and other rts of Macedonia distinguished themselves by a feat of roism worthy of ancient Greece. Throwing themselves to the convent of St Nicholas, where they had placed eir wives and children, they resisted the attacks of the hole Turkish army, till two thirds of their number were lled. All hopes of relief being at an end, they resolved blow up the convent. Their fire having accordingly ased, the Turks scaled the walls on every side, when ddenly, says Gordon, the Hellenic flag was lowered, a hite banner inscribed with the words *Liberty or Death* ved in the air, a single gun gave the signal, and a emendous explosion, shaking the isle, and felt far out at sea, buried in the ruins of St Nicholas thousands of the conquerors and the remnant of the conquered. This happened on the 5th of July. Only two of the Greeks were taken alive. The loss of life was great in Psyra; and the island, which might have been saved by a little foresight and exertion, was completely ruined. After the deed was done the Greek fleet appeared, took some Turkish vessels, and destroyed a small corps of Janizaries left on the island. From Psyra the capitan-pasha proceeded to Samos, but here all his movements were watched by the Greek fleet; and his attempts to convey over an army from the mainland were not only defeated, but he lost three ships of war and a thousand men, and at last retired from the shores of Samos completely baffled.

The sultan, made sensible, by the failure of three campaigns, of the inefficiency of his own fleets and armies, delegated the task of re-conquering Greece to the Pasha of Egypt, whose ambitious views made him listen readily to the request of his nominal superior. In the beginning of August, Ibrahim, the pasha's adopted son, sailed from Alexandria with a powerful fleet of ships of war and transports, amounting altogether to 400 sail, with 17,000 men on board, 2000 horses, and a strong train of artillery. He put into the bay of Macri, the ancient Telmessus, to water, and shortly afterwards was met by the Greek fleet of seventy sail, carrying 700 guns. For more than three months Ibrahim manœuvred amongst the gulfs and isles on the coast of Caria, endeavouring to beat off the Greeks, and proceed on his voyage; but though he counted six guns and six men for every one his enemies could muster, his mariners were so wretchedly deficient in skill, that he was continually baffled, and at last thought himself fortunate in escaping to Crete in the beginning of December, with the loss of two fine frigates and four brigs of war blown up, fifty transports taken or sunk, and 4000 soldiers and seamen slain or drowned, exclusively of some thousands who died of disease.

The first Greek loan was negotiated in London in February 1824. The nominal amount was L.800,000, of which all that was available, after deducting interest, commission, sinking fund, &c. was L.280,000. It served to quicken the operations of the government, and no doubt contributed materially to the success of the fleet, and the defeat of Ibrahim. In the Morea fierce civil war raged, Colocotroni, Londos, Sisini, and other robber chiefs, setting the government at defiance. They were crushed, however, by the vigorous efforts of Colletti, the secretary; but the Rumeliots, by whose agency he put them down, proved a scourge to the country by their rapacity.

Ibrahim having procured reinforcements from Egypt during the winter, set sail from Suda in February 1825, and landed with 4000 men at Modon on the 24th, a day pregnant with sorrow to the Greeks. The success of their naval efforts in the preceding year showed that, with common activity, they might have prevented the disembarkation; but no precautions were thought of, partly from want of foresight, partly from a feeling of false security, which led them to think that the Egyptians would be as feeble adversaries as the Turks. Ibrahim attempted nothing till he had brought over additional corps, and raised his army to 11,000, and afterwards to 15,000 men. He then commenced the siege of Navarin, defeated 7000 palikars who tried to relieve it, breached the walls, carried some outworks after hard fighting, and gained possession of the place by capitulation on the 18th of May. Thence he advanced into the interior, burning the villages, which the Greeks deserted on his approach. Colocotroni endeavoured to arrest his progress in the mountainous defiles, but without success; Tripolizza was burned by its inhabitants; and Argos shared the same fate at the hands of the Egyptians. Nauplia was threatened, but

Ibrahim had no battering artillery; and dreading the want of provisions, he retreated towards Messenia. The Greeks, who had assembled to the number of 7000, attacked him near Tripolizza, but were beaten so completely that they gave up all further thoughts of resistance in the open field. In August and September the pasha ravaged the valleys of the Alpheus and the Eurotas, destroying the town of Misitra and a number of villages, and then returned to Modon. One or two gallant feats were performed by the Greeks during this unfortunate campaign. A small body of 300 men under Papa Flessas, surrounded by many thousand Egyptians, defended themselves with the bayonet and the but-ends of their muskets, till the whole perished except two, who lay hid under the slain: and at the Mills of Lerna, Ipsilanti, with a few hundred men, baffled the main body of the pasha's army.

In Northern Greece, Redschid Pasha, the most energetic of all the sultan's officers, had been intrusted with the conduct of the war. Leaving Yanina, he arrived in May before Messalonghi, which contained about 5000 of the bravest Greek soldiers, and opened trenches. The works were carried on with vigour, in the face of a most determined resistance. Elevated mounds were raised to command the batteries of the besieged, and mines were sunk; the Franklin bastion, the most exposed part of the defences, was laid open by breaching, and repeated attempts were made by the Turks to take it by assault, in one of which they at length succeeded; but the Greeks, no way daunted, sprung a small mine, and rushing upon their enemies sword in hand, dispossessed them, and following the Turks into their lines, destroyed some of their batteries. Fresh efforts were made by the pasha, and still frustrated by the courage of the Greeks, till the winter rains in October compelled Redschid to suspend his operations, and coop himself up within a fortified camp near the town. Ibrahim, who had received a great accession of force in November, now determined to try a winter campaign, and gratify the Porte by conquering Messalonghi. Marching northward, he burned the villages of Elis, and crossing the Straits of Lepanto, encamped before Messalonghi in January 1826. He began by offering terms to the besieged, which were proudly rejected. His batteries were more skilfully constructed than those of the Turks, and his artillery better served; but after he had ruined part of the town's defences, his attempts to storm were constantly defeated by the Greeks, who, in fighting hand to hand, with sword or bayonet, were vastly superior both to the Turks and Egyptians. The siege would indeed have ended in total failure, if he had not succeeded, at a great expense of life, in reducing various outworks commanding the channels of the lagoon by which the besieged communicated with the sea, and received supplies of provisions. Starvation now accomplished what arms could not achieve. After every thing edible, whether wholesome or unwholesome, was consumed, the remainder of the gallant garrison adopted the resolution of cutting their way through the enemy's lines. A deserter betrayed their plan to the pasha, who was fully prepared to receive them. Formed into two bodies, they issued from the town by moon-light on the 22d of April; a false alarm induced the one to return: the other, raising a simultaneous shout, "On, on, death to the barbarians," rushed forward with their muskets in their hands, and their sabres slung to their wrists. "Neither ditch nor breastwork," says Gordon, "neither the flashing peals of cannon and small arms, nor the bayonets of the Arabs, could arrest the tremendous shock; in a few minutes the trenches were cleared, the infantry broken, the batteries silenced, and the artillerymen slaughtered at their guns." Of the other body which returned to the town, some escaped in boats, some by wading through the lagoon, some voluntarily blew themselves up with a number of the enemy, when the latter entered the powder magazine, and not a few of the survivors died of fatigue and exhaustion before they reached Salona. The heavy loss of the Turks and Egyptians during the siege attested the superior valour of their enemies; and the heroic defence of Messalonghi may well vie with the proudest achievements of ancient Greece.

In Eastern Greece, Colonel Fabvier, a brave and zealous French officer, formed a corps of regulars or tacticos, and carrying them over to Eubœa, made an attempt on Carysto, which failed. No drilling, in fact, could induce the palikars, or Greek irregulars, who had been accustomed to rely entirely upon their strength, agility, and adroitness, to meet a steady fire when drawn up in line. Another national assembly was held at Piada in Argolis, but it effected nothing. After the fall of Messalonghi, Redschid Pasha invaded Attica, and took Athens, but failed in his attempts upon the citadel, into which, when its garrison was greatly reduced, Colonel Fabvier introduced 600 men, with a supply of powder. The glorious fall of Messalonghi had awakened an enthusiasm in Western Europe in favour of the Greek cause, and contributions to the amount of not less than L.70,000 were raised in 1826. The royal families of Bavaria, Prussia, and Sweden, and the present king of France, were amongst the contributors.

In May 1827 Ibrahim invaded the country of the Mainots, but was defeated in all his attempts to penetrate their mountain fastnesses. The rest of the summer was spent in ravaging the open country, and burning the villages, the inhabitants of which took refuge in woods and caverns. To his great mortification, none of the people made their submission, and parties of irregulars watched his movements, cutting off stragglers, and intercepting convoys. Lord Cochrane arrived in Greece in March 1827 with a steam-frigate. A very splendid frigate, built in America, also reached Ægina this year, but proved of no great use, the Hydriot mariners being unaccustomed to manage vessels of such a size. These two frigates were nearly all that the Greeks derived from a second loan of L.2,000,000 negotiated in London in February 1825.

General Church, an Englishman who had served in a Greek corps formerly kept in English pay in the Ionian Isles, arrived by invitation about the same time. They found the Greeks rent into factions furiously hostile to each other. It is a memorable fact, that whilst Ibrahim was wasting the Morea, there were no less than seven petty civil contests raging in different parts of Greece! By the influence of Church, Cochrane, and Captain Hamilton of the Cambrian, a temporary reconciliation was effected between the adverse parties, and the necessity of having a foreign chief being generally acknowledged, a congress assembled at Trœzene in April, and elected Count Capo d'Istrias president for seven years. Church was appointed general of the land forces, and Cochrane admiral of the fleet. The fortunes of Greece were now at a very low ebb; but what power remained in the country was summoned up in an expiring effort. From the Morea, the isles, and Western Greece, a force of nearly 10,000 men was collected at Salamis and the Piræus. After carrying on a war of posts, chiefly at Port Phalerus, for some time, General Church was persuaded to risk a battle with the Turks in the plain of Athens, the object being to relieve the citadel. The result was a disastrous defeat on the 5th May, in which the Greeks lost 1500 men. The remaining troops dispersed, and the citadel capitulated. The only fortified posts now in the hands of the insurgents were Nauplia and the Acrocorinthus.

Relief was, however, approaching from another quarter. From circumstances which it would be tedious t explain here, the policy of the great Christian powers hd undergone a change. A protocol had been signed at etersburg in April 1826, by the Russian and British inisters, the object of which was to effect an accommo-ction between the Porte and the insurgents, by erecting reece into a dependency of the Porte, paying a fixed tri-bte, but having the entire regulation of its own affairs. n the 6th July 1827 a treaty of intervention was signed tween France, Russia, and Britain, on the same basis. he sultan firmly denied their right of interference, for hich, however, the piracy practised by the Greeks gave em a good pretext. A naval force was sent into the editerranean to inforce the provisions of the treaty, and e belligerent parties in Greece were enjoined to sus-nd hostilities. The Greeks joyfully agreed; but Ibra-m hesitated, as the measure was not sanctioned by the ltan; and the capitan pasha, who was lying in the har-ur of Navarin with a strong Turkish fleet, having similar ruples, the warlike movements were partially continued. he combined fleets of England, France, and Russia, stood to the Bay of Navarin in order of battle on the 20th Octo-r. Though the intention of the admirals was to treat, e Turks believed they came to fight, and were anchored smooth water to receive them, and supported by batte-es on shore. Who began the battle is uncertain; but it as obstinate and bloody, and most destructive to the van-ished party. About 6000 Turks were slain, and of 120 en of war and transports, all were sunk or destroyed ex-pt twenty or thirty brigs and corvettes. The killed and ounded on the side of the allies amounted to 626. The ctory produced unbounded joy among the Greeks, and cited them to make a new attempt upon Scio, by an ex-edition under Colonel Fabvier, which, though conducted ith great courage and skill, ultimately failed. Ibrahim, see-g his communications with Egypt now cut off, obtained s father's authority, and agreed to evacuate the Morea. e sailed in the beginning of October 1828, leaving, ac-rding to stipulation, about 8000 troops in Patras, Modon, oron, Navarin, and Castle Tornese, of whom 1200 were gyptians. To avoid renewed hostilities between the reeks and Turks, a French army was sent to the Morea the autumn, and took possession of these five fortresses, e last being the only one that offered any resistance.

Count Capo d'Istrias passed from Petersburg to London d Paris in the end of 1827, and after conferring with the ritish and French ministers, he set sail from Toulon, and nded at Nauplia on the 18th of January 1828. The peo-e received him with great joy, hoping to find repose and curity under his government; and his authority was ac-nowledged at once by the military chiefs and other func-onaries of all descriptions. He was a clever and dexte-us diplomatist, but his conduct as president seems not have been judicious. Anxious to copy the centralising stem which prevails in absolute monarchies, he dissolved e municipalities, and nominated prefects, judges, and her officers, deriving their authority entirely from him-lf. Many of his appointments also gave offence: among hers, the nomination of his brother Augustin, a person of ability, to the command of Western Greece, led to the signation of General Church in 1829, after that officer d recovered all the country south of the Gulf of Arta om the Turks. The French troops, it is to be observed, nfined themselves to the Morea, such being their instruc-ons, and left the Greeks to carry on hostilities in the rth with their own means.

The Porte obstinately rejected the arrangement proposed the three powers in 1827, till it was humbled by numerous efeats in 1828 and 1829, and saw the Russian army with- a few leagues of its capital. The stipulations in behalf Greece made by Nicholas were, however, set aside by e governments of France and Britain, and it was settled that the affairs of that country should be discussed in London. The conference held there, after much deliberation finally resolved that Greece should be erected into a monarchy entirely independent of the sultan, and ruled by a Christian prince. The crown was offered, in the end of 1829, to Prince John of Saxony, who refused it; and then to Prince Leopold of Saxe-Cobourg, who agreed to accept it; but having corresponded with Capo d'Istrias, the latter artfully infused so many doubts and apprehensions into the prince's mind, that he resiled from his engagement. This was in May 1830. Other princes, it is said, were proposed, but nothing was decided; and in the mean time Greece was again falling into a state of anarchy. The popularity of Capo d'Istrias' government was of short duration. Visibly the partisan of Russia, he showed a devotion to her interests which offended all the more independent Greeks. He extinguished the freedom of the press, which the people were perhaps more eager to possess than fitted to enjoy; established a council, called the Panhellenion, which was intended to supersede the elective senate; refused to publish any account of the national finances, and threw many popular leaders into prison. These and other measures produced violent discontents, which at last broke out into open rebellion. The Mainots, whose prince he had placed in durance, were the first to throw off his authority. They were followed by the people of Hydra, who established a provisional government, at the head of which were Miaulis and Condouriotti, assisted by Mavrocordato. The French and English ships of war in the Archipelago stood neuter; but the Russian admiral, Ricord, eagerly took a part in the contest, on the side of the president. With this aid he attacked Poros, where the Greek fleet lay; but the islanders had anticipated his design, and, when the loss of their ships of war became inevitable, blew them up to prevent them falling into his hands. Whilst this contest was going on, the son and brother of Mavromichaeli, the captive bey of Maina, instigated by a feeling of revenge, came to Nauplia and assassinated the president at the door of a church, on the 9th of October 1831. One of the assassins was seized, tried, and executed, but the other escaped. A new commission of government was then appointed, consisting of Augustin Capo d'Istrias, with Coletti and Colocotroni, who thought it prudent to convoke a national assembly. Loud complaints were made that the free choice of the people was defeated by force and fraud; and when the assembly met in December, it speedily separated into two hostile bodies, one of which remained at Argos, while the other seated itself at Megara, and thence fulminated decrees against Augustin and his associates. The Moreots generally adhered to the former, the Rumeliots to the latter. Civil war now raged furiously in the country, and the peaceful cultivators were driven, as in the time of the revolutionary struggle, to desert their homes, and seek refuge in the woods and caverns. This lamentable state of things probably quickened the languid proceedings of the conference in London, who in May 1832 fixed upon Otho, second son of the king of Bavaria, as the sovereign of Greece. The prince was born in 1815, and was of course a minor; but the defect was supplied as far as possible by a council of regency. The three powers, parties to the conference, obtained an extension of territory and a better frontier for the new state, including the province of Acarnania, for which, however, a price was to be paid to the sultan; and, in order to put Otho in a condition to meet initiatory difficulties, they guaranteed a loan of L.2,400,000 for him, to be paid in three equal annual instalments. Otho landed at Nauplia on the 31st January 1833, attended by 3600 Bavarian soldiers, and was warmly welcomed by the people. The French troops had been gradually reduced, and were now entirely withdrawn. The regency commenced the work of organizing the government, made a new division of the country, disbanded the palikars, formed a small body of Greek regulars, and took some steps towards the establishment of tribunals. As might have been expected, its endeavours to introduce order soon awakened the factious spirit of the klephts or military chiefs, some of whom, including the arch-anarchist Colocotroni, were tried for plotting the overthrow of the government, convicted, and sentenced to imprisonment or exile. These are only the beginning of troubles, springing from the natural levity and turbulence of the people, and which it will require a firm government to control. The last act of the regency of which accounts have reached us was the removal of the government to Athens, which took place in December 1834.[1]

In the whole course of the war, the Greeks never had any regular army; for the attempts to form a corps of disciplined troops, and keep them in pay, always failed. Their soldiers, with the exception of some small bands of Armatoles, consisted of peasants who took up arms for a few months, when the enemy made an irruption, and fought till he was expelled, or driven into the fortresses. They made war as irregulars, seldom encountering the Turks in the field, but posting themselves in defiles, and on mountains, taking advantage of rocks, inequalities of the ground, villages, or ruined buildings; and where these were wanting, covering themselves by small temporary parapets of earth or stones, called Tambourias. The Rumeliots were excellent marksmen, and admirable at defending a post. A hundred of them planted in a ruined monastery, seldom failed to beat off one or two thousand Turks. Their defeats were chiefly owing to three circumstances: first, their entire want of cavalry, for as infantry they were superior to their enemies; secondly, their deficiency in artillery, both for service in the field, and for battering fortified posts; thirdly, their incorrigible neglect of order and discipline, in consequence of which they were often surprised and routed by a contemptibly inferior force. As obstacles to their success, we must also mention their mutual animosities, the rapacity and selfishness of their chiefs, and their habit of neglecting all advantages for the acquisition of spoil. Their fleet was better managed than their army, but its operations failed on many occasions, from the mutinous spirit of the sailors, and the habit, which they could scarcely ever be persuaded to abandon, of returning to port to see their families at the end of every month, however pressing might be the occasion for their services. With all their faults and errors, it is impossible to read the history of the revolution without feeling respect for their courage, and for the unconquerable spirit which bore them up under the most dreadful privations and reverses.

STATISTICAL VIEW OF INDEPENDENT GREECE.

It was settled by the conference of London in March 1829, that the northern or inland frontier of Greece should extend from the Gulf of Arta to the Gulf of Malia; but this was coupled with two conditions, that the sultan should be acknowledged as sovereign, and receive an annual tribute. In the following year it was resolved that Greece should enjoy entire independence; and, as an indemnity to the sultan for the loss of the tribute and titular sovereignty, the limits of the new state were contracted, so as to extend from Thermopylæ to the mouth of the Achelous, excluding Acarnania and part of Ætolia. By a later arrangement, made after Otho received the crown, the original boundary was again restored, with the consent of the Porte, which agreed to accept a sum of money for the ceded districts. This boundary commences at the north-east angle of the Gulf of Arta, passes eastward to the sources of the Sperchius, and thence follows the line of Mount Othrys to the Maliac Gulf at Zeitouni. The isle of Eubœa, the Northern Sporades, viz. Skiathos, Scopelos, Helidromia, and Skyros; the Cyclades; and the isles in the Gulfs of Ægina and Nauplia, also belong to Greece. There are four provinces, Eastern Hellas, Western Hellas, the Morea, and the Isles; and each of these is divided into eparchias or departments. Thiersch gives the following estimate of the population, which is chiefly founded on an enumeration of towns and villages, which are assumed to have a certain mean number of inhabitants each.

Eastern Hellas,[2] comprehending eleven eparchias or departments, which contain eleven towns and 585 villages.

Eparchias.	Towns.	Villages.
Megara	1	12
Attica	1	118
Thebes	1	150
Livadia	1	72
Talanti	1	66
Boudenizza (at Thermopylæ)	1	34
Zeitouni (at the Maliac Gulf)	1	29
Neapatras (on the Sperchius)	1	66
Malandrinos	1	16
Lidoriki (ancient Doris)	1	60
Salona (Locri-Ozolæ)	1	32

The towns are assumed to have 300, the villages fifty houses or families each; and reckoning four persons to a family, the population of Eastern Greece is computed to consist of 32,550 families, or 130,000 individuals.

Eastern Hellas contains 1,886,000 stremas[3] of cultivated soil, of which 720,000 belong to the nation, and 1,166,000 to individuals. Of this, 75,000 stremas are in vines, and 3700 in gardens. In 1829, there were computed to be 210,000 olive trees in the eparchias of Attica, Megara, and Salona, and a very few in other places. The cultivated soil, according to the above account, seems to form about one fifth of the whole surface, a result which we suspect contains some considerable error in excess.

Western Hellas.

This province comprehends Ætolia, Acarnania, and a part of the country of the Locri-Ozolæ. It forms twelve eparchias,[4] containing nineteen towns and 265 villages.

Eparchias.	Towns.	Villages.
Messalonghi	1	2
Anatolico	1	2
Zygos	1	20
Lepanto, with Galixidi	1	—
Beneticon	1	18

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[1] The preceding narrative, as far as the end of 1827, is abridged from Mr Gordon's *History of the Greek Revolution*, Edinburgh, 1832, an able, impartial, and instructive work, which should be read by all who wish to understand the moral and social condition of the Greeks. The part of the narrative subsequent to 1827 is derived from various sources.

[2] The terms most in use among English and French writers are Eastern *Greece* and Western *Greece;* but these, when applied exclusively to the districts beyond the Morea, are evidently improper, and we have therefore preferred the denominations which, as we find from Thiersch, the Greeks themselves use. In the preceding part of the article we have followed Gordon in employing the more usual terms.

[3] The cultivated land is measured by the *strema*, which, according to Thiersch, is a square of forty paces (*pas*). By the pace he seems to mean a full step of three feet; and the strema, on this supposition, will be a fraction under one third of an English acre, which agrees pretty well with the statements of other writers.

[4] Thiersch says there are eleven eparchias, but enumerates twelve, and his aggregate numbers seldom agree with his details.

Eparchias.	Towns.	Villages.
Baltas	1	28
Vonizza[1]	1	11
Vlochos, with Vrachori	1	20
Xeromeros	4	23
Krabara	2	53
Apocoura	1	26
Carponisi	4	62

The population, estimated hypothetically as before, amounts, he says, to 19,000 families, and 76,000 individuals.

The cultivated land in Western Hellas amounts to 99,000 stremas, of which 179,000 belong to the nation, and 818,000 to individuals. Of these lands, 65,000 stremas are in vines, and 3650 in Corinthian grapes.

The Morea or Peloponnesus, comprehending thirty-five eparchias.

Eparchias.	Towns.	Villages.
Nauplia	2	64
Low Nachare	3	3
Argos	3	15
St Petros	9	4
Prastos	3	2
Corinth	10	8
Tripolizza	1	61
Leontari	1	53
Kalavrita	15	97
Carytene	11	119
Phanari	2	52
Androuzza	2	48
Vostizza	2	26
Patras	1	112
Gastouni	7	172
Pyrgos	2	8
New Arcadia	1	90
Navarin	1	14
Modon	1	28
Coron	1	56
Nisi	1	2
Calamata	1	17
Micromani	1	10
Embelakia	1	35
Lacedemon	21	108
Monemvasia	3	30

Kolokynthia Trigonas Malembris Phoucas	Inhabited by the Eastern *Spartiates*, or Mainots, numbering from 8000 to 10,000 families.
Stauropygos Androbysta Zygos Mylea Maina	Western *Spartiates*,[2] or Mainots, numbering 6700 families.

The Morea has eighty-six towns and boroughs (*villes et burgs*), 1335 villages, and 92,550 families, exclusive of the country of the Spartiates. Adding 15,400 families of Spartiates, the population will consist of 107,900 families, or 429,000 inhabitants. The statistical commission employed under Otho's government had received more correct returns for nine eparchias; and, taking these as a basis, the population should be 308,800 inhabitants, exclusive of the Mainots, an estimate which falls short of the former by 61,000 persons.

The returns of land in cultivation are extremely incorrect as to the Morea, exhibiting only a total of 1,776,000 stremas, of which rather more than two thirds are national property. "In general," says Thiersch, "we may reckon fifty stremas of cultivated soil for each family, which gives an aggregate of ten millions of stremas for the 400,000 inhabitants of the Morea." The real quantity of laboured land is thus presumed to exceed sixfold the returns made to the government, a circumstance proving that little authority is due to the other statements.

The Greek Islands.

The inhabited isles are thirty-three in number, exclusive of Eubœa. No eparchias are named in reference to these.

	Inhabitants.		Inhabitants.
Hydra	20,000	Thermia	2,050
Spezzia	8,000	Naxos	10,800
Poros	4,464	Paros and Antiparos	4,751
Ægina	5,572	Siphnos	4,431
Augistra	1,552	Seriphos	3,200
Salamis	1,124	Cimolos	420
Scopelos	6,515	Milo	1,458
Helidromia	240	Polycandros	1,200
Skiathos	1,532	Sicinos	1,100
Skyros	1,578	Ios	2,177
Syra	30,000	Amorgos	2,067
Tinos	22,000	Santorin	9,656
Miconos	4,012	Anaphe	643
Andros	5,000	Astypalœa	951
Cea	3,112	Eubœa	20,000

The entire number of inhabitants in the islands amounts to 176,000; and adding 429,000 for the Morea, and 206,000 for Eastern and Western Hellas, we have 811,000 for the population of the kingdom of Greece.[3] Thiersch thinks, that prior to the revolution the number of inhabitants in Continental Greece was nearly double of what it now is; but though this may be true as regards the more exposed districts, namely, Eastern and Western Hellas, the accounts given by Pouqueville would lead us to believe that the Morea is nearly as populous at present as before the war. The islands have suffered much less in the struggle than the continental districts, except Eubœa and Hydra, the latter from the decline of its trade, the former from the expulsion, first of the Christians, and latterly of the Turks, who composed a larger proportion of the population here than anywhere south of Mount Œta.

Independent Greece comprises, including the islands, according to our measurements, an area of 20,000 or 21,000 square English miles. Thiersch's estimate is 1100 square German, which is equal to 23,000 English miles; but this appears to us an exaggeration. Otho's kingdom is therefore nearly of the same extent with Denmark, or Belgium and Holland united. But in the nature of its surface it resembles Switzerland or Bavaria more than any other country in Europe; and if we suppose its population, favoured by peace and good institutions, to multiply till it rivals the most densely peopled of these states, Greece might then support about three millions of inhabitants. Commerce and manufactures, however, which enable a small spot to draw subsistence from the whole globe, may extend its capacity to nourish a large population much beyond the limits which circumscribe the powers of inland countries.

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[1] These tables are taken from Thiersch, but much confusion arises from the practice in use among the Greeks, of sounding the B as V. Thiersch invariably puts the English B for the Greek beta, and hence has Bonizza, Blochos, Blachori, where others write Vonizza, Vlochos, Vrachori. We could not venture to exclude B entirely from the map of Greece, and were unwilling to disguise names pretty familiar, such as Vonizza, by writing it Bonizza; and we have therefore allowed Beneticon, Baltas, and various others previously unknown to us, to stand as we found them, and changed a few where usage had already fixed the spelling. We believe however the reader may pretty safely substitute V wherever B occurs in these names.

[2] The Mainots are not of Sclavonic race, as some have imagined. Gordon says, that "their language is thought to come nearer the ancient Greek than that of any other canton." He adds, "We may assert with confidence that they are the lineal descendants of the Eleuthero-Lacones, who, pent up among the crags of the snowy Taygetus, had little commixture with any foreign race, while the barren country did not tempt invasion." Vol. i. p. 150. Thiersch says that the Mainots are merely the inhabitants of one canton, and that the name in use among the people themselves is *Spartiates*.

[3] These statistical details are taken from Thiersch, tom. i. sect. 6. We have preferred *stremas* in the English form to the Greek plural *stremata*.

The revenues of the present kingdom of Greece under the grand seignior were supposed, says Thiersch, to yield 15,000,000 of francs, or L.600,000, of which more than a half remained in the hands of the local authorities. The imposts consisted of the caratch or capitation tax, the tithe or land-tax, the customs, the duties on salines, fisheries, mills, olives, &c. The first of these was abolished as a badge of slavery, and the productiveness of the others has in general greatly declined. The financial statements published by Capo d'Istrias were delusive, and offered no information worthy of confidence. Thiersch gives the following approximate amount of receipts and disbursements for the fourteen months ending 30th April 1831, from estimates published in October 1830, for the accuracy of which, however, he does not vouch.

	Phœnix.
Land-tax (dimes)	2,500,000
Customs	1,200,000
Tax on vines and currants	36,000
Tax on pasturage	300,000
Local imposts	50,000
Tax on olives	110,000
	4,196,000

The phœnix was a coin introduced by Capo d'Istrias, and was meant to be equal to one sixth part of the crown of commerce (*ecu de convention*). It has been replaced by the drachma, which is nearly of the same value, or about equal to the French franc. The 4,000,000 phœnixes, reckoned at 9d. each, would be equal to L.150,000. The expenditure for the same period was estimated at 8,500,000 phœnixes. Thiersch thinks that the revenue may be raised to 8,200,000 phœnixes, assuming the land-tax to yield 5,000,000 and the customs 2,200,000. It would serve no purpose to indulge in general speculations on statements like these, which are almost purely hypothetical.

Of the actual expenditure, the same author gives the following estimate.

	Drachmas.
Council of state	300,000
Public instruction and churches	900,000
Interior	809,000
Finances and public works	1,300,000
Justice	200,000
Army	3,500,000
Marine	1,200,000
King and court	1,000,000
	9,209,000
Probable receipts	8,000,000
Deficit	1,209,000

No provision is made here for the interest of the loan of L.2,400,000 guaranteed by the three powers, or the sinking fund to be established for its liquidation. But a resource applicable to these objects may probably be found in the sale of the national lands, which are expected to yield L.12,000,000 in thirty years.

Mr Urquhart gives an estimate of the national domains of independent Greece, which makes their value L.11,833,000. The population, according to his table, is 868,000, viz. the Morea 400,000, Eastern Greece 150,000, Western Greece 100,000, and the islands 218,000.[1]

Thiersch has gone into great detail upon the subject of primary and normal schools, academies, and a Greek university; but the whole are merely as yet plans on paper, and do not require particular notice here.

As a European power, the Greek state, though it should even by and by embrace Thessaly, Macedonia, and Albania, must remain insignificant. Its chief value lies in the basis it offers for spreading civilization over the East, a work for which the people are eminently fitted, by their enterprising spirit of commerce, and extraordinary mental activity. "Now that Greece," says Mr Urquhart, "has assumed a definite and substantial form, she can afford to discard the sympathies and the classical associations that have contributed so much to her importance. It is no longer her soil, her costume, her language, and her ruins, that interest; it is not even the emancipation of the clusters of the Ægean or the mountains of Peloponnesus, that is the reward of one of the most noble and disinterested of diplomatic achievements; it is the political regeneration of the East that we have commenced—it is the emancipation of eastern commerce that we have effected. Greece owes herself to the furtherance of these two grand and philanthropic objects.

"The political independence of the Greeks will elevate the raya of Turkey, and force the re-organization of that country. The light craft of Greece will frequent every creek of the Levant and the Euxine; her merchants, combining local experience and information with European connection and knowledge, and endowed now with political independence, will spread themselves over the whole surface of Turkey, supply their wants, excite their taste, take off their surplus produce, and, increasing their prosperity, augment their demands. Greece will become one great mart, where the manufactures of England will be distributed to the surrounding districts of Europe, Asia, and Africa, and to which the returns from these countries will be directed; she will be one free port, to link together the commerce of the East and of the West."

Greece needs repose greatly, to heal the wounds inflicted, first by the revolution, and next by the destructive civil wars which have raged in the country since the Ottomans were expelled; and if Otho's government, though a simple monarchy, succeeds in maintaining internal peace, and in securing protection to persons and property, it will be an incalculable blessing to the people. The country, ravaged by so many different parties, presents everywhere scenes of misery and desolation. Most of the villages have been burnt; the mills destroyed; the olive trees cut down; the canals for irrigation have fallen to ruin; the trade of Hydra and Spezzia is but a remnant of what it was; and a large part of the farming stock, the black cattle, horses, mules, asses, and sheep, have been carried off or slaughtered. Perhaps a greater evil than any of these is the demoralization of the people, from the habits of rapine and violence contracted in the course of their hard struggle, superadded to the vices engendered by ages of oppression under the Turks. A government enlightened and prudent, sufficiently strong to control the different factions, and the robber chiefs who head them, is the first want of the country; and, under such a government, the energetic, active character of the people would soon bring back prosperity.

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[1] *Turkey and its Resources*, p. 281.

GREEN, one of the original prismatic colours exhibit-d by the refraction of the rays of light.

Green-Cloth, a board or court of justice held in the ounting-house of the king's household, composed of the rd steward and officers under him, who sit daily. To this ourt is committed the charge and superintendence of the ng's household in matters of justice and government, ith a power to correct all offenders, and to maintain the eace of the verge, or jurisdiction of the court-royal, which about two hundred yards every way from the last gate of e palace where his majesty resides. It takes its name, *ard of green cloth*, from a green cloth spread over the oard where the members sit. Without a warrant first obtined from this court, none of the king's servants can be rested for debt.

Clerks of the Green Cloth were two officers of the board green cloth, who appointed the diet of the king and his usehold; kept all records, ledgers, and papers relating ereto; and made up bills, parcels, and debentures for laries, provisions, and necessaries for the officers of the ttery, pantry, cellar, and the like. They also waited on foreign princes when entertained by his majesty. But ese clerkships have been abolished.

Green-House, or *Conservatory*, a house in a garden, ntrived for the purpose of sheltering and preserving the ost curious and tender exotic plants, which in our cliate will not bear to be exposed to the open air, especialin winter. Conservatories are generally large and beauful structures, equally ornamental and useful.

GREENLAND, or Groenland, an immense island ing to the north-east of North America, and for the most rt comprehended within the arctic circle. Formerly it was pposed to form part of the continent of America, but the scoveries of recent navigators have proved its entire seration from that country by the Arctic Ocean. Indeed, e very idea of a north-west passage from the Atlantic to e Pacific Ocean presupposed that such was the case. rom Cape Farewell, its most southern extremity, which om the mean of nine different authorities lies in lat. 59° 30′, it stretches on the one side in a north-north-westerdirection to Smith's Sound, at the top of Baffin's Bay, in . 77° 45′. On the other side of Greenland the figure of e coast is exceedingly irregular. For about ten degrees may be said generally to run in a north-north-easterly rection, describing during the first five degrees a considrable sinuosity, indented by numerous inlets of the sea. rom latitude 70° to that of 75° the direction of the coast more directly northerly, and from the latter parallel it oceeds nearly due north beyond Spitzbergen and the itude of 80°. This side of Greenland has been denomited East or Old Greenland, and the other side is distinished by the name of West Greenland. The average eadth may be about 500 miles. Such are the limits usually signed to this country. It does not appear to terminate, wever, at Smith's Sound. From this point it proceeds uth as far as the entrance to Lancaster Sound and Barw's Straits, and thence it stretches in a westerly direction several hundred miles. Captain Parry, the discoverer, lled this tract of country North Devon. To the west of are situated numerous islands, which the same navigator titled North Georgian Islands. The principal of these Cornwallis, Melville, Bathurst, and Bank's Land, the undaries of this last being unknown. To the west of ffin's Bay and Davis' Straits, and to the north of Hudn's Bay and Hudson's Straits, there is a large tract of untry, probably separated into various islands by narrow raits. Although these would appear to be disunited m Greenland, they should be included in every descripn of that region.

Greenland.

The south-eastern portion, from which a vast peninsula shoots off into Hudson's Straits, has been entitled Cumberland. Cape York, Cape Kater, Port Bowen, and so on, terminate the country towards the north-west. To the westward of these headlands lies a tract of land discovered by Captain Parry, and which he named North Somerset. At the head of Baffin's Bay are situated Southampton Island, Melville Peninsula, Cockburn Island, and some smaller islands. All these various tracts are either insular or indented by an immense bay and inlets, formed, it is probable, by the tempestuous seas and currents which here incessantly lash the shores, and which in many instances are supposed to penetrate across the most solid masses of land.

In general the discoveries which have been effected in this quarter of the globe have resulted from attempts made to discover a north-west passage to India through the Arctic Sea. The existence of such a communication is a subject which from time to time has occupied the attention of the British government for the last three centuries; and although much valuable information has been obtained by means of these voyages, the main object remains as yet unaccomplished; nor does it appear that although it were, any important benefits to commerce would be derived from it. The first discovery of Greenland, however, was the result of accident. About the middle of the ninth century, one of the numerous Scandinavian marauders who infested the seas at that period, was driven by a storm upon the coast of Iceland. The Norwegians were not long in establishing a colony on this island, which increased so rapidly that in little more than a century it was itself able to send out colonies to other parts. In the year 982, Eric, a Norwegian chief, set sail from Iceland in quest of adventures, and steering to the south-west, after a quick run discovered land. Two or three years were spent in exploring the country; and Eric being pleased with the freshness and verdure of the shores as contrasted with the vegetation of Iceland, and desirous to encourage emigration to the place, gave it the name of Greenland. On his return, he gave an exaggerated description of the newly-discovered land, in consequence of which a fleet of twenty-five sail was equipped and sent out, laden with persons of both sexes, cattle, and other necessaries for forming a settlement. Only about the half of the vessels reached their destination, but other adventurers setting out, not only from Iceland, but from Norway, the Orkneys, and other islands, in a few years a respectable colony was formed, and a regular trade established. It seems highly probable that the original colony of Greenland began about the southern promontory, near Cape Farewell, and gradually extended itself along the coast in a north-westerly direction. Beyond this first settlement another proceeded farther to the west. The former was called *Œstre Bygd*, or the eastern settlement, and the latter *Vestre Bygd*, or the western settlement. Christianity having been introduced about the beginning of the eleventh century, numerous churches and convents were built, and the country was divided into regular parishes, to which monks and other spiritual instructors were attached. The colonists, although compelled to lead a life of severe privation and hardship, continued to increase, and to extend to the north. The zeal with which the early Scandinavians pushed their settlements to the northernmost parts of Greenland is strikingly attested by a curious monument, which was discovered in 1824. It consists of a stone carved with Runic characters, which was found standing erect in the ground on the island of Kingiktorsoak, under the parallel of 73°.[1]

For some centuries the commercial intercourse between Greenland and Norway was kept up; but about the beginning of the fifteenth century all intercourse ceased, and the unfortunate colonists were cut off from the rest of mankind. The Esquimaux, the natives of the country, whom in derision the Norwegians called Scrœllings, or Dwarfs, on account of their diminutive stature, attacked the western colony, which was compelled to seek assistance from that which lay to the south-east. There can be little doubt that the scanty population was reduced by these savage invaders; but it was more effectually thinned by that dreadful pestilence called the *black death*, which desolated Europe from the year 1402 to 1404, and which extended its ravages even to Greenland. Such a waste of human life which necessarily accompanied this visitation could not readily be repaired in a thinly-peopled country. The colonies, it is believed, languished for nearly a hundred years afterwards, but became finally extinct about the commencement of the sixteenth century. This is the most probable account of the fate of the original settlers; but a notion very generally prevailed for a long time that the western settlement only had perished, the eastern one having escaped the calamity, but, from the vast accumulation of ice, had been secluded from all communication with the rest of the world. During the last century the court of Denmark repeatedly dispatched ships to ascertain if any of the eastern settlers still remained on that part of the coast which is now called East or Old Greenland, but without success. That any of the Norwegians originally settled on the eastern shores seems clearly a mistake, arising from a misapprehension of the words *east* and *west*. They do not apply to the *shores* of the country, but to the situation of the settlers upon the western coast with relation to one another. Thus the first colony, which was planted at the southern extremity of Greenland, was called the eastern settlement, and the term would naturally be frequently applied to distinguish that part of the country which it occupied; whilst the second colony, which stretched to the north-west, and seems to have been perfectly distinct from the other, although they maintained a mutual intercourse, was called the western settlement. During the last hundred years the Danes have formed numerous colonies upon the western side of Greenland, amounting to above twenty in number, and stretching from the sixtieth to the seventy-third degrees of north latitude. The whale fisheries have greatly contributed to the advancement of the colonies; and from the intimate intercourse which is now kept up with Europeans, their condition is at present more flourishing than that of the ancient settlers.

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[1] The following is a translation of the inscription by Dr Rafer, secretary of the Royal Antiquarian Society of Copenhagen;—

There are eighteen Danish settlements, and some smaller establishments; the former are called colonies, and the latter factories. All the settlements extend from Nennortalik, in the south, to Upernavik, in the seventy-fourth degree of north latitude, and they are divided into two inspectorships. The northern inspectorship contains ten settlements. 1. The colony of Upernavik, which is the most northerly settlement. 2. The colony of Umanak, formerly Noogsoak, which was founded in 1758. It is distinguished by its excellent seal fishery, which is carried on by the Greenlanders in their kajaks or small boats, and upon the ice, and by the Danish garrison with nets, which are let down between the openings of the ice. There are here coal mines, which supply the colony with that article. 3. The colony of Ritenbenk, founded in 1725. Large quantities of seal-blubber and seal-skins are obtained from the natives. 4. The colony of Jakobshavn, or Jacob's Haven, founded in 1741, was for some time one of the most advantageous establishments in Disco Bay. 5. The colonies of Christianshaab or Christian's Hope, founded in 1734. 6. The factory of Claushavn, under it, founded in 1752, both in Disco Bay. They have a good fishery of seals and white fish, but the whale fishery is more precarious. 7. The colony of Egedesminde, or Egede's Memory, in Disco Bay, founded in the year 1759 by Captain Egede, and called after his father, Hans Egede. It consists of a great many large and small islands. The proper settlement is on the island of Ausiet. Between this and the Fox Island (Roevoe) there is a remarkably safe harbour. A great many seals are caught here, especially in nets; but the collecting of eider-down is the most important branch of industry. 8. The factories of Kronprindsens, Eiland, &c. 9. Hunde-Eiland, or Dog Island, both in Disco Bay, are settlements for the whale fishery. The first was settled in 1778, and consists of fifty large and small islands, in which there is a great deal of scurvy-grass and good turf moor. 10. The factory of Godhavn, or Good Haven, in Disco Island. The settlers subsist chiefly by the whale fishery and the produce of a coal mine, by which the settlements in Disco Bay are supplied with that article.

In the southern inspectorship there are eight settlements. 1. The colony of Holsteenborg, which was founded in 1759. 2. Kirgurtursuk. 3. Omanarsuk. These settlements subsist chiefly by the whale fishery; but about a thousand pounds of eider-down are annually collected. 4. The colony of Ny-Sukkertop is one of the most important settlements, on account of the quantity of seal-blubber which is procured there; and it has one of the safest and best harbours in the country. The colony, which was founded in the year 1755, under the name of Sukkertop, but in the year 1783 was removed much farther to the south, under the present name, is named after three pointed hills, which, at a distance, resemble sugar-loaves. 5. The colony of Godthaab, or Good Hope, the oldest in the country, was first founded in the year 1721, by Hans Egede, on the island of Kangek, which is called by the Danes Haabets-Oe, or Island of Hope, but was in 1728 removed to the continent. There belong to this colony, 6. The factory of Fiskernaes, Fisher Point, or Fisher Cape, founded in 1754. The Danes here carry on the seal fishery with nets which are fifty fathoms long, and often longer, and eight or ten fathoms deep; they are set between the islands which the seals frequent, so that numbers are taken at one draught. The settlements of the Moravian brethren are, New Herrnhut, in the neighbourhood of Godthaab, founded in 1733; and Lichtenfels, not far from Fiskernaes, founded in 1758. Here there are many remains of ancient dwellings. 7. The colony of Frederikshaab, or Frederick's Hope, founded in 1742. 8. The colony of Julianeshaab, or Juliana's Hope. This, the most southerly, and, on account of a pretty certain purchase of seal-blubber, seal-skins, and foxes skins, the most important colony, was founded in 1775, and its district extends to the most southerly point of Greenland, Statenhuk, and beyond it to a certain distance along the east side.

The population of these settlements has been reckoned at about 7000. For the administration of the colonies and the trade, there are two inspectors, and about thirty superior officers, with a number of subordinate functionaries. All these settlements are situated on the sea shore, the interior of the country being little known or visited. The other parts of Greenland will be described in the order in which they were discovered.

We shall now give a brief outline of the discovery of

" Erling Sigvatson, and Bjarne Thordarson, and Endride Oddson, erected these memorial stones, and cleared the place, on Saturday before Gagndag (the 25th of April), in the year 1135."

ne other parts of the arctic regions, which in general has ccidentally resulted from the numerous attempts made to penetrate from the Atlantic to the Pacific Ocean by a orth-west passage. During the reign of Queen Elizabeth, Frobisher, a distinguished English navigator, made everal voyages to this quarter of the globe. In 1577 he iscovered the straits which have been called after him. In the year 1585, Davis, another able seaman, came in ight of high land, which he called Mount Raleigh, being art of Cumberland Island, which lies on the west of the traits bearing the discoverer's name. In 1610 Hudson iscovered the straits and the bay which are called after im, in which he experienced a disastrous termination to is useful career. To certain rocky islands lying about he parallel of sixty-four degrees he gave the name of sles of God's Mercy. He also discovered two capes, ne of which was called Digge's Cape, and the other Villoughby Cape. In 1616, Baffin, another distinguished nglish navigator, discovered Baffin's Bay. A large inlet of the sea at the top of the former was called Smith's ound, after one of the chief promoters of discovery. rom the period in question until within the last fifteen or xteen years, no discoveries of any great importance were ade in this quarter. In the year 1818 the admiralty fitted ut two expeditions; one of which, under the command of aptain Ross, was destined for the discovery of the northwest passage; and the other, at the head of which was Lieutenant Parry, had for its object to attempt a voyage across he pole. On the continent of Greenland the first-named avigator discovered a high mountainous region to the orth of Upernavik, to which, from national predilections, he gave the name of the Arctic Highlands. It is little else han a mass of rocks, intermingled with immense blocks of e. He then proceeded to the northern extremity of Baffin's Bay, which he explored, and estimated Smith's Sound to be in lat. 77° 45′. The coast was surveyed, the positions scertained, and the appearance of the land, the situation of the islands, and the general form of the bay itself, estalished; thus confirming the discoveries of Baffin, which ad formerly been disputed. But the most important aditions to our geographical knowledge of these northern reions were made by Captain Parry, who undertook several oyages of discovery. Lancaster Sound was all along suposed to be only a large bay; an opinion which had reeived support from Captain Ross, who, in the course of his oyage, made an unsuccessful attempt to reach the extreity of it. Captain Parry, however, thought otherwise, and in 1819–1820 he succeeded in penetrating through it, and stablishing what had been much contested, the existence f a polar sea north of America. During his voyage up the arrow sea, and nearly directly westward, several headnds and wide openings towards the north and south were escried, and hastily named in passing, Croker Bay, Navy oard, Burnet Stratton, Prince Regent and Wellington nlets, Maxwell Bay, and the archipelago, to which he ave the name of the North Georgian Islands. A narrow rait, which forms a continuation of Lancaster Sound, as called Barrow's Strait. Melville Island, the most esterly of these, is upwards of a hundred miles in length, nd of about the same breadth, and lies in lat. 75° north. ere this enterprising discoverer spent two years, and raved all the rigours of an arctic winter. The sun disppeared from the horizon on the 4th of November, and as not seen till the third of February following. No inhabitants were found on these islands, and the vegetable roductions were few and short-lived. Land and sea ere covered by a thick sheet of snow, and the thermoeter during their stay averaged about sixty degrees below the freezing point. Bathurst Island and Cornwallis Island, which lie to the eastward of that upon which Parry wintered, are also of considerable size. The latter is separated by Wellington Channel from an extensive coast, which received the name of North Devon, and reaches to the shores of Baffin's Bay; but it is not known whether it forms a continuous tract with Greenland, or is composed of one or more islands.

In a subsequent voyage he explored what is denominated Melville Peninsula, a coast hitherto undescribed. He also succeeded in sailing up a narrow channel which separates Melville Peninsula from Cockburn Isle, and called it the Strait of the Fury and Hecla, after the vessels under his command.

A tract of country four hundred miles in length, and situated on the east coast of Greenland, was explored by Captains Scoresby and Clavering. It received the general appellation of the Liverpool Coast, whilst individual parts of it, bays, inlets, headlands, and the like, were named after persons eminent in science, or after private friends. There is here a mountain chain, which rises to the height of 3000 or 4000 feet, forming precipitous cliffs, which terminate in numberless peaks, cones, and pyramids. The coast was surveyed as far up as the parallel of 75°, where it was seen still to extend in a northerly direction as far as the eye could reach.

The aspect of a country subjected during the greater part of the year to an intense degree of cold, and also for several months deprived of the light of the sun, must of course be dreary and desolate in the extreme. A fall of snow in the midst of what is here called summer, only because it is not so dismal as the other parts of the year, is by no means uncommon. Towards the end of autumn it begins to descend in a regular succession of showers, which continue until every object is buried beneath a sheet of dazzling whiteness. Ice also begins to form about this time, first upon small streams and lakes, then upon larger ones and inlets of the sea, and finally upon the ocean itself, a vast extent of the surface of which is bound together by a solid chain of frost.

At Melville Island, Captain Parry found that the ice formed a thickness of from three to five inches around the sides of the ships in the space of four and twenty hours. In one instance, whilst the thermometer was twelve degrees below zero, he observed it to acquire in that time seven and a half inches in thickness. Ere the frost has reached its highest degree of intensity, the air deposits its moisture in the form of a fog, which freezes into a fine gossamer netting or into spicular icicles, dispersed throughout the atmosphere. The surface of the ocean also assumes a very remarkable aspect. It steams like a lime kiln, a phenomenon called the *frost smoke*, and caused, as in the other instances of the production of vapour, by the water being still warmer than the superincumbent atmosphere. As the cold increases both these appearances vanish; the air clears; and the sea, cooled down to the same standard, becomes a solid floor of congealed salt water. Winter now broods over the frozen continent in darkness unbroken save by the light of the moon and the stars, which serve to reveal the desolation of the scene. Haloes and other luminous meteors are also more numerous here than in lower latitudes. But the aurora borealis, in particular, is highly serviceable in breaking the monotonous gloom of an arctic winter. This brilliant meteor plays incessantly in fantastic coruscations, which have the appearance of very vivid sheet lightning, and keep up an almost constant illumination. But this serves only to discover the utter dreariness of all around. Captain Parry observes, "The sound of voices, which, during the cold weather, could be heard at a much greater distance than usual, served now and then to break the silence which reigned around us; a silence far different from that peaceable composure which characterizes the landscape of a cultivated country; it was the death-like stillness of the most dreary desolation, and the total absence of animated existence." During this cheerless period of the year, the natives, thickly covered with bear skins, remain immersed in their miserable huts, and, crowded around the stove or lamp, contrive to doze away the long and tedious night. The inside of the hut, all openings in the walls of which are carefully stopped, to exclude the piercing cold, become covered with a crust of ice; and if for an instant an aperture be made so as to admit the external air, the moisture within becomes precipitated in a shower of snow. When the frost is intensely severe, the rocks are sometimes heard to split with a loud noise; and the food of the inmates of these ice houses becomes frequently so hard as to require to be cut by a hatchet. It may be remarked, however, that the external darkness prevails only during a part of the day. Twilight exists whenever the sun is less depressed than eighteen degrees below the horizon; the limits of total obscuration occur in the latitude of 84½°, at mid-day in the winter solstice. During their detention at Melville Island, in the latitude of 74° 40′, Captain Parry's party could see to read the smallest print at noon in the middle of winter. After the sun has appeared above the horizon, and towards the end of May, the half-famished inhabitants venture forth in search of fish on the shores of the sea. In June and July the sun becomes vertical, and is always above the horizon. The heat, thus greatly augmented, gradually dissolves the chain of ice, vast masses of which, detached from the cliffs, descend on the shores with a crash like thunder. The icy covering of the ocean breaks, and, separated into vast masses, is driven about, dissevered, and dispersed, by the violence of the winds and currents. Some portions, more firmly consolidated than the rest, remain undissolved, by which several striking phenomena are produced. In particular situations, the ice of successive years is piled up into immense glaciers, the foundations of which being sapped by the sea, they descend in prodigious masses, and, being floated far into the ocean, present to the mariner a bright but fearful spectacle, by reflecting in varied tints the rays of light, yet threatening, if come into contact with, to crush to pieces the stoutest vessel. Not unfrequently they are borne to a great distance, even into lower latitudes, and at all times are appalling to the navigator, and dangerous to his bark, however strongly built. In these high latitudes, although the summer is short, the temperature is frequently oppressively sultry on land, which causes great humidity in the atmosphere; a characteristic of the arctic regions. During a period of spring and autumn, when the sun revolves in a small but complete circle above the horizon, the skies assume hues more varied and beautiful than those observed in any other climate.

The mineral productions of the arctic regions are of considerable interest to the geologist, inasmuch as some of the most precious minerals and ores have here been found. Only the shores of the country, however, have been examined, the interior remaining unexplored, on account of the eternal ice and snow under which it is buried. The east coast of Greenland is rugged and mountainous, the average elevation being about 3000 feet. There is a range called Werner Mountains, on the Liverpool Coast, which were estimated, by the distance from which they were seen, and the elevation which they assumed above the ordinary mountains, at about 6000 feet in height. The rocks, as far as they have been examined, are of the primitive formation, consisting of granite, gneiss, mica slate, hornblende slate, syenite, and clay slate. These are similar to the primitive rocks found in Britain and other countries. There are two formations of the secondary rocks, one aqueous, the other igneous. The Neptunian rocks belong to the first secondary sandstone, or coal formation; the Plutonic rocks to the secondary trap and porphyry series. The coal formation is similar to that which abounds in the vicinity of Edinburgh, and contains impressions and casts of plants which are characteristic of a tropical climate. On Melville Island, which lies in latitude 75°, specimens of the coal formation were found by Professor Jameson to contain impressions of such vegetable productions as grow within the tropics; a very interesting fact, as connected with the change of temperature which the earth appears to have undergone. The most northern part of the coast of East Greenland examined by Captain Clavering was mountainous, and principally composed of trap rocks. The west coast of Greenland is similar to that above described. The elevated parts of the country are for the most part covered with snow or ice; and in summer, although rivers appear, which are fed by the melting of the ice and snow, they are few in number and small in size. There are also lakes, some of which are of considerable magnitude, and supplied from the same source as the rivers. Springs likewise burst forth, and Giesecke mentions a tidal spring, which rises and falls with the tide, and a thermal spring, which maintains a temperature of 104°, and flows, uninterrupted by cold or storm, during the whole of the year. The islands upon this coast, of which the largest is called Disco, are similar to the continent, presenting the same bleak and wintry sterility upon a smaller scale. Four classes of rocks have been found on the coast of West Greenland; namely, primitive, secondary, tertiary, and alluvial. In the first of these, various curious and rare minerals occur, such as the cryolite, gadolinite, zircon, and tourmaline, and numerous precious stones, such as garnets, sodalite, iolite, rock-crystal, and the like. In the secondary and tertiary rocks, limestone containing fishes, and embedded amber, have been found. The geology of the islands and countries discovered by Captain Parry presents nothing very remarkable. The prevailing rocks were found to be primitive. The lands bordering on Baffin's Bay, and the islands lying at the northern extremity of it, are not much elevated above the level of the sea, the average height being 800 feet, and the highest elevations not exceeding 1500 feet.

The vegetation of a soil which for two thirds of the year is bound together by intense frost, and covered with snow several feet thick, cannot be supposed to present much variety or beauty. Even the hardy race of pine trees, which in North America during severe cold withstand the fury of the northern tempest, if they make their appearance at all within the arctic circle, dwindle into stunted shrubs, which only rise a few feet above the ground, throwing out lateral branches. But to supply this deficiency, and afford to the Esquimaux the means of making their arms and utensils, considerable quantities of drift timber are frequently thrown up on the barren shores. The most abundant plants are mosses and lichens; and these are not only copiously produced, but they possess a nutritious and salutary quality, which does not characterise those of the same species that grow in more temperate climates. Mushrooms and ferns also find the means of subsistence here; and there is a thick tufted juicy plant, of extreme fecundity, emphatically called scurvy-grass, on account of its acting as an antidote to scurvy. The different species of sorrel, especially the *rumex digynus*, were found by Captain Parry flourishing under the snow at the very farthest limits of vegetation. These are likewise antidotes to scurvy. During the short gleam of summer some beautiful specimens of the floral tribe adorn the northern fields, but the more precious fruits do not ripen under this ungenial sky. The order *algæ* or sea-weed, especially the species or tribe *fuci*, grows in great abundance, and covers the Greenland coast with submarine meadows. The singular phenomenon of *red snow*, which has excited so much interest, is now supposed to result from an assemblage of very minute vegetable bodies belonging to

Greenland.

e class of cryptogamic plants, and the natural order call-d *algæ*. The arctic mountains on which Captain Ross oserved the red snow are about 800 feet high, and ex-nd eight miles in length. Although snow is not the atural situation of this plant, it possesses a great tena-cty of life, and not only preserves its vitality in winter, ut, during the partial thawing of the snow, it multiplies as to cover a vast expanse with red suffusion.

Although vegetation be scanty and unimportant in the ctic regions, there is a remarkable profusion of animal fe. The sea, in particular, swarms with living beings, me of which are of a magnitude far surpassing any ing to be met with elsewhere. The grand article of od for supporting these numerous tribes is the genus *edusa* of Linnæus, graphically called by seamen sea-ubber. These animals are of a soft, gelatinous consis-nce, and they abound to an extraordinary extent. By r the most numerous of the medusan tribes, however, an only be discerned by the microscope ; but so plentiful re they, that about a fourth part of the Greenland sea is nged of an olive-green colour by them. This portion of e ocean is considered as the polar pasture ground, where hales are always to be met with in greatest numbers ; nd here also are found those less gigantic tribes upon hich whales prey. Animals of the class *Crustacea* stand ext in number and importance. Here are various spe-es of the crab, and above all of the shrimp, whose mul-tudes rival those of the *Medusa*, and whose carnivorous ropensities, as we are informed by Parry, are remarka-y strong. Many of the zoophitical and moluscous or-ers, and several species of marine worms, also abound. ut the cetaceous tribes are by far the largest in size, nd most important to mankind, of the numerous liv-g beings which people the northern seas. Of these the hale possesses the most enormous bulk, being sometimes xty feet in length. They have even been found of a con-derably larger size ; and there is at present (1835) exhi-iting in Edinburgh the skeleton of one which is seventy-ve feet long. Of whales there is a considerable variety ; nd the catching of them has long been a lucrative specu-tion, on account of the oil which is derived from them. ll the shores and borders of the arctic zone are crowd-d with huge amphibious races, which seem to form an in-ermediate link between whales and quadrupeds, between e mammalia of the ocean and those of the land. Amongst ese is the morse or walrus, a large and shapeless crea-ure, measuring from twelve to fifteen feet in length, and om eight to ten in circumference. Seals are very nu-erous, and constitute both the food and the clothing of e Esquimaux. Herrings are also found in immense oals amid the depths of the arctic zone. Amongst land nimals is the polar bear, whose prowess and daring ren-er him one of the most formidable of quadrupeds. The ein-deer are pretty numerous in the arctic regions dur-g summer, and afford a favourite object of chase. heir flesh is good, and the skin forms a very comfortable rticle of clothing. The musk-ox penetrates the arctic one, but in smaller numbers, and it likewise affords a holesome article of food. Several species of the canine ace are here met with in abundance. Wolves in large acks are found to brave the utmost severity of a polar inter ; and the arctic fox is met with in great numbers. he dog, however, is the most important quadruped, and e most valuable to the Esquimaux, who have succeed-d in taming and rendering it subservient to them in tra-elling and in hunting. Yoked to a sledge, these animals an draw a great weight with very considerable rapidity. he air, like the sea, is thickly peopled with appropriate habitants. The auk, the petrel, and the gull, in cluster-d myriads darken the sky, and make the rocks and shores e-echo with their wild clang. Vast flights of the swan, the goose, and the duck, also traverse these regions ; and great flocks of that species of duck called the eider, whose down is so valuable, arrive in spring on the most northern shores of Greenland. Amongst other arctic birds are terns, which produce the most delicate eggs of any water bird ; the *colymbus* (guillemot), whose skin affords a comfortable article of clothing ; the *tringa* (sand-piper) ; the *charadrius* (plover) ; and the *tetrao* (grouse and ptarmigan).

The native inhabitants of these countries are the Esquimaux, a race widely diffused over the shores of the Northern Ocean. The leading features of this people, as observed by different travellers in different parts of the arctic regions, possess considerable uniformity ; and by comparing ancient authorities with those of a more recent date, they appear to have remained the same for ages. It is believed that the Samoiedes and Kamtschadales, in Northern Asia, belong to the same family. They are not only similar to them in personal appearance, in habits, character, modes of life, and in the rude arts which they practise, but also in the language which they employ. There are different dialects in use amongst the Esquimaux, but they all display affinities which prove them to have sprung from a common root ; and this affords a presumption that an original race from some quarter of the globe has at some distant period spread over these immense and dreary solitudes. Hence it is by no means improbable that at an early period the Esquimaux connected the two continents which were otherwise entirely ignorant of the existence of each other.

Like the vegetation of these high latitudes, the human figure is dwarfish in size, and decidedly below the European standard. A man five feet nine inches in height is considered as a person of gigantic stature, and, compared with the average altitude to which they attain, as possessing amongst them the same superiority of size which a person six feet two or three inches in height does amongst us. The body is somewhat thick, but the hands and feet are small, and the fingers short. The face is generally round and flat, with prominent cheek bones, but full and plump cheeks. They are tolerably well shaped ; and the female countenance, although destitute of all pretensions to regular beauty, has a frank and good-humoured expression ; and if they would allow it to be purified of its thick incrustation of grease and dirt, it might even be accounted handsome. The flesh of these people is soft and flabby, and they have a phlegmatic constitution corresponding to this habit. The dress of the men consists chiefly in a double coat of the rein-deer ; the hairy side of the inner one being placed next the skin, whilst to the outer one there is an ample hood attached, which is drawn over the head. The breeches are also double, and of the same material, overlapping the boots, which extend to the knee ; the latter are composed either of deer skin, or, if for hunting or travel, of the hide of the seal or the walrus. The dress of the females is very nearly the same, with some slight variations in form. The chief distinction lies in their boots, which are of capacious dimensions, and, like those of Hudibras, receptacles for whatever sort of goods may come in the way of the wearer. These habiliments are rather neatly sewed together, an art in which the women display considerable dexterity. The thread they use is the sinews and some other parts of animals. There is also some taste shown in decorating them with parti-coloured stripes of skins. Like other savages, they are fond of ornaments, and contrive also to paint their bodies.

Under such a rigorous climate, much labour is necessary to secure subsistence. For nine months the ground is locked up in frost, and rendered incapable of producing any root or herb which can constitute a staple article of diet. They are, moreover, improvident, in consequence of which, combined with the precarious supply of food, they are often subjected to severe privation. Yet they are proof against the lessons of experience, and so happy is their disposition, that a moment's gratification of their wants makes them forget that they had ever suffered from hunger, or that on the morrow they may again be in the same distress. Hunting and fishing are their only resources, and of course their time is spent in pursuing, by land or sea, the wild animals by which these are inhabited. During summer, the deer is pursued with bow and arrow or the gun. and their flesh and skin are highly prized. But for the greater part of the year the Esquimaux must seek their food in the waters. In these are found plenty of cetaceous fishes, the seal, the walrus, and the whale. For the purposes of respiration, these animals rise above the water, and the moment they become visible, the Esquimaux attack them with dart or harpoon, to which they have sometimes a long line attached. The capture of a whale is the greatest of their marine achievements. On these occasions a large body of men assemble armed with a variety of weapons. The animal, when struck, plunges under water; but being obliged to rise for air, a fresh attack is made upon him, until, exhausted by fatigue and loss of blood, he falls an easy prey. These captures are shared amongst the inhabitants of the village, all the cooking pots in which are put in requisition when the arrival of one is announced, for the purpose of boiling the flesh of the animal, which is cut up into dainty slices. The cooking being finished, the feast commences by a person first extracting a large piece from the pot, and, after severing with his teeth as much as the mouth will hold, handing it to a second person, who does the same, and he to a third, and so on till the whole is devoured. There seems to be no assignable limits to the capacity of an Esquimaux stomach. He has been known to devour, in twenty-four hours, ten pounds four ounces of solid food, more than a pint of strong soup, and a gallon and a pint of water.

The attack of the polar bear is undertaken by a single Esquimaux, assisted only by his dogs, without the slightest fear or hesitation, in which case we cannot deny them the merit of great personal courage. The dogs keep the ferocious animal at bay, assailing him on all sides, whilst the master with his spear attacks the bear, and avoids, with astonishing adroitness, the furious springs of the enraged monster. In reflective intellect the Esquimaux have little to boast of. Although some of them are arch, ingenious, and jocular, no manifestations of a profound understanding have yet been discovered amongst them. In arithmetical skill they are lamentably deficient, being scarcely capable of counting as far as ten; and their taste for music is nearly at as low an ebb. Some of them, however, display a constructive talent, in exercising which the principal tool employed is the knife. Their houses are built in the following manner: When winter approaches, the ice is cut into tall square blocks, with which they construct regular spacious domes, connected with other smaller ones, for the purposes of domestic economy. For the admission of light, a round hole is cut on one side of the roof of each apartment, and a circular plate of ice, three or four inches thick, and two or three feet in diameter, is inserted in it. The light is soft and agreeable, similar to that which is transmitted by ground glass, and is quite sufficient for every purpose as long as there is any light to be derived from without. The inside of the tenement is shaped with care, and a glossy surface is then given to it by the affusion of water. The wall soon becomes a solid mass, which, being a slow conductor, checks the access of cold. It may be remarked, that the external darkness only lasts during a part of the day. "When after some time," says Captain Parry, "these edifices become covered with drift, it is only by the windows that they could be discovered as human habitations. It may then perhaps be imagined how singular is their external appearance at night, when they discover themselves only by a circular disc of light transmitted through the windows from the lamps within." The length of the best of seven canoes belonging to a tribe of Esquimaux inhabiting Winter Island, was found by Captain Parry to be twenty-five feet, the extreme breadth twenty-one inches, and the depth ten inches and a half. "The skin with which the canoe is covered is exclusively that of the small seal, prepared by scraping off the hair and fat with a knife, and stretching it tight on a frame over the fire, after which, and a good deal of chewing, it is sewn on by the women with admirable neatness and strength." In managing these boats they display great dexterity, even in the most boisterous weather. As mechanics they have little to boast of; but the Esquimaux of Greenland appear to be rather more skilful than the people described by Captain Parry. "The men," says Egede, "meddle with no work at home but what concerns their tools for hunting and fishing-tackling viz. their boats, bows, arrows, and the like. All other work, even of building and repairing the houses, belongs to the women. As dexterous and skilful as the men are at their work, so the women are not behind hand with them, but, according to their way and manner, deserve to be praised and admired." Captain Beechey found indications of considerable constructive talent in the vicinity of Behring's Strait; and Captain Franklin saw amongst the Esquimaux whom he met at Upper Savage Island, Hudson's Strait, imitations of men, women, quadrupeds, and birds, carved with labour and ingenuity out of sea-horse teeth.

In their moral character the Esquimaux inherit more than an average share of human frailty. Few savage tribes have made themselves more notorious for dishonest and thievish dispositions. Little respect indeed is entertained for the rights of property; gratitude is a virtue almost unknown amongst them; and in their habits they are exceedingly licentious, connubial infidelity being winked at as a very unimportant matter. They also display little or no sympathy or regret for the sufferings and death of neighbours, or even of relations. The Esquimaux, however, are not inclined to war; they are neither irascible nor revengeful; and they treat their offspring with the greatest tenderness. From the account given by Captain Parry of the inhabitants of Winter Island, they would appear to possess a higher moral character than that of any other of the tribes visited by Europeans. In their domestic economy, however, they are uniformly filthy, and disgusting in the extreme. "The Greenlanders," says Egede, "in their manners and common way of life, are very slovenly, nasty, and filthy; they seldom wash themselves, will eat out of plates and bowls after their dogs without cleansing them, and, what is most nauseous to behold, eat lice and such like vermin which they find upon themselves or others. They will scrape the sweat off their faces with a knife, and lick it up." Captain Lyon's description of the interior of an Esquimaux tent is to the same effect. He found accumulated "an immense heap of flesh, blubber, bones, birds, eggs, &c. which lie at the mercy of the heels of all who enter; the juices forming an intolerably filthy mud on the shingle floor. From this profusion of delicacies thus jumbled together, it may be unnecessary to add that the food of the family is selected as wanted." Details similar to the above are given by others who have visited these countries, but they are too disgusting to be quoted here.

In their religious superstitions the Esquimaux believe in a principal female deity, who is called Aywillaiyoo. She is immensely tall, having only the left eye, and a profuse allowance of pigtail, which descends to her knee, hing of a corresponding thickness. There is a chief magician, whose business is to invoke this goddess from the shades below for the purpose of giving responses to the questions of her devotees. This divinity has a giant for her father, who is fortunately, however, only furnished with one arm. Besides these mutilated deities, there are in the Esquimaux pantheon, Pamiooli, a spirit frequently invoked; and a huge bear, whose place of habitation is in the cold bosom of the eternal ice. The natives unanimously believe in a future state of blessedness, where the souls of the departed revel unchecked amidst all manner of sensual delights. They descend beneath the earth through four successive abodes, in the last of which perfect happiness is enjoyed. Here, on the margin of fresh lakes which never freeze, and in whose lucid waters the seal and the walrus abound, the blessed souls pitch their tents, and enjoy perpetual summer. The sun never sets; the deer and the birds range within bow-shot of their habitations, and are easily killed; the sea is always transparent, and the whales roll about so very tame, that they are with little difficulty harpooned, and towed to shore. Thus employed in their favourite amusements, and enjoying the feasting by which these are followed, the Esquimaux believe that their happy souls will enjoy, in a future state of existence, an eternal immunity from those harassing cares and hardships which they are doomed to endure in this world. With such fond anticipations of coming bliss do these poor savages contrive to cheer a life of extreme privation, in a state little elevated above that of the animals on which they subsist.

Such are the general features of the Esquimaux character and their mode of life, as delineated by various Europeans who have visited the countries which they inhabit. From the reports of the Moravian missionaries, those Esquimaux who are in more intimate connection with the Danes would appear to have become somewhat more civilized than the rest of their tribe who have not enjoyed the same means of improvement. The following account of their character and habits is derived from a German work of celebrity, In winter the Greenlanders dwell in houses, and in summer in tents. The houses are built of large stones, between which earth and moss are laid. The walls are very thick, and upon them a beam is placed lengthwise, across which rafters are laid. The intervening spaces are filled with small wood, over which, first a layer of heath, then another of turf, is heaped, the whole being covered with old boat or tent skins. Internally this fabric is laid out with some attention to comfort. It is divided into apartments, and two or three families generally live under one roof. The windows are made of the entrails of animals neatly sewed together; they admit the light, but are impermeable to rain. In every division of the house there is a fire-place, a lamp made of talc, and a kettle of the same material placed over it. By these fires and lamps a considerable degree of heat is kept up, which is also increased by the smoke, there being no regular chimney for its escape, and in general no door. The place of both is imperfectly supplied by a low covered passage of stones and earth, built on the long side of the house, and opening to the sea. As soon as the snow melts, the Greenlanders quit their wintry habitations, and erect their tents, which are of two kinds; one of these is of a pretty solid construction, and such as forms a fixed summer residence; the other is of a lighter nature, and can easily be removed from place to place. It generally consists of poles, upon which the skins of animals are stretched.

In their dress, the Greenlanders wear, besides a coat and breeches similar to those already described, stockings made of the skin of a young seal, shoes of the same materials tanned, and shirts made of the skins of birds, the feathers being worn inwards. The men have also a seal-skin covering when they go to sea, and sometimes a frock made of entrails for the purpose of keeping them dry. The men wear their hair short, but the women bind it in tufts over the crown of their heads. The boats consist of a light frame-work of wood, which is covered with seal-skins. There are two kinds of them; one large for the transport of goods and for the conveyance of women; the other small, and fitted to hold only one man. The top of the latter, which is called a kajak, is covered over with seal-skin, but in the middle there is a round opening for the reception of the Greenlander, who, here seated, propells himself through the deep by means of an oar, which is furnished with a broad blade at each end. With this slender vessel he swims over the billows like a sea bird, and without much dread of tempests. Upon the water the Greenlander pursues seals, birds, and whales. The former constitutes his chief wealth. It serves for food, for clothing, for covering his habitation, and its blubber supplies him with oil for his lamp. The weapons which he wields are harpoons, lances, and spears of various kinds, which he throws with great dexterity. The gun is also employed in destroying seals, but this method is not so successful as the others to which he has recourse. The whale fishery is only carried on by the Greenlanders in conjunction with the Danes. Some of the lines which they employ in fishing are made of thin slips of whalebone tied together; and they are often more than 200 fathoms in length. With these they catch certain kinds of fish peculiar to the arctic seas. They also spear salmon and salmon trout; and sometimes build dams at the mouths of rivers to facilitate the capture of these fish. Hunting is more an amusement to the Greenlanders than a source of wealth, and it is chiefly confined to the chase of the rein-deer. They now employ fire-arms instead of the bows and arrows which were formerly in use. The flesh of the deer is a favourite article of food, but the animal has now become scarce. A kind of smelt, dried in the open air, serves the Greenlander for bread and vegetables. These fish are caught in great abundance during summer, and they are stored up in leather bags for winter provision. The heads and the legs of seals are preserved under the grass in summer, and whole ones under the snow in winter. Various kinds of berries, roots, and herbs are used as food; and bears' flesh, together with the tails and skins of whales, are favourite dishes. Train oil, according to our authority, does not constitute an article of diet with the Greenlanders; and in their domestic habits they are not so abominably filthy as the other races of Esquimaux, although from their poverty and lazy habits they are very uncleanly. In their moral deportment the Greenlanders are said to be more amiable than the other races of Esquimaux already described. They are sociable, open hearted, cheerful, and contented. They live in great harmony with each other, and a propensity to thieving is by no means a feature of their character. This, however, can only apply to those who may be said to be immediately in connection with the Moravian missionary stations. They all possess a considerable degree of self-esteem, national pride, and vanity; and, like the rest of their race, they are careless of the future, spending the best part of the summer more in amusing themselves by hunting the rein-deer, than in laying up a stock of fish for the winter. Their religious creed is similar to that which is professed by the Esquimaux in general, but many of them have adopted all the external forms of Christianity. The Moravians, besides labouring in their pious avocations themselves, have educated some of the natives as missionaries, whose preaching has been productive of good. But the conversion of the Greenlanders advances very slowly, and exerts little influence over their moral ideas. They are inclined to look upon the Christian worship as a useless ceremony, whilst they consider criminal punishment as an unjust abuse of power. They moreover accuse the Danes and other European visitors of having introduced amongst them the double scourge of small-pox and spirituous liquors. Their language is remarkable for the copiousness of its grammatical forms. Their particles are as numerous and as varied as in the Greek; but the rule which directs them to introduce into the verb all the parts of the sentence, gives rise to words of a disproportionate length. The consonants *r*, *k*, and *t* predominate in this language, and produce harsh sounds by their frequent recurrence. The Greenlanders of the north speak a dialect unintelligible to those of the south; according to Captain Ross it is called *Kumooke.* The Greenlanders sometimes call themselves *Innouk*, or brothers; but their real national name appears to be *Kalalit*, and they commonly designate their country by the name of Kalalit Nounet. Denmark, the mother country, sends out annually a vessel laden with provisions and the materials of trade, and receives in return skins, blubber, feathers, and the tusks of the narwal. The Greenland company established at Copenhagen estimates its annual revenue at from L.20,000 to L.25,000 sterling. According to the statistics of Denmark for 1832, the population of Greenland amounts to 7000. This probably only includes those who hold allegiance to the Danes; of the amount of population scattered over the arctic territories, no conjecture approaching to the truth can be formed. (R. R. R.)

GREENOCK, a sea-port town of Scotland, in the shire of Renfrew. It is beautifully situated on the south bank of the Frith of Clyde, about twenty-two miles below Glasgow, in latitude 55° 57′ 2″ N. and longitude 4° 45′ 30″ W. In front of the town there is a fine and extensive bay, formerly known by the name of the Bay of St Lawrence, from a religious house which anciently stood there. Behind the town the land rises into a picturesque ridge of hills, about eight hundred feet high, between which and the bay Greenock stretches for about two miles and a half along the shore; but its breadth is inconsiderable, although it occasionally ascends to some height up the sides of the mountain chain. Greenock is not exempted from the common fate incident to towns in reference to the origin of their names. Its name is supposed to be derived from the compound Gaelic word *Grianaig*, *grian* signifying sun, and *aig* port or bay. This hypothesis receives support from the circumstance that the bay in which the town is built is directly opposite to the rising sun; and it seems probable that this may have been a station where the Celtic aborigines, who worshipped the sun, hailed his appearance. Others trace the origin of the name to a wide-spreading oak which once grew upon the shore; but this theory has few supporters.

Although Greenock is now the first sea-port of Scotland, it has risen to its present eminence since the union of the kingdoms. Previously to that period it was a mere fishing village, connected with a barony of ancient date under the family of Shaw. In 1589 James VI. granted leave to Shaw, the baron, to erect a place of worship for the convenience of the inhabitants of the district. In 1594 the estates of Shaw were erected into an independent parsonage and vicarage; and these again were in 1636 constituted a parish under the title of the parish of Greenock. As it is to its quays that Greenock owes its prosperity, we shall trace their origin, extension, and present state, together with the commerce thereby carried on, previously to describing the town.

In 1696 and 1700 Sir John Shaw made application to the Scottish parliament for public aid to build a harbour at Greenock; but his applications were unsuccessful. At this period there was only an insignificant landing-place, unfit for the reception of vessels; a disadvantage which the inhabitants felt so much, that in 1707 they agreed with their superior to allow themselves to be assessed at a certain rate to liquidate the expense of building a proper pier and harbour, which work was finished in 1710; and in the same year Greenock was established a custom-house port, and a branch of Port-Glasgow. For the time at which it was erected the work was a formidable undertaking. But although it cost L.5555, the whole sum was liquidated in less than thirty years, the trade created by this means not only bringing an accession of wealth, but also of inhabitants. In 1783 the harbour-dues amounted to L.111. 4s. 8d., and in 1792 to L.812. 9s. Of the original harbours scarcely a vestige remains, successive repairs and new erections having obliterated the traces of them. Six acts of parliament have been obtained for regulating the affairs of the port; the first was passed in 1773, and the sixth in 1817.

A dock was built in 1785, at an expense of L.4000; but from the increase of trade, one of more ample dimensions was found indispensable. Meetings were held at various times for the purpose of facilitating this project, and, in 1818, the harbour trustees finally resolved upon carrying it into effect. The work was finished in 1824, at an expense of L.20,000; but the harbours and new dry dock, together with the appurtenances thereto belonging, such as the lots of ground where warehouses and sheds might be erected, or which might be laid out as bonding yards for wood, have cost L.119,000. These works are considered to be as commodious and elegant as any in the kingdom; and, with the new erection eastward, which has been recently finished, they are in these respects scarcely surpassed anywhere. The following measurements show the extent of the quays, and their accommodation:

	Feet.
East quay	531
Entrance to harbour	105
Custom-house quay	1035
Entrance to harbour	105
West quay	425
Extreme length from east to west	2201
Breadth of piers	60

Along with the town council, commissioners, who are annually elected, manage the affairs of the harbour.

Greenock enjoys coasting and foreign trade to a very considerable extent. Vessels from the Clyde are to be found in every port to which British enterprise has penetrated. The first vessel belonging to this port crossed the Atlantic in 1719; but shortly afterwards the shipping rapidly increased, for the union had now opened up its full prospects to Scottish industry. With such rapidity did Greenock extend her maritime relations, that the jealousy of the traders of London, Liverpool, and Bristol, was excited. They accused the merchants of Greenock and Port-Glasgow of defrauding the revenue; but the charge was triumphantly refuted. The earliest trade seems to have been in herrings, and it is still continued, the amount cured annually averaging about 19,000 barrels. Trading in tobacco was also carried on at a very early period. It was first brought from the colonies, and then exported to the Continent. The Greenland whale-fishing commenced as far back as 1752, but it never rose to be of any importance, and is now discontinued. The disruption of America from Great Britain greatly depressed the commerce of Greenock, for at that period the most considerable trade of the port was with that country. At present the principal intercourse is with the East and West Indies, and with North America. Newfoundland and South America have also employed a considerable quantity of shipping. The gradual increase of trade is shown by the following tables:

Account of the Gross Receipt of the Customs at the Port of Greenock, in the Years 1728, 1770, 1802, 1822, 1828, 1831, 1833, *and* 1834.

1728	L.15,231	4	4½
1770	57,336	6	10½
1802	211,087	2	8
1822	263,464	8	10¼
1828	455,596	13	3½
1831	592,008	0	0
1833	450,425	0	0
1834	482,138	0	0

Account of the number of Registered Vessels belonging to the Port of Greenock, with their Tonnage and Men, for the Years ending 31st December 1825, 1826, 1828, 1831, 1833, *and* 1834.

	No.	Tons.	Men.
1825	241	29,054 89/94	1987
1826	235	21,634 78/94	1861
1828	249	31,929 75/94	2210
1831	346	34,563	2328
1833	366	38,740	2633
1834	367	40,733	2658

Account of the Number and Tonnage of Vessels entered Inwards, and Cleared Outwards, to Foreign Parts, with Cargoes, in the Year ending 5th January 1784, *till* 1835.

	INWARDS.				OUTWARDS.			
	British.		Foreign.		British.		Foreign.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
1784	52	6,569	4	530	63	7,297	3	520
1794	89	14,807	17	3357	90	16,953	13	2506
1804	165	30,802	25	5120	155	31,896	20	5965
1814	163	40,447	5	1007	186	43,685	5	986
1824	188	46,162	11	3054	188	46,857	9	2699
1827	196	53,898	8	2380	193	51,430	7	2260
1829	210	52,721	13	3806	211	53,757	10	3159
1831	199	49,887	15	4100	226	54,236	13	3405
1833	268	66,638	16	3632	268	67,283	15	3756
1834	277	69,843	10	2073	284	71,698	8	2140
1835	255	67,716	21	5552	273	67,759	11	3599

Although the coasting trade has diminished somewhat since 1812, it still gives employment to a number of men, and also to a fair amount of tonnage.

Account of the Number and Tonnage of Vessels entered Inwards from and cleared Outwards Coastwise, with Cargoes, in the Years ending 5th January 1830, *till* 1835.

	Inwards.		Outwards.	
	No.	Tons.	No.	Tons.
1830	684	67,884	796	81,988
1831	632	65,072	799	80,895
1832	596	64,516	844	83,828
1833	630	67,542	818	84,250
1834	709	68,045	811	83,533
1835	999	103,185	924	95,172

Account of the Declared Value of British and Irish Goods exported from Greenock to Foreign Parts, in the Year ending 5th January 1831, *till* 1835.

1831	L.1,493,405
1832	1,662,251
1833	1,452,334
1834	1,459,086
1835	1,376,526

Previously to 1751, Greenock, like other burghs of barony, was vested in the hands of the lord of the manor, or baron. The town was now, by a charter from Sir John Shaw, enabled to elect a regular magistracy, consisting of two bailies, a treasurer, and six councillors, possessed of various powers.

Although Greenock has a somewhat irregular appearance, it contains several elegant streets, and many excellent buildings. The town is stretching towards the west, where of late years the most spacious streets have been erected. A number of beautiful villas are scattered from east to west, and along the heights behind the town, from which the view is striking. Amongst the public structures which deserve to be noticed is the custom-house. It is situated in the centre of the quay, where it is seen to much advantage. The structure is handsomely built in the Grecian style; the portico, in particular, is considered very elegant. It was erected in 1818, at a cost of L.30,000. The Tontine is a substantial and handsome building, containing one large hall and many small rooms. It was erected in 1801, at an expense of L.10,000. Nearly opposite to this elegant house stand the Exchange Buildings, which were finished in 1814, at a cost of L.7000. They contain, besides two spacious assembly-rooms, a coffee-room, which is excellently conducted; and on the western side is the Greenock Bank, which was instituted in 1785, and has ever since issued notes. Besides this bank there are other two banking establishments. The town-hall and public offices were built in 1765, after a plan by James Watt. A public office is connected with this structure. Amongst other public buildings there is an hospital or infirmary, erected in 1809, by the charity of the inhabitants. In connection with this establishment it may be mentioned, that the medical faculty of Greenock were in 1820 incorporated into a body under the name of the Greenock Medical and Chirurgical Association. In 1810 the jail or bridewell was built. It is situated in a fine open space enclosed by a wall, and is the only place appropriated to the reception of criminals. In 1820 a new coffee-room was erected. It is conducted upon the same liberal principles as the other one connected with the Exchange. In 1828 a gas-work was constructed at an expense of L.8731.

Greenock.

One of the most extraordinary works of the kind to be met with in any country is that by which the town is plentifully supplied with water, and machinery to a considerable extent is impelled. This consists of an immense artificial lake or reservoir situated in the bosom of the neighbouring alpine region, formed by turning the course of a number of small streams, and making them pour their waters into a hollow basin prepared for their reception. From this "Caspian" an aqueduct passes off along the mountain range, and for several miles it runs at an elevation of five hundred feet above the level of the sea. In the vicinity of the town it pours down a torrent of water in successive falls, and impels a number of mills erected on its course. The whole length of the aqueduct is six and a half miles; the great reservoir covers 294$\frac{3}{4}$ imperial acres of land; and there is a compensation reservoir covering forty acres of ground, besides other smaller basins. A series of self-acting sluices have been constructed in a most ingenious manner, by which not only is all danger of an overflow taking place obviated, but every drop of water, even during the greatest floods, is preserved. The whole of this magnificent public work, including two expensive filters, was planned by Mr Thom, an ingenious engineer, and executed under his directions at an expense of L.52,000.

Greenock is divided into five parisnes, which are respectively termed the West, the Middle, the East, the South, and the North. The first comprehends the western part of the town and the greater part of the country district. The church is situated close by the shore, in the midst of an extensive burying ground. It is built nearly in the form of a cross, and has a small belfry on the west side. The Middle Parish, which was formed out of the above in 1741, is confined entirely to the town. The church, which was finished in 1761, stands in a small square, fronting a street which descends to the mid quay. The architecture is plain but elegant, and the fabric is surmounted by a very handsome spire, 146 feet in height. The East Parish church is a very humble place of worship, having been originally built in 1774 only as a chapel of ease. It was constituted a parish church in 1809. The South and the North Parishes were formed in 1833. Besides these places of worship, there are a number of dissenting meeting-houses; one belonging to the Original Burgher Associate Synod, built at Cartsdyke in the neighbourhood of Greenock in 1745, and re-constructed in 1828; a meeting-house of the United Associate Synod, built in 1758, in Market Street, but abandoned in 1802 for a more commodious house; another erected in Union Street in the year 1835; another in the same communion reared in 1791; and a Gaelic chapel of ease erected in the same year. The other meeting-houses or chapels are, one Congregational Union, commenced in 1800; a Relief, in 1807; a Methodist, in 1814; a Roman Catholic, in 1815; a Baptist, in 1821; a chapel of ease, in 1823; and an Episcopal, in 1824. In 1834 a chapel was built for a sect called Irvingites. Greenock is well circumstanced with regard to education. It has a grammar-school master and a teacher of mathematics, under the control of the magistrates; but the places in which they teach are rented from private individuals. It has however excellent accommodation for teaching the children of the poor, besides a school of industry for girls. A library was instituted in 1783, which now contains seven thousand volumes. But the progress of literature in Greenock has not been equal to its other improvements; for although frequent attempts have been made to institute literary and philosophical societies, none have succeeded, and at present the town is destitute of any thing of the kind deserving such a title. There are numerous charitable institutions, both for the relief of those at home and for sending aid to foreign countries. A newspaper was established in 1802, entitled the Greenock Advertiser; and another in 1833, entitled the Greenock Intelligencer. Both are now published twice a week.

Greenock possesses manufactures of some extent, the principal of which, however, are connected with the commercial pursuits of the port. Ship-building, in which line of business there are five or six establishments, is carried on with much success. There are three patent slips, one large enough to admit a vessel of 400 tons register; but the other two are of smaller dimensions. Boat-building is also a considerable branch of trade; and in connection with these naval works are several extensive roperies and sail-cloth manufactories. Another prominent branch of business is sugar-refining, which is here prosecuted to a greater extent than anywhere else in Scotland. The first house was erected in 1765, and there are now eleven. Straw-hat making is also successfully carried on; and the manufacture of hats from rye-straw, in imitation of Leghorn bonnets, has been here brought to high perfection. Amongst the other manufactures are those of silk and felt hats, pottery ware, flint glass, steam-engines, glass bottles, chain cables, and iron work; and there are likewise four breweries, two tanneries, two soap and candle works, besides other smaller establishments too common in towns of this size to require particular mention. Greenock was the birth-place of the illustrious James Watt, the great improver of the steam-engine. To perpetuate the memory of this great man, it is intended to erect a monument to his memory, for which purpose a subscription has been raised. To this sum the son of Mr Watt has added L.3000, to be appropriated to building a library, in which is to be placed a statue of Watt by Chantrey. The population of this town amounted in 1821 to 22,088, and in 1831 to 27,571, exclusive of about 3000 seamen.

Greenwich.

GREENWICH, a market town of the county of Kent, in the hundred of Blackheath, within the lathe of Sutton, and five miles from London. It is situated on the south bank of the Thames, and extends along the shore of it. Though extensive, it is a single parish, but has two churches, and several places of worship for the various dissidents from the established religion. The most attractive object is the royal hospital, for aged, decayed, or wounded seamen. The manor of Greenwich was an ancient possession of the crown, and a royal residence as early as the year 1300. It was enlarged by Edward IV., improved by Henry VII. and Henry VIII.; Mary and Elizabeth, daughters of the latter, were born there; and his son Edward VI. closed his life in the same place. It was successively the occasional abode of James I. Charles I. and Charles II. Under William III. the manor and palace, but not the park, were conferred on the establishment for the maintenance of seamen; and in that reign the magnificent hospital was built, on a plan formed by Sir Christopher Wren.

The building consists of four piles detached from each other, but so connected as to form a complete whole, open towards the river, or three sides of a square. The several divisions are occupied either as the residences of the governor or other officers; and there are a hall, a chapel, and apartments for the accommodation of the pensioners. The latter are appropriated for seamen, consisting of a cabin with a single bed, and a long gallery into which each cabin opens, where free air and recreation may be enjoyed. The hall is a magnificent apartment, decorated with exquisite paintings on allegorical subjects connected with naval affairs, by Sir James Thornhill. This establishment has at present upwards of 3000 pensioners, besides between 5000 and 6000 others, called out-pensioners, who receive stipends at various rates. There is connected with it an infirmary, a school for 200 boys, and other institutions, but without he walls. The pensioners are amply supplied with food, re well and uniformly clothed and warmly lodged, and are, esides, supplied with the sailor's almost indispensable lux-ry, tobacco. The whole expense of maintenance is about .26. 10s. a head, but varying with the fluctuation of the rices of bread, meat, and malt. The funds for the support f the institution are in part derived from the rents of the onfiscated Derwentwater estate, but chiefly from sixpence er month deducted from the pay of all seamen, whether mployed in the royal navy or in the merchant service, hich is collected at the custom-houses. All seamen and arines in his majesty's service, and all seamen wounded in e merchant service, are admissible, and are selected by e commissioners.

In the Park of Greenwich is the astronomical observa-ry, inhabited by the astronomer-royal, and well furnished ith appropriate instruments. The office has been filled r a succession of years, from the time of Flamsteed to at of Maskelyne, by some of the most distinguished names the scientific world. The Park of Greenwich is an ob-ct of great attraction, and the hill behind commands a rospect of a most impressive kind over London and the ains of Essex. There are well-supplied markets on Wed-esday and Saturday. The population amounted in 1801 14,339, in 1811 to 16,947, in 1821 to 20,712, and in 31 to 24,553.

GREGARIOUS, amongst zoologists, a term applied to ch animals as do not live solitary, but associate in herds.

GREGORIAN CALENDAR, that which shows the new d full moon, with the time of Easter, and the moveable asts depending thereon, by means of epacts, disposed rough the several months of the Gregorian year. See HRONOLOGY.

GREGORY, surnamed the Great, born at Rome, was de-cended of an illustrious patrician family, and the son of the enator Gordian. He discovered such abilities in the ex-rcise of the senatorial employments, that Justin the young-r appointed him prefect of Rome, and Pelasgius II. sent im as nuncio to Constantinople, to demand succours against e Lombards. When he had thoughts of retiring to en-y a solitary life, he was, in the year 590, elected pope by e clergy, the senate, and the people of Rome, and suc-eeded Pelasgius II. Besides his learning and diligence instructing the church, both by writing and preaching, e had a happy talent in winning over princes in favour of e temporal as well as spiritual interests of religion. He ndertook the conversion of the English, and sent over ome monks, under the direction of Augustin their supe-ior, by whom the seeds of Christianity were first planted this island. His morality with respect to the chastity f churchmen was so rigid, that according to him a man ho had ever known a woman ought not to be admitted to e priesthood; and he always caused the candidates for oly orders to be examined upon that point. He likewise xerted himself most vigorously against such as were found uilty of calumny and other vices. But, notwithstanding l this zeal, he flattered the emperor Phocas, whilst the ands of that prince were yet red with the blood of Mauritius nd his three children, who had been butchered in his sight. e likewise flattered Brunehaut, queen of the Franks, whose haracter was worse than doubtful. He is further accused f having destroyed the monuments of ancient Roman agnificence, that those who visited the eternal city might ot attend to the triumphal arches rather than to holy hings; and burned a multitude of heathen books, includ-g amongst these the History of Livy. He died in 604. f all the popes, he is the one who left the greatest num-er of writings. The best edition of his works is that of aris, 1705, in four vols. folio, published under the auspices f Denis de Sainte-Marthe and Guillaume Bessin of the ongregation of St Maur.

Gregory.

GREGORY of Nazianzen, in Cappadocia, one of the most illustrious ornaments of the Greek church in the fourth century, was born in 328, and having studied at Cæsarea in Palestine, and also at Alexandria, he accompanied his countryman, St Basil, to Athens. He was chosen Bishop of Constantinople in 379; but finding his election contested by the bishops of Egypt, he voluntarily resigned his dignity into the hands of the general council, which had been assembled at Constantinople, in the year 381, and died about the year 389. His works, consisting of a hundred and fifty discourses or sermons, a hundred and fifty-eight poems or pieces in verse, and two hundred and thirty-five letters, the greater part of them interesting, were collected and printed at Bâle in 1550. In the Paris edition of 1609, 1611, in two vols. folio, a Latin version by the Abbé de Belly is printed opposite the Greek text. The Benedictines of the congregation of St Maur commenced a beautiful edition, Greek and Latin, in three vols. folio, of which, however, only one volume was published, Paris, 1788, containing the discourses, with a life of the author compiled from his works.

GREGORY, *Theodorus*, surnamed *Thaumaturgus* or the *Wonder-worker*, on account of his alleged miracles, was the scholar of Origen, and was elected Bishop of Neocæsarea in Pontus, the place of his birth, about the year 240. He assisted at the council of Antioch, in 255, against Paul of Samosata; and died in 270. He had the satisfaction of leaving only seventeen idolators in his diocese, where there were scarcely as many Christians when he was ordained. There are still extant of his, a congratulatory oration to Origen, a canonical epistle, a paraphrase on Ecclesiastes, and some other compositions, which have been published in the collection entitled *SS. Patrum Gregorii Thaumaturgi, Macarii Egyptii, et Basilii Seleuciensis Opera Græco-Latina*, Paris, 1622, in folio.

GREGORY, bishop of Nyssa, one of the Fathers of the Church, and author of the Nicene creed, was born in Cappadocia, about the year 331 or 332. He was chosen bishop of Nyssa in 371 or 372, and banished by the Emperor Valens for adhering to the council of Nice. He was nevertheless afterwards employed by the bishops in several important affairs, and died about the year 396. He wrote Commentaries on the Scriptures, Sermons on the Mysteries, Moral Discourses, Dogmatical Treatises, Panegyrics on the Saints, Letters on Church Discipline, and various works. The Bishop of Nyssa yields to none of the fathers either in the solidity of his matter, the fertility and soundness of his views, the force of his reasoning, or the beauty and richness of his style. Of his works there have been a great number of editions, the principal of which are those of Cologne, 1537; Bâle, 1567 and 1571; Paris, 1573 and 1603, all in folio; also Paris, 1615 and 1618, in two vols. folio, with a third volume by way of appendix, containing various pieces which had not before appeared.

GREGORY of Tours, an illustrious bishop and writer of the sixth century, was descended from a noble family in Auvergne. He was educated by his uncle Saint-Gal, or Gallus, bishop of Clermont; and distinguished himself so much by his learning and virtue, that in 573 he was chosen Bishop of Tours. He afterwards went to Rome to visit the tomb of the apostles, there contracted a friendship with Gregory the Great, and died in 593, at the age of fifty-four. His principal work is his *Historia Francorum*, or History of the Franks, divided into sixteen books, comprehending a period of 174 years from the establishment of the Franks in Gaul. It is written in Latin, which is not only grammatically barbarous, but without force, without expression, and, if we may be allowed the use of the term, without complexion. Gregory of Tours had read the Fathers, and acquired some knowledge of Roman literature; for he cites Virgil and Sallust, Pliny and Aulus Gellius. But the language, formerly so masculine and vigorous, had shared the fate of the civilization of which it was the type, and had fallen into a state of extreme debility and decay. Yet it had in it more of degradation than of barbarism. The Gothic tribes had not yet, by an intimate union, renovated the nations who had degenerated under the shattered yoke of the Roman empire. The victors oppressed the vanquished, without being as yet confounded with them.

Gregory, *David*, the son of the reverend John Gregory, minister of Drumoak, in the county of Aberdeen. He was born about the year 1628, educated by his father for business, and bound as an apprentice to a mercantile house in Holland. But as his love of letters exceeded his desire of money, he relinquished commerce in the year 1655, and upon the death of an elder brother he succeeded to the estate of Kinnardie, about forty miles from Aberdeen, where he resided many years, and had no fewer than thirty-two children born to him by two wives. Three of his sons became eminent for their extensive literature, and were at one time professors of mathematics in the universities of Oxford, Edinburgh, and St Andrews.

In the country where he dwelt he was the first person who had a barometer, to the oscillations of which, according to the changes of the weather, he paid great attention, and was once in danger of being tried by the presbytery for witchcraft or conjuration. He was waited upon by a deputation of ministers, who inquired into the truth of certain reports which had come to their ears; but he so far satisfied them as to induce them to waive a prosecution against a man who, by the extensive knowledge he possessed of medicine, was a public blessing to the country.

About the beginning of the eighteenth century he removed to Aberdeen, and during the wars of Queen Anne's reign, turned his attention to the improvement of artillery, and executed a model of an engine intended to render cannon more destructive. Dr Reid knew a clock-maker who had been employed to make the model of this engine; but as he made many different pieces without knowing their design, or the method of uniting them, he could give no consistent account of the engine. Satisfied with his invention by various experiments, Mr Gregory desired his son to show it to Sir Isaac Newton, but to conceal the name of the inventor; Sir Isaac however was much displeased with it, and declared that the inventor was more entitled to punishment than reward, as it was solely calculated for destruction, and might come to be known to the enemy. That great man urged the necessity of destroying it; and it is probable that Mr Gregory's son, the Savilian professor, followed his advice, for the model was never found.

When the rebellion broke out in 1715, the old gentleman went a second time to Holland; but when the insurrection had been put down, he returned to Aberdeen, where he died about 1720, in the ninety-third year of his age, leaving behind him a history of his own times, which was never published.

Gregory, *James*, one of the most eminent mathematicians of the seventeenth century, was a son of the reverend John Gregory, minister of Drumoak, in the county of Aberdeen, and was born at Aberdeen in 1638. His mother was a daughter of Mr David Anderson of Finzaugh, a gentleman who possessed a singular turn for mathematical and mechanical knowledge. Mathematical genius was indeed hereditary in the family of the Andersons, and from them it seems to have been transmitted to their descendants of the name of Gregory. Alexander Anderson, cousin-german of David Gregory above mentioned, was professor of mathematics at Paris in the beginning of the seventeenth century, and published there, *Supplementum Apollonii Redivivi*, 1612. The mother of James Gregory inherited the genius of her family; and observing in her son, whilst yet a child, a strong propensity to mathematics, she instructed him herself in the elements of that science. He received his education in the languages at the grammar-school of Aberdeen, and went through the usual course of academical studies in the Marischal College.

At the age of twenty-four he published his treatise, entitled *Optica Promota, seu abdita Radiorum Reflexorum et Refractorum mysteria, geometrice enucleata; cui subnectitur appendix subtilissimorum Astronomiæ problematum resolutionem exhibens*, London, 1663: a work of great genius, in which he gave the world an invention of his own, one of the most valuable of modern discoveries, namely, the construction of the reflecting telescope. This discovery immediately attracted the attention of mathematicians, both in our own and in foreign countries, all of whom were soon convinced of its great importance to the sciences of optics and astronomy. As the manner of placing the two specula upon the same axis appeared to Sir Isaac Newton to be attended with the disadvantage of losing the central rays of the larger speculum, he proposed an improvement on the instrument, by giving an oblique position to the smaller speculum, and placing the eye-glass in the side of the tube. But it is worth remarking, that the Newtonian construction of the instrument was abandoned for the original or Gregorian, which is now generally employed where the instrument is of a moderate size; though Sir William Herschel preferred the Newtonian form for the construction of those immense telescopes which he so successfully employed in observing the heavens.

The university of Padua being at this time in high repute for mathematical studies, James Gregory went thither soon after the publication of his first work; and, fixing his residence there for some years, he published, in 1667, *Vera Circuli et Hyperboles Quadratura*, in which he propounded another discovery of his own, the invention of an infinitely converging series for the areas of the circle and hyperbole. To this treatise, when republished in 1668, he added a new work, entitled *Geometriæ Pars Universalis, inserviens quantitatum curvarum transmutationi et mensuræ*, in which he is allowed to have shown, for the first time, a method for the transmutation of curves. These works engaged the notice, and procured the author the correspondence, of the greatest mathematicians of the age, Newton, Huygens, Halley, and Wallis; and as he was soon afterwards chosen a fellow of the Royal Society of London, he contributed to enrich the Philosophical Transactions by many excellent papers. Through this channel, in particular, he carried on a dispute with Huygens, on the occasion of his treatise on the Quadrature of the Circle and Hyperbole, to which that able mathematician had started some objections. It is unnecessary to enter into the particulars of this controversy; but, in the opinion of Leibnitz, who allows Mr Gregory the highest merit for his genius and discoveries, Huygens pointed out considerable deficiencies in the treatise above mentioned, and showed a much simpler method of attaining the end proposed.

In 1688 he published at London another work, entitled *Exercitationes Geometricæ*, which contributed still further to extend his reputation. About this time he was elected professor of mathematics in the university of St Andrews; an office which he held for six years. During his residence there, he married (in 1669) Mary, the daughter of George Jameson, the celebrated painter, whom Mr Walpole has termed the Vandyke of Scotland, and who was a fellow disciple of that great artist in the school of Rubens at Antwerp. In 1674 he was called to Edinburgh to fill the chair of mathematics in that university; but he had held this place for little more than a year, when, in October 1675, being employed in showing the satellites of Jupiter through a telescope to some of his pupils, he was

ddenly struck with total blindness, and died a few days
ter, at the early age of thirty-seven.

GREGORY, *David*, Savilian professor of astronomy at Ox-
rd, and termed by Dr Smith *subtilissimi ingenii mathema-*
us, was the eldest son of Mr Gregory of Kinnardie, bro-
er of the before-mentioned Mr James Gregory. He was
rn at Aberdeen in the year 1661, and received the earlier
rt of his education in that city. He completed his stu-
es at Edinburgh; and, being possessed of the mathema-
cal papers of his uncle, soon distinguished himself as the
ir of his genius. In the twenty-third year of his age he
s elected professor of mathematics in the university of
dinburgh; and published, in the same year, *Exercitatio*
eometrica de dimensione Figurarum, sive specimen methodi
neralis dimetiendi quasvis Figuras, Edinburgh, 1684, 4to.
e early perceived the excellence of the Newtonian phi-
sophy, and had the merit of being the first who intro-
ced it into the schools by his public lectures at Edin-
rgh. "He had already caused several of his scholars
keep acts, as we call them," says Whiston, "upon se-
ral branches of the Newtonian philosophy; while we at
ambridge, poor wretches, were ignominiously studying
e fictitious hypotheses of the Cartesian."

In 1691, on the report of Dr Bernard's intention of re-
gning the Savilian professorship of astronomy at Oxford,
avid Gregory repaired to London; and being patroniz-
d by Sir Isaac Newton, and warmly befriended by Mr
amsteed, the astronomer-royal, he obtained the vacant
ofessorship, for which Dr Halley was a competitor. This
valship, however, instead of animosity, laid the founda-
on of a lasting friendship between these eminent men;
d Halley soon afterwards became the colleague of Gre-
ory, by obtaining the professorship of geometry in the
me university. Soon after his arrival in London, Mr
regory had been elected a fellow of the Royal Society;
d, previously to his election as Savilian professor, he
d the degree of doctor of physic conferred on him by
e university of Oxford.[1]

In 1693 he published, in the Philosophical Transactions,
resolution of the Florentine problem *De Testudine veli-*
rmi quadribili; and he continued to communicate to
e public, from time to time, many ingenious mathema-
cal papers, through the same channel. In 1695 he print-
d at Oxford *Catoptricæ et Dioptricæ Sphericæ Elementa*;
work which, as he informs us in the preface, contains
e substance of some of his public lectures, read, eleven
ears before, at Edinburgh. This valuable treatise was
published first with additions by Dr William Brown,
d the recommendations of Mr Jones and Dr Desagu-
ers; and afterwards by the latter of these gentlemen,
ith an appendix containing an account of the Gregorian
d Newtonian telescopes, together with Mr Hadley's
bles for the construction of both instruments. It is not
worthy of remark, that, at the end of this treatise, there
an observation which shows, that what is generally be-
eved to be a discovery of a much later date, namely, the
nstruction of achromatic telescopes, which Mr Dollond
d Mr Ramsden carried to a high degree of perfection,
d suggested itself to the mind of David Gregory, from
flecting on the admirable contrivance in nature in com-
ning the different humours of the eye. The passage is
follows: "Quod si ob difficultates physicas in speculis idoneis torno elaborandis et poliendis, etiamnum lentibus uti oporteat, fortassis media diversæ densitatis ad lentem objectivam componendam adhibere utile foret, ut a natura factum observamus in oculi fabrica, ubi cristallinus humor (fere ejusdem cum vitro virtutis ad radios lucis refringendos) aqueo et vitreo (aquæ quoad refractionem haud absimilibus) conjungitur, ad imaginem quam distincte fieri poterit, a natura nihil frustra moliente, in oculi fundo depingendam."[2]

Gregory.

In 1702 our author published at Oxford, *Astronomiæ Physicæ et Geometricæ Elementa*, a work which is accounted his masterpiece. It is founded on the Newtonian doctrines, and was esteemed by Sir Isaac Newton himself an excellent explanation and defence of his philosophy. In the following year he gave to the world an edition in folio of the works of Euclid, Greek and Latin, in prosecution of a design, formed by his predecessor Dr Bernard, of printing the works of all the ancient mathematicians. In this work, which contains all the treatises attributed to Euclid, Dr Gregory has been careful to point out such as he found reason to believe, from internal evidence, to be the productions of some inferior geometrician. In prosecution of Dr Bernard's scheme, Dr Gregory soon afterwards engaged with his colleague Halley in the publication of the Conics of Apollonius; but he had proceeded only a little way in this undertaking when, in 1710, he died at Maidenhead, in Berkshire, in the forty-ninth year of his age. To the genius and abilities of David Gregory, the most celebrated mathematicians of the age, Sir Isaac Newton, Dr Halley, and Dr Keill, have borne ample testimony. Indeed it appears that he enjoyed, in a high degree, the confidence and friendship of Sir Isaac Newton. This illustrious philosopher intrusted him with a manuscript copy of his *Principia*, for the purpose of making observations on that work. These observations came too late for the first edition of Newton's great work; but he availed himself of them in the second edition. Besides the works published in his lifetime, he left in manuscript A short Treatise on the Nature and Arithmetic of Logarithms, which is printed at the end of Dr Keill's translation of Commandine's Euclid; and a Treatise of Practical Geometry, which was afterwards translated, and published in 1745, by Mr Maclaurin.

Dr David Gregory married, in 1695, Elizabeth, the daughter of Mr Oliphant of Langtown in Scotland, and by her had four sons, the eldest of whom, David, was appointed regius professor of modern history at Oxford by King George I. and died in 1767, at an advanced age, after enjoying for many years the dignity of dean of Christ Church in that university.

GREGORY, *Dr John*, professor of medicine in the university of Edinburgh, was the son of Dr James Gregory, professor of medicine in King's College, Aberdeen, and grandson of James, the inventor of the Gregorian telescope. His father was married first to Catharine Forbes, daughter of Sir John Forbes of Monymusk, by whom he had six children, most of whom died in infancy; and afterwards to Ann Chalmers, only daughter of the Reverend George Chalmers, principal of King's College, by whom he had two sons and a daughter. John, the youngest of the three, was born at Aberdeen on the 3d of June 1724. Having lost his father when only in the seventh year of

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[1] On obtaining this professorship, he was succeeded in the mathematical chair at Edinburgh by his brother James, likewise an
ninent mathematician, who held that office for thirty-three years, and when he retired in 1725, was succeeded by the celebrated Mac-
urin. A daughter of this Professor James Gregory, a young lady of great beauty and accomplishments, was the victim of an unfor-
nate attachment, which furnished the subject of Mallet's well-known ballad of William and Margaret. In 1707, another brother,
harles, was appointed by Queen Anne professor of mathematics at St Andrews. This office he held with reputation and ability for
irty-two years; and, on his resignation in 1739, was succeeded by his son, who eminently inherited the talents of his family, and
ed in 1763.

[2] *Catoptricæ et Dioptricæ Sphericæ Elementa*, Oxon. 1695, p. 98.

Gregory.

his age, the care of his education devolved on his grandfather Principal Chalmers, and on his elder brother Dr James Gregory, who, upon the resignation of their father a short time before his death, had been appointed to succeed him in the professorship in King's College. He likewise owed much in his infant years, and indeed during the whole course of his studies, to the care and attention of his cousin, the celebrated Dr Reid, afterwards of the university of Glasgow. The rudiments of his classical education he received at the grammar-school of Aberdeen; and under the eye of his grandfather he completed, in King's College, his studies in the Latin and Greek languages, and in the sciences of ethics, mathematics, and natural philosophy. His master in philosophy and in mathematics was Thomas Gordon, professor of philosophy in King's College, who ably filled an academical chair for above half a century.

In 1742 Mr Gregory went to Edinburgh, where the school of medicine was then rising into that celebrity for which it has since been so remarkably distinguished. Here he attended the anatomical lectures of the elder Dr Monro, of Dr Sinclair on the theory of medicine, and of Dr Rutherford on the practice of physic. He heard likewise the prelections of Dr Alston on the materia medica and botany, and of Dr Plummer on chemistry. The Medical Society of Edinburgh, instituted for the free discussion of all questions relative to medicine and philosophy, had begun to meet in 1737. Of this society we find Mr Gregory a member in 1742, at the time when Dr Mark Akenside, his fellow-student and intimate companion, was a member of the same institution.

In the year 1745 our author went to Leyden, and attended the lectures of Professors Gaubius, Albinus, and Van Royen. Whilst at this university he had the honour of receiving from the King's College of Aberdeen, his *alma mater*, an unsolicited degree of doctor of physic; and soon afterwards, on his return from Holland, he was elected professor of philosophy in the same university. In this capacity he read lectures during the years 1747, 1748, and 1749, on mathematics, experimental philosophy, and ethics. In the end of 1749, however, he resigned his professorship of philosophy, his views being turned chiefly to the practice of physic, with which the duties of this professorship, occupying as they did a great portion of his time, too much interfered. Previously, however, to his settling as a physician at Aberdeen, he went for a few months to the Continent; a tour of which the chief motive was probably amusement, though to a mind like his certainly not without advantage in the enlargement of ideas, and an increased knowledge of mankind.

Some time after his return to Scotland, Dr Gregory married, in 1752, Elizabeth, daughter of William Lord Forbes, a young lady who, to the exterior endowments of great beauty and engaging manners, joined a very superior understanding and an uncommon share of wit. With her he received a handsome addition of fortune; and during the whole period of their union, which was only for the space of nine years, he enjoyed the highest portion of domestic happiness. Of her character it is enough to say, that her husband, in the admired little work, A Father's Legacy to his Daughters, the last proof of his affection for them, declares, that "while he endeavours to point out what they should be, he draws but a very faint and imperfect picture of what their mother was." The field of medical practice at Aberdeen being at that time in a great measure pre-occupied by his elder brother Dr James Gregory, and others of some note in their profession, our author determined to try his fortune in London. Thither accordingly he proceeded in 1754; and being already known by reputation as a man of genius, he found an easy introduction to many persons of distinction, both in the literary and polite world. Amongst these may be mentioned George Lord Lyttleton, who became his friend and patron. An acquaintance, which had been founded on a striking similarity of manners, tastes, and dispositions, grew up into a firm and permanent friendship; and to that nobleman, to whom Dr Gregory was accustomed to communicate all his literary productions, the world is indebted for the publication of the Comparative View of the State and Faculties of Man, which made him first known as an author. Dr Gregory likewise enjoyed the friendship of Edward Montagu and his lady, the celebrated champion of the fame of Shakspeare, against the cavils and calumnies of Voltaire.

In 1754 Dr Gregory was chosen fellow of the Royal Society of London; and as he made daily advances in the public esteem, it is not to be doubted that, had he continued his residence in the metropolis, his professional talents would have found their reward in an extensive practice. But the death of his brother, Dr James Gregory, in November 1755, having occasioned a vacancy in the professorship of physic in King's College, Aberdeen, which he was solicited to fill, he returned to his native country in the beginning of the following year, and took upon him the duties of that office, to which he had been elected in his absence.

Here he remained until the end of the year 1764, when, urged by a laudable ambition, and presuming on the reputation he had acquired as affording a reasonable prospect of success in a more extended field of practice, he changed his place of residence for Edinburgh. His friends in that metropolis had represented to him the situation of the medical school as favourable to his views of filling a chair in that university; and this accordingly he obtained in 1766, on the resignation of Dr Rutherford, professor of the practice of physic. In the same year he had the honour of being appointed first physician to his majesty for Scotland on the death of Dr Whytt.

On his first establishment in the university of Edinburgh, Dr Gregory gave lectures on the practice of physic during the years 1767, 1768, and 1769. Afterwards, by agreement with Dr Cullen, professor of the theory of physic, these two eminent men gave alternate courses on the theory and practice of physic. As a public speaker, Dr Gregory's manner was simple, natural, and animated. Without the graces of oratory, which the subject he had to treat in a great degree precluded, he expressed his ideas with uncommon perspicuity, and in a style happily attempered between the formality of studied composition and the ease of conversation. It was his custom to premeditate, for a short time before entering the college, the subject of his lecture, consulting those authors to whom he had occasion to refer, and marking in short notes the arrangement of his intended discourse; then, fully master of his subject, and confident of his own powers, he trusted to his natural facility of expression to convey those opinions which he had maturely deliberated. The only lectures which he committed fully to writing were those introductory discourses which he read at the beginning of his annual course, and which are published under the title of Lectures on the Duties and Qualifications of a Physician. Of these, which were written with no view to publication, many copies were taken by his pupils, and some from the original manuscript, which he freely lent for their perusal. On hearing that a copy had been offered for sale to a bookseller, it became necessary to anticipate a fraudulent, and perhaps a mutilated publication, by authorizing an impression from a corrected copy, of which he gave the profits to a favourite pupil. These lectures were first published in 1770, and afterwards in an enlarged and more perfect form in 1772.

In the same year, 1772, Dr Gregory published Elements of the Practice of Physic, for the use of Students; a work intended solely for his own pupils, and to be used by himself as a text-book to be commented upon in his course of lectures. In an advertisement prefixed to this work, he signified his intention of comprehending in it the whole series of diseases of which he had treated in his Lectures on the Practice of Physic; but this intention he did not live to accomplish, having brought down the work no further than to the end of the class of Febrile Diseases.

Dr Gregory became early a victim to the gout, which began to show itself at irregular intervals even from the eighteenth year of his age. His mother, from whom he inherited that disease, died suddenly in 1770, whilst sitting at table. Dr Gregory had prognosticated for himself a similar death; an event of which, amongst his friends, he often talked, but had no apprehension of the nearness of its approach. In the beginning of the year 1773, whilst in conversation with his son Dr James Gregory, the latter remarked, that having for the three preceding years had no return of an attack, he might expect a pretty severe shock that season; and he received the observation with some degree of anger, as he felt himself then in his usual state of health. The prediction, however, proved but too true; for having gone to bed on the 9th of February 1773, with no apparent disorder, he was found dead in the morning. His death had been instantaneous, and probably in his sleep; for there was not the smallest discomposure of limb or feature.

Gregory, *Dr James*, professor of the Practice of Medicine in the University of Edinburgh, and eldest son of the subject of the preceding notice, was born at Aberdeen in the year 1753, and there received the rudiments of his education. He accompanied his father to Edinburgh in 1764; and after going through the usual course of literary studies at Edinburgh, was for a short time a student at Christ Church College, Oxford, of which his relation Dr David Gregory had been dean. It was there probably that he acquired that taste for classical learning, and that admiration for the character of an accomplished classical scholar, which ever afterwards distinguished him. He entered early on the study of medicine at Edinburgh, and was a student in that faculty at the time of his father's sudden death, in February 1773. The extraordinary exertion which he then made to complete his father's course of lectures, was regarded by many of his friends as sufficient indication of his ability to continue and extend the hereditary reputation of his family. He took the degree of doctor of physic at Edinburgh in 1774, and spent the greater part of the next two years in Holland, France, and Italy. It is worthy of notice, that his most intimate friend and companion on the Continent was Mr A. Macdonald, afterwards lord chief baron of the Court of Exchequer, in London.

After the death of Dr John Gregory, the chair of the Institutes of Medicine (then finally separated from that of the Practice of Medicine, of which Dr Cullen remained professor) was offered to Dr Drummond, who was at that time abroad, and who ultimately declined accepting it. For two winters the class was taught by Dr Duncan, whose appointment, however, was only temporary. In 1776 the chair was again declared vacant, and on the 1st of August of that year Dr Gregory was appointed professor. He began to lecture on the Institutes the next winter session, and in the succeeding year he commenced also the duty of teacher of Clinical Medicine in the Royal Infirmary, and continued to deliver at least one course of clinical lectures annually, for more than twenty years.

From the time of commencing his duties as professor Dr Gregory was continually engaged in medical practice;, but his practice amongst the higher ranks of society was not extensive until many of his pupils had been settled in business, and were desirous of availing themselves of his assistance. For the last twenty-five years of his life he was much engaged in consulting practice; and for the last ten he was decidedly at the head of his profession in Scotland. Indeed, the boldness, originality, and strength of his intellect, and the energy and decision of his character, were so strongly marked in his conversation, that, wherever his professional character was known, it could hardly fail to inspire general confidence.

In 1778 he published his *Conspectus Medicinæ Theoreticæ*, as a text-book for his lectures on the Institutes. This work passed through several editions, both during his lifetime and since his death, and has been very generally admired, partly on account of the accurate view which it affords of the state of medical science at the period when it was composed, and partly for the ease, perspicuity, and elegance of its Latinity. The greater part of the work is occupied by the principles of Therapeutics; and as it must be confessed that there has been less improvement since that time in the investigation of the powers of remedies, than of the principles either of Physiology or Pathology, that portion of it may still be studied with advantage by all medical men.

On the illness of Dr Cullen in 1790, he was appointed joint-professor of the Practice of Medicine; he became sole professor on the death of Dr Cullen in the same year; and continued to deliver lectures on that subject, to audiences almost regularly increasing, until his last illness in 1821. He died on the 2d of April of that year.

As a practitioner and teacher of medicine, it may be stated that Dr Gregory was chiefly distinguished by his clear perception, and constant application, of the truth contained in a maxim which he was accustomed to quote from a favourite Greek author: "The best physician is he who can distinguish what he can do from what he cannot do." He distrusted all theories in regard to the intimate nature of diseased actions, as premature and visionary; but he had early and carefully studied the diagnostic and prognostic symptoms, and the various forms of the most important diseases, and the agency of the most powerful remedies; and, without entering into the minutiæ of morbid anatomy, he had a clear understanding of the changes of structure to be apprehended from disease in the different internal parts of the body. On these points, and their immediate practical bearing, he fixed all his attention. When he thought that these changes were approaching, and could be arrested by active treatment, he urged the truly effectual remedies with the peculiar energy of his character; restrained only by his strong good sense and ample experience, and despising all parade of nicety, or variety of prescription. When he was satisfied that the nature or the stage of the disease did not admit of effectual cure, his decision of character was equally shown in abstaining from useless interference, and confining his views to the relief of suffering.

As a teacher, he was always strongly impressed with the duty of fixing the attention of his pupils on those points in the history of disease, and in the application of remedies, the knowledge of which he had found by experience to be most practically important, and the ignorance of which he thought practically dangerous. The characteristic symptoms and varieties of inflammatory diseases, and the extent to which the antiphlogistic treatment might be carried in opposing them, were, therefore, subjects on which he dwelt with peculiar earnestness; and in regard to the use of those remedies in such diseases, he had acquired, by long and keen observation, a *tact* and decision which probably were never surpassed. On the other hand, in regard to those numerous chronic diseases, where *remedies* are so frequently ineffectual, he was equally zealous in inculcating those means of *prevention* which he thought most effectual and most attainable; and whilst he was incredulous as to the alleged virtue of most medicines in such diseases, he omitted no opportunity of illustrating the efficacy of temperance, even of abstinence, of bodily exertion without fatigue, and mental occupation without anxiety, in averting their approach, or even arresting their progress. From these great practical objects of his labours as a teacher, no consideration ever turned him aside. His extensive reading, particularly of the older authors, never led to pedantic displays of learning; his logical acuteness never beguiled him into useless controversies; his fertility of imagination never carried him beyond the simplest and most practical views of the subjects of which he treated.

As a lecturer, he possessed the great advantages of a command of language, which made him almost independent of any written notes, and of a tenacity of memory which enabled him to detail cases, in illustration of his principles, year after year, from the whole range of his experience, merely from having the names of the patients before him, without the slightest inaccuracy or omission. The commanding energy and quickness of intellect which his lectures displayed, the frank and fearless exposition of his opinions which they contained, the classical allusions with which they abounded, and the genuine humour by which they were often enlivened, rendered them peculiarly attractive and interesting, and acquired for him a remarkable ascendency over the minds of his pupils.

In the practice of the profession he was remarkable for the frankness and candour of his communications with the relations and friends of the sick; and for the zealous and even tender interest, always increasing with the difficulty and danger of the case, which he took in his patients. This made the more impression, as it contrasted with a certain roughness of external manner, and a constitutional hilarity and whimsical humour, which on some occasions, it must be owned, like that of a celebrated fictitious character, made him "not hesitate between his friend and his joke."

His conduct with his professional brethren in consultation was eminently distinguished by candour and liberality, and the total absence of all professional trick. He never attempted to make himself of importance, but was ever ready to give the strongest commendation to the treatment previously pursued, when he thought it judicious; always laying stress on the great and essential points of practice, and never giving an undue importance to favourite nostrums, or remedies of a secondary or frivolous kind. Thus the young practitioner, who was attentive to his duties, and honourable in his conduct, always found in him a zealous friend; those only had to dread coming into collision with him, who were wanting in professional zeal or professional integrity.

Dr Gregory's more intimate friends and connections were strongly attached to him on account of the warmth and steadiness of his attachments, of a generosity of disposition bordering on profusion, and of a high and somewhat aristocratic sense of honour, which made him instinctively shrink from any proceeding liable to the slightest imputation of meanness, selfishness, or duplicity.

He had therefore an utter detestation for all those professional arts by which the favour of the public is sometimes too successfully propitiated; and this was the true origin of various controversies in which he was at different times engaged with his professional brethren, and to which his strong sense of humour, his fondness for logical disputation, and (it must be confessed) a somewhat irascible temper, led him to devote more of his time and attention than their importance deserved. For the interests of the Medical School, and of the medical profession of Edinburgh, the continuance of these disputes was a matter of serious regret; but the feelings which led him to engage in them were too well understood and appreciated, to permit them to occasion him any loss, either of private friendships or of public estimation.

No medical teacher or practitioner of eminence was ever more ready to acknowledge the imperfection of his art, more distrustful of medical theories, or even of the alleged results of medical practice, when not in accordance with his own experience; or more careless of posthumous reputation. But none was ever more solicitous to give, both to his pupils and his patients, the full benefit of those principles of medical science, of the truth and importance of which he was himself convinced; and on this account his professional character had assumed, long before his death, a superiority over most of his contemporaries, of which those who judge of it only from his own contributions to medical science or literature cannot form an adequate conception.

Dr Gregory used to say, that whilst physic had been the business, metaphysics had been the amusement, of his life. Of this predilection we have a highly honourable testimony, in Dr Reid's Dedication to him and to his illustrious friend Mr Dugald Stewart, of his *Essays on the Intellectual Powers*, published in 1785; and, at a much later period of his life, in the cordial friendship which united him with the late Dr Thomas Brown, and the warm interest which he took in the appointment of that eminent metaphysician to the Chair of Moral Philosophy, on Mr Stewart's resignation of it, and retirement from the University. It is proper to add, however, that on some important metaphysical questions the opinions of Dr Brown were different from those of Dr Gregory, and probably never were the subject of discussion between them.

His own metaphysical and literary works are, *A Theory of the Moods of Verbs*, published in the Edinburgh Philosophical Transactions for 1787; and his *Literary and Philosophical Essays*, in two volumes, published in 1792. The main object of the latter work was to explain and defend a new argument on the old controversy as to the liberty or necessity of human actions; and whatever may be thought of the soundness of the argument, no one has ever disputed the acuteness and power of logical reasoning which he displayed in defence of it. It must be admitted, however, that his ideas of metaphysical inquiry were in some respects limited. He regarded metaphysics rather as a field for syllogistic reasoning, than as a subject of inquiry directed to the establishment of general principles by induction; and one of his favourite doctrines, that metaphysics admit of no *discoveries*, if admitted as literally correct, would almost imply that the study can lead to no useful practical results.

He retained throughout life a fervent admiration for the classical authors, and a severe and somewhat fastidious taste in literature, which was formed on the classical models. Several of the lighter and controversial writings with which he amused himself, particularly his Memorials on certain changes in the arrangements of the Royal Infirmary in 1800 and 1803, exhibit very numerous examples of his ready recollection and happy application of quotations from the classics; and a number of Latin epitaphs and inscriptions of various kinds, which he composed at different periods of his life, attest an accuracy of knowledge of the Latin language, and a purity of taste in Latin composition, which few men have the faculty of retaining throughout a lifetime of incessant professional labour.

Dr Gregory was married in 1782, to Miss Mary Ross; but within a few months after her marriage, this lady, to the extreme regret of all her friends, became decidedly consumptive, and survived only two years. After her death her two sisters continued to reside with their brother-in-law, until they both successively sunk under the same cruel disease. In 1796, he married one of the daughters of the late Mr M'Leod of Geanies, by whom he had a large family. His second son devoted himself with zeal and ability to the profession of medicine. He had entered on practice, had already been placed in several responsible situations in Edinburgh, and distinguished himself by some papers on medical subjects, when he was unfortunately carried off by a fever contracted in the course of his duties, in 1832. But other sons survive, and it is hoped that they may still afford another application of the proud and singularly appropriate motto of the family, *Nec deficit alter.*

(A. A. A. A.)

GREIFFENHAGEN, a circle of the Prussian province of Pomerania, and government of Stettin. It extends over 21 square miles, and comprehends three towns and thirty-four villages, with 19,840 inhabitants. The capital is a city of that name, situated on a branch of the river Oder. It contains 4150 inhabitants, depending chiefly on agriculture, on brewing, tanning, and distilling, and some trade by the river.

GREIFSWALDE, a city of Prussia, capital of a circle of the same name, in the province of Pomerania. It is situated on an arm of the sea, is fortified, and has pleasant public walks. It is the seat of a university, well endowed, but not much frequented by students. It contains 8 houses, and 7970 inhabitants, who are engaged in refining salt and sugar, ship-building, and foreign trade. The larger ships anchor below the city, at Wyk. Long. 13. 46. 25. E. Lat. 54. 4. 35. N.

GREISBACH, a bailiwick of the circle of the Lower Danube, in the kingdom of Bavaria, extending over 308 square miles. It contains four market-towns, 146 villages, and 660 hamlets, with 27,870 inhabitants. It is one of the best cultivated districts in the kingdom. The chief town, of the same name, contains only 840 inhabitants.

GREIZ, a city, the capital of the principality of Reuss, of the elder branch. It is surrounded with walls, and contains 566 houses, with 6195 inhabitants. The palace of the prince is on a hill adjoining the city, with a fine ornamental garden and orangery.

GRENADA, an island in the West Indies, situated between the parallels of 12. 20. and 11. 58. N. lat., and 61. 20. and 61. 35. W. long. It was discovered in the year 1498, by Christopher Columbus, who found it possessed by a numerous and warlike people, from whom, however, the Spaniards were attracted by the nobler prize which they had to contend for upon the American continent. The Charaibes remained in peaceful possession of their territory until the year 1650, when Du Parquet, the French governor of Martinique, sent out an expedition, consisting of 200 adventurers, to take possession of it. This they finally effected, first by treachery, and then upon the principle of wholesale extirpation. The inhabitants were divested of their property by a fictitious purchase, and refusing to surrender their natural heritage for a few knives, glass-beads, and other trinkets, a war ensued, which ended in the extermination of the natives. The colony, however, underwent a series of revolutions and calamities, but the result was the establishment of the authority of Du Parquet and his lieutenant. In a few years, however, the island became vested in the crown of France, after the colonists had severely suffered from the cruelty and rapacity of an insolent governor. For many years the colony remained in a state of poverty and depression; and the Abbé Raynal informs us that, in 1700, the island contained no more than 251 whites and 525 blacks, who were employed on three plantations of sugar, and fifty-two of indigo. Grenada surrendered on capitulation to Great Britain in 1762, to which country it was finally ceded by the definitive treaty of peace which took place in the year following. The island having become a British colony, certain stipulations were made in favour of the inhabitants; but it does not seem to have prospered; and it was retaken by the French in 1779. By the general pacification which took place in January 1783, it was restored to Great Britain, to which it has ever since been attached, although the French, during an insurrection of the slaves, which took place towards the close of the last century, attempted again to obtain possession of it. Grenada is computed to be about twenty-five miles in length, and twelve miles in breadth at the centre, but it gradually narrows towards either extremity. It contains about 80,000 acres of land, but the quantity actually under cultivation has never exceeded 60,000. The general aspect of Grenada is extremely lonely, but mountainous and picturesque. The interior and north-west coast consist of continuous ridges of hills, rounded in their outline, and clothed with vast forest trees and brushwood. An irregular range of mountains runs across the island from north to south, which in some parts has an elevation of 3000 feet above the level of the sea. From this main chain several lesser ridges strike off, forming rich and picturesque valleys. The island is in general very fertile and well cultivated.

With regard to the geology of Grenada, a regular definition of the stratification can scarcely be given, on account of the country being rugged and abrupt. The great mass of the mountains consist of sandstone, greywacke, hornblende, and argillaceous schist. The animals of Grenada are few and uninteresting to the naturalist. The medium temperature throughout the year is estimated at eighty-two degrees of Fahrenheit in the low country, but in the more elevated parts it is of course lower. A considerable quantity of rain falls, and throughout the year showers descend. Hurricanes are comparatively mild and infrequent, but shocks of earthquakes are sometimes experienced. Of late years the climate has been materially improved. Grenada is watered by rivers and fresh-water springs, which derive their source from a lake called the Grand Etang, which is situated near the centre of the island, at an elevation of 1740 feet, amidst mountain scenery. Along the coast are numerous safe and handsome bays and harbours. The chief products are sugar, cocoa, coffee, and cotton; indigo and tobacco are also raised, together with luxuriant crops of fruits and vegetables, which here grow in great abundance, and arrive at high perfection. The waters abound with fish, and there is also a profusion of wild game. The island is divided into six parishes, St Patrick, St Andrew, St John, St Mark, St David, and St George. In the last of these is situated the capital, St George, or George Town, which is built upon a peninsula projecting into a spacious bay on the west or lee side of the island, not far from the southern extremity. It is embosomed in an amphitheatre of hills, and chiefly situated on elevations which rise from the bay; the consequence is, that the streets are steep. The houses are well built, and on the whole the town has a handsome appearance. It is divided by a ridge, which, running into the sea, forms on one side what is termed the Carenage, which is a large basin of water, surrounded by wharfs, and in the vicinity of which the principal merchants reside. In this carenage the ships lie landlocked, and in deep water, close to the wharfs. The entrance is defended by a citadel called Fort George, which is built upon a rocky eminence. On the left the land rises gradually to some height, on which elevation the fortifications of Hospital Hill are erected, and a long ridge, which falls towards the middle, connects this fort with Richmond heights, which constitute the background of the scene, and which are also fortified. The ridge which connects Fort George with Hospital Hill also divides the carenage from the larger portion of the town, which contains the market-place, and looks upon the bay. Upon this hill are built some of the principal houses, the church, and the parsonage. At its extremity is the court-house, and, nearly opposite, the Catholic chapel. Besides the carenage, there is another spacious sheet of water, called the Lagoon, which is separated from the former by a reef passable only in boats. This of itself would constitute an excellent harbour, and it was at one time contemplated to join the two, but this has never been effected. The public buildings of George Town are the court-house, which is a fine building, provided with every necessary accommodation; the jail, which is of considerable dimensions, having a yard and tread-mill; the church, a handsome building, with a spire and clock; the Roman Catholic chapel, the Methodist meeting-house, the custom-house, and the offices of the secretary and treasurer. The market-place is a square piece of ground of considerable dimensions, surrounded by houses irregularly built. The other towns of Grenada are, properly speaking, only inconsiderable villages or hamlets, which are generally situated at the bays or shipping places.

Between St Vincent and Grenada there is a cluster of islands called Grenadines, some of which are dependencies of Grenada. Of these, Cariacou is the most important. It constitutes a parish containing 6913 acres of land, and is about nineteen miles in circumference. It is fertile and well cultivated, but it suffers from drought. Cotton was formerly the chief article of cultivation, but sugar is the staple article now raised. In a good season the average produce is upwards of 2,000,000 lbs. The chief town is called Hillsborough: it contains a church and rectory.

The following return shows the different products of Grenada and the Grenadines in 1830: Sugar, 22,100,953 pounds; rum, 890,434 gallons; molasses, 255,679 gallons; coffee, 26,122 pounds; cocoa, 337,903 pounds; cotton, 97,804 pounds. The following is an account of the quantities of the three great articles, sugar, coffee, and rum, imported from Grenada into the united kingdom, in the year 1832: Sugar, 188,231 hundredweights, 1 quarter, 14 pounds; coffee, 8749 pounds; rum, 103,654 proof gallons. The official value of the imports into the united kingdom from Grenada was, in 1806, L.509,010; in 1823, L.387,546; and in 1831, L.303,906. The declared value of British and Irish produce and manufactures exported from the united kingdom to Grenada was, in 1823, L.67,792, and in 1831, L.68,377. The number and tonnage of vessels to and from the united kingdom and Grenada, for the years 1823 and 1831, were as follow:

INWARDS.				OUTWARDS.			
1823.		1831.		1823.		1831.	
Ships.	Tons.	Ships.	Tons.	Ships.	Tons.	Ships.	Tons.
36	11,206	37	11,093	33	10,189	37	10,766

In 1824 the population of Grenada and the Grenadines amounted to 29,648, and in 1832 to 28,439.

GRENAILLE, a name given by the French writers to a preparation of copper, which the Chinese use as a red colour in some of their finest china, particularly for that colour which is called *oil red* or *red in oil*.

GRENOBLE, an arrondissement of the department of the Isère, in France, extending over 1320 square miles. It is divided into twenty cantons, and 217 communes, and contains 177,690 inhabitants. The capital is the city of the same name, situated near the Rachet Mountains, on a beautiful plain, which is watered by the river Isère, after it has been increased by the stream of the Drac. It is surrounded by walls and ditches, and defended by a citadel, which serves the purpose of an arsenal. The cathedral, the episcopal palace, the hall of justice, and the great hospital, are the principal buildings. There is an academy with the power of conferring degrees; a public library of 60,000 volumes; a botanic garden; a museum of natural history, antiquities, and medals; and other establishments appropriate to the purposes of medical, legal, and military education. There are several manufactures carried on in the city. That of gloves, for which it was long celebrated, has fallen off, but still employs many persons. Watchmaking is another employment for a number of persons, who annually make about 10,000 watches. There are, besides, cotton and linen spinning and weaving, with distilleries for brandy, ratafia, and other liqueurs. It has some beautiful public walks near the city. The houses amount to 2406, and the inhabitants to 22,149. Long. 5. 38. 19. E. Lat. 45. 11. 42. N.

GRENVILLE, the Right Honourable WILLIAM WYNDHAM, LORD, one of the most distinguished statesmen of his time, was born on the 25th of October 1759. He was the third son of the Right Honourable George Grenville, prime minister of England in 1763, 1764, and 1765, and of Elizabeth, daughter of Sir William Wyndham, baronet, by Lady Catherine Seymour, and sister of Charles, first earl of Egremont. He received his early education at Eton, where, it seems, he was concerned in the grand rebellion under Foster, when the boys left the school in a body, threw their books into the Thames, and marched to Salt Hill. The young mutineer was, however, persuaded by his father to return; but in a few weeks, it became evident that this act of insubordination had rendered it inexpedient that he should remain longer at the school where it had occurred, and he was in consequence removed to Christ-Church College, Oxford. Here, however, he soon distinguished himself, and, in 1779, gained the chancellor's prize for a composition, in Latin verse, on the subject of the *Vis Electrica*. Having taken his bachelor's degree, he entered himself at one of the inns of court, with the view of qualifying for the bar; but his attention was quickly diverted from the study of law, which few men prosecute from mere inclination, to the more attractive and exciting business of politics. In February 1782 he was, upon a vacancy, returned to parliament for Buckingham; and in the September following, when his brother Earl Temple, afterwards Marquis of Buckingham, was sent to Ireland as lord lieutenant, Mr Grenville accompanied him as private secretary, and was sworn in as a privy councillor of that kingdom. The period of Earl Temple's vice-regal government terminated in June 1783; but in the December ensuing, Mr Grenville accepted office at home, where he was appointed to succeed Mr Burke as paymaster of the army. From this appointment we may date the commencement of his active senatorial career; whilst his industry and acquirements, added to strong natural talents, soon rendered him of consequence in the House of Commons. He became an able coadjutor of Mr Pitt, his cousin-german, who was only a few months his senior. Firm at his post, inflexible in his determination, and retaining in debate the full possession of all his faculties, the youthful minister could scarcely have had a more zealous, active, efficient, and congenial colleague, or one better qualified to perform well the part assigned him, and to promote the views of government, whilst he advanced his own reputation. That he wanted the stately and commanding eloquence of his distinguished relative, may be admitted without any injury to his senatorial character; but, on the other hand, if he could not contend with Mr Pitt in oratorical power and dignity, he far excelled that minister in minuteness of knowledge and accuracy of detail. To Mr Grenville, indeed, the routine of office was almost hereditary: he seemed to have imbibed all the peculiar ideas and methodical habits of his father, even though he was only a boy at the death of that persevering but not very fortunate or popular statesman.

At the general election of 1784, when Mr Pitt had recourse to the bold expedient of a dissolution, he was chosen one of the representatives of the county of Buckingham, after as vigorous and severe a contest as had ever been known; and, in 1790, he was re-elected without opposition. Mr Grenville had scarcely completed his thirtieth ycar when he was appointed to preside over the House of Commons. This event took place on the 5th of January 1789, when he was elected Speaker, on the death of the Right Honourable Charles Wolfran Cornwall. But before four months had elapsed, he was called from the distinguished station to which he had thus been advanced, to fill the more responsible though not more arduous or honourable office of secretary of state for the home department. This was followed by his removal to the House of Lords in virtue of a patent of nobility, dated the 25th of November 1790; and thenceforward he became at once the representative and the echo (*alter ego*) of Mr Pitt in the upper house. But in May 1791, he exchanged the seals of the home for those of the foreign department, which he retained until the resignation of Mr Pitt in February 1801. In the same year, he was also appointed ranger of St James's and of Hyde Park, a post which he held till 1795, when he exchanged it for the lucrative office, or rather sinecure, of auditor of the exchequer. Lord Grenville filled the important office of foreign secretary with equal talent and industry during one of the most arduous periods of British history. For this situation, indeed, both his natural powcrs and his acquired knowledge eminently fitted him. He was skilled in the details of European politics; he had studied, though perhaps not very profoundly, the law of nations; he was well acquainted with modern languages; he could endure the fatigue of prolonged application; and the pursuit of pleasure, if at all indulged in, never interrupted his attention to the duties of his office. He loved business, as his father did, for its own sake; it was to him not so much an instrument of ambition, as a source of amusement; his active mind sought, because it required, continual employment; and neither the pleasures of literature nor the gaieties of society could seduce him from his post. In him there was nothing to dissipate his ideas or to divert his attention, and hence he was able to bring his mind to bear in all its force on the subject before him.

Of these, by far the most important, both in its immediate results and in its remoter consequences, was the state of the relations between Great Britain and France, and the fearful question of peace or war which at length arose out of the mighty convulsion which had taken place in the latter country. Sternly adverse to the principles of which the French Revolution seemed to be merely the practical expression, and apprehensive of the diffusion of the same spirit in this country which had sapped the foundations of the monarchy in the neighbouring kingdom, Lord Grenville appears to have been early prepared to oppose, not a defensive resistance, but an active and armed hostility, to the new order of kings which the Revolution had established in France. Regarding these changes with more perhaps of passion than of political sagacity, with the feelings of an alarmist rather than the cool dispassionate consideration of a statesman, and scared by the apparent magnitude of the danger, viewed as it was by him through an exaggerating medium, he conceived that the opinions which he dreaded could only be controlled or repressed by force, and he contributed his full share to plunge his country into a war which prudence might have avoided, and which no overruling necessity imposed. Hence, in his whole bearing and deportment towards the revolutionary government of France, he displayed a degree of haughtiness, and, in his communications with the French authorities, indulged in a severity of language, which, being marked with all the characters of public defiance and insult, could not fail to provoke hostility in return, and, in fact, accelerated, if they did not actually produce, the war which soon afterwards followed. In his correspondence with M. Chauvelin, who had been the French ambassador at the court of London previously to the death of Louis XVI., and who claimed to be still recognised in the same capacity, even after that unfortunate monarch had lost his life, Lord Grenville threw aside the ordinary language of diplomacy, and, in his letters, gave way to a bitterness of retort, unexampled perhaps in the intercourse of great nations, and thus afforded to M. de Talleyrand, then acting as the political Mentor of Chauvelin, an opportunity of which he did not fail to take advantage, for throwing upon the government of Britain the discredit of being the first to unsheath the sword in a war of opinion. Of the tone and temper of this extraordinary correspondence some idea may be formed from the following communication, ordering the immediate departure from this realm of the representative of the French government:—

"I am charged to notify to you, sir, that the character with which you had been invested at this court, and the functions of which have been so long suspended, being now entirely terminated by the fatal death of his most Christian majesty, you have no longer any public character here. The king can no longer, after such an event, permit your residence here. His majesty has thought fit to order that you should retire from this kingdom within the term of eight days; and I herewith transmit you a copy of the order which his majesty, in his privy council, has given to this effect. I send you a passport for yourself and your suite; and I shall not fail to take all the other necessary steps in order that you may return to France with all the attentions which are due to the character of minister plenipotentiary from his most Christian majesty, which you have exercised at this court."

Notwithstanding this insulting dismission of its accredited representative, the French government immediately dispatched M. Maret, afterwards (under the imperial regime) Duke of Bassano, to endeavour to resume negotiations, and, if possible, to induce this country to remain neutral; but so determined was Lord Grenville not to allow the least opening towards an accommodation, or, in other words, to push matters to extremity, that he persisted in refusing permission to the French envoy to proceed beyond Dover, contrary, as was generally thought at the time, to the opinion of Mr Pitt. The precise amount of responsibility to his country and to posterity which he incurred, in thus cutting off the last chance of peace, and urging the nations of Europe into a sanguinary contest of twenty years' duration, it is not for us to determine. He will be judged at the impartial tribunal of history, when the men of this age, who have been more or less influenced by its prevailing opinions, feelings, prejudices, or animosities, shall have been gathered to the countless generations that went before them, and when the verdict cannot be affected by any of those causes of error which insensibly influence and pervert contemporary judgments.

In 1795, Lord Grenville had an opportunity of displaying at once his loyalty and his talents as an orator, on the occasion of the attack which had been made upon the king, George III. whilst proceeding to the House of Lords to open the session of parliament. He brought in a bill to provide for the due protection and safety of the royal person; and as this measure gave rise to a protracted and stormy debate, it afforded his lordship ample scope for the most loyal exertion of his rhetorical powers. As the war party were then in the ascendant, Lord Grenville had the satisfaction of finding himself supported by a large majority; and therefore he followed up his success by bringing in another bill to suppress seditious societies, and prevent the formation of any such in future. Associations having it for their object to promote a reform in the representation of the people in parliament were then considered as seditious, and proscribed accordingly. Lord Grenville actively co-operated with Mr Pitt in carrying through the union with Ireland, and also united with him in giving to the Irish Catholics those assurances which mainly contributed to the success of the measure, and on which the powerful body in question afterwards founded a direct claim to emancipation. But these two ministers soon discovered that they had promised more than they were able to perform. The king entertained religious scruples which it was found impossible to overcome; their colleagues, supported by all the prejudice and bigotry of the time, took the same view of the matter with his majesty; and the public mind was not yet prepared for that great act of national justice which the Irish Catholics had been led to expect at their hands. Besides, it had become indispensably necessary to make peace with revolutionary France, which had triumphed over the coalitions formed against her under the auspices of Mr Pitt, and had established republican institutions on the basis of victory. In these circumstances, the Pitt ministry resigned, and was succeeded by that of Mr Addington, afterwards Lord Sidmouth, which concluded the short-lived peace, or rather armistice, of Amiens. But as the new administration rested on no solid foundation, and moreover occupied an anomalous position, application was soon afterwards made to Mr Pitt to join the parties then in power. He refused to accede to this proposal, however, unless Lord Grenville were included in the arrangement; and as this condition was rejected, the negotiation proved fruitless. Meanwhile, the incapacity and weakness of the Addington administration became every day more apparent; and as the king entertained the strongest disinclination towards Mr Fox and his party, no long time elapsed before Mr Pitt found himself obliged to yield to the urgent necessities of the state, and resume office. In May 1804, he again took his seat as first lord of the treasury, but without having stipulated for Catholic emancipation, to which he was understood to have been distinctly pledged. Lord Grenville and Mr Windham accordingly refused to join him; and from this time until Mr Pitt's death, his lordship took a prominent part in the ranks of opposition.

On the demise of Mr Pitt was formed that short-lived administration which, though intended to combine "all the talents," and thereby to unite all the means of good government, has been ridiculed by some political writers as anomalous, visionary, impracticable, and stigmatized by others as monstrous and disgraceful. Of this ministry Lord Grenville, who had joined the Whigs in 1804, was placed at the head; whilst Mr Fox, whose thoughts were bent on endeavouring, if possible, to bring about a peace, reserved to himself the situation of foreign secretary, as best suited to the pacific views with which he was animated. The junction of these eminent statesmen in 1804, and afterwards in office, seems to have been dictated by their agreement on some great questions, and their disposition to sacrifice lesser differences of opinion, and all personal considerations, to the important object of advancing those grand principles in which they coincided. But still there were various differences of principle amongst the members of this administration; for not only were Whig and Tory, alarmist and reformer, to coalesce, but during the war, and for the sake of carrying it on towards a better issue, they who were the authors of it were united with its constant and sturdy opponents. Yet some of the wisest men of the time approved of the union, because lesser things should yield to greater; and upon one or two great questions there was a fortunate concurrence of opinion. But there were others who thought differently, and by them its failure was of course ascribed to the heterogeneous and discordant elements included in the attempted union. An important obstacle to its duration, however, was created by the religious prejudices of the monarch, directly opposed as they were to the measure of relief which Lord Grenville considered himself as pledged to bring forward; and, independently of other causes, a party equally zealous with the sovereign in their resistance to the Catholic claims proved too powerful for the continuance in office of a ministry resolved at all hazards to attempt the removal of the disabilities affecting persons of the Roman Catholic persuasion both in Great Britain and in Ireland. The Grenville administration was, accordingly, dismissed, after having been in office only during the short period of thirteen months. We may add here, that Lord Grenville suffered not a little in his popularity by obtaining an act of parliament to enable him to hold, along with the premiership, the profitable but nearly sinecure office of auditor of the exchequer, which had been conferred on him by his kinsman Mr Pitt in 1795, and which he retained until the time of his death.

After the breaking up of this administration, Lord Grenville did not accept of any prominent office in the state. In 1812, when the resignation of Lord Castlereagh and Mr Canning left Lord Liverpool the only secretary of state, performing the business of the three departments, official letters were addressed to Earl Grey and to his lordship, proposing the immediate formation of a combined administration; but nothing came of this advance towards a coalition of parties. Earl Grey and Lord Grenville were both in the country when these communications reached them. The former at once declined all connection with Mr Percival and Lord Liverpool, and therefore did not proceed to town. The latter, who was in Cornwall, set out for London immediately on receipt of the communication which had been addressed to him; but the day after his arrival he declined the proposed alliance, on the ground of his inability to view it in any other light than that of a dereliction of principle. This appears to have been the last tender of office made to his lordship. He continued in opposition to the government during the war; but upon the final defeat of the French in 1814, he congratulated the country on the prospect of peace, and, in the following year, supported ministers in their resolution to depose, if not to outlaw, Napoleon. From this time he ceased to take so prominent a part as he had previously done in parliamentary discussions; but, on important occasions, he came forth with all his wonted vigour, and sometimes, we regret to add, threw the whole weight of his talents and authority into the scale in favour of principles which could scarcely have been expected to receive his countenance and support. In a speech which he delivered, in the House of Lords, upon the 30th November 1819, on the Marquis of Lansdowne's motion for an inquiry into the state of the country, and more particularly into the distress and discontents of the manufacturing districts, he came forth in the character of an alarmist, and, mistaking the discontent arising from severe suffering for the indication of a revolutionary spirit, proposed as the only fitting remedy for the evil an increased restraint on the liberties of the people. The language employed by Lord Grenville on this occasion is no doubt expressive of sincere conviction; but the natural strength of his understanding was unhappily paralysed by panic, and the arguments of the speech are not grounded on facts, but on what he is pleased to term "universal notoriety," whilst the documents produced contradict most of his positions. The ministry of the day, however, were fortunate in obtaining the sanction and co-operation of a statesman like Lord Grenville; and, as his speech on Lord Lansdowne's motion was printed and extensively circulated, they were thereby enabled to reap the full benefit of his support.

Towards the close of the year 1809 Lord Grenville was chosen as chancellor of the university of Oxford. His predecessor, the Duke of Portland, having died on the 30th of October in that year, the candidates who appeared in the field, besides his lordship, were the Duke of

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eaufort and Lord Eldon. The election commenced on ie morning of the 13th December; and on the evening f the 14th, when it closed, the numbers declared were, r Lord Grenville 406, for Lord Eldon 303, and for the uke of Beaufort 238, giving a majority for Lord Grenlle of 103. The number of persons entitled to vote mounted to 1282, of whom 1037 polled on this occasion. ome days after his election, his lordship received by dioma the honorary degree of doctor of civil law; and his stallation as chancellor took place on the 3d of January 810.

Lord Grenville was a man of very considerable attainents both in literature and in political science. In 1804 e edited the letters which had been written by the first arl of Chatham to his nephew, Thomas Pitt, afterwards ord Camelford, when at Cambridge. He enriched an lition of Homer, privately printed, with valuable annotions; he translated into Latin several pieces from the reek, the English, and the Italian, which were circulated mongst his friends under the title of *Nugæ Metricæ;* nd, in a pamphlet, he defended his alma mater against e charge of having expelled from her learned prencts the illustrious author of the Essay on Human Unerstanding. Besides several speeches and other lesser ompositions, Lord Grenville also published, 1. A New lan of Finance, as presented to Parliament, with the ables, 1806; 2. A Letter to the Earl of Fingal, 1810; On the supposed direct Advantages of the Sinking und, 1828. This last publication, forming the first part a general Essay on the Sinking Fund, which his lordip, however, did not afterwards complete, is in several spects a remarkable production, and in none more than this, that it contains a manly and statesmanlike avowal a change of views, on the part of the author, regarding e important subject of which it treats. In the preface, ter stating that the portion submitted to the public conins only one part of the essay which had been intended r publication, and that severe illness had stopped the ogress and prevented the completion of his design, his rdship goes on to say: "Under these circumstances, it s not been without much hesitation that I have deterined to lay before the public this portion of a work in respects so very imperfect. I should certainly not ve done so had I consulted only the feelings of an auor. But my original purpose was of a far higher order. was directed to the hope of contributing what might practically useful in a discussion of very urgent intest, and great permanent importance to our country...... is, however, just that I should here distinctly avow, at I have availed myself, without reserve, of the lights hich have been thrown upon this subject by many wrirs of the present age, to whose praise nothing could be ded by my enumeration of them. And I am particuly bound to acknowledge, that it was by the well-known eatise of Dr Hamilton that my thoughts on this matter re, I believe, first directed into their present channel. t I am not aware that the question has ever yet been ced before the public exactly in the same point of view which I have here considered it; and with respect to e distinguished writer whom I have named, there are t a few of the topics on which I have most dwelt, and me others which I have not had occasion particularly notice, respecting which his opinions, if I rightly apehend them, differ, I regret to say it, very much from mine." He adds, that, throughout the inquiry, he has not scrupled to question many long-established and deeply-rooted prepossessions; that truth alone is his object; and that without the free examination of previously received opinion, no branch of human knowledge can ever be advanced. In short, his lordship surrenders as unfounded and fallacious the principle upon which the act of 1786, establishing the sinking fund, was established; and, though he is anxious to guard himself against any imputation of injustice towards the authors of that measure, he nevertheless shows that the views by which they were guided are erroneous, that the only real sinking fund is that which is supported by a surplus revenue, that the effective operations of Mr Pitt's fund were supported only by surplus taxation, that the reductions of debt thus effected are mere exchanges of equivalents, and that these results were in no degree varied by the application of compound interest to the operations of this fund.

Although Lord Grenville was the contemporary of some of the greatest men that have ever adorned this country, yet his talents were not eclipsed in their presence. As a statesman he was remarkable for boldness and perseverance, two qualities which are rarely united; and, though on some subjects he entertained narrow or prejudiced notions, on others he displayed enlarged conceptions combined with sound practical views. As a speaker, he was perhaps one of the most powerful debaters that ever appeared in the House of Lords. There was a commanding energy in his delivery, as well as in his style, which never failed to arrest the attention, and often succeeded in gaining the admiration, even of those who differed from him in opinion. It has been said of him that no orator, perhaps, ever produced so strong an impression by his manner during the first ten minutes of his speech; but the want of variety was a defect which, after a time, began to be perceived, and which in the course of a long address seldom failed to impress itself rather painfully on his hearers. As he always took care to prepare himself on every subject on which he spoke, his speeches were full of matter, and, if deficient in flexibility, he never wanted information. He possessed not the animation, the acuteness, and the indignant sarcasm of Lord Grey; but during a long period he was considered as second only to that noble person as an effective speaker in the Upper House; and, after the year 1804, they were associated as the heads of the opposition, with whom negotiations were carried on during several emergencies, when it became either necessary or politic to make overtures with a view to the formation of a new ministry.

On withdrawing from his parliamentary duties, Lord Grenville spent the evening of a long and active life at his seat of Dropmore, in Buckinghamshire, where he solaced his retirement with the pursuits of elegant literature, and died on the 12th of January 1834, in the seventy-fifth year of his age. Lord Grenville married, on the 18th of July 1792, the Honourable Anne Pitt, only daughter of Thomas, the first Lord Camelford, and sister and sole heiress of the second lord, who was killed in a duel with Mr Best in 1804; but as he left no issue, the barony of Grenville has in consequence become extinct.[1] (A.)

GRESHAM, Sir Thomas, an opulent merchant of London, descended from an ancient and honourable family of Norfolk, was born in 1519. He was, as his father had been before him, appointed king's agent at Antwerp,

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It has often been said that the secret of the authorship of *Junius*, which is supposed to have been deposited in the shelves of the rary at Stowe, would be disclosed after the death of Lord Grenville, when, as was alleged, there would no longer be any reason for hholding the revelation from the world; and it has further been presumed, that to his nephew, Lord Nugent, would probably be fided the agreeable task of satisfying the public curiosity on this much-agitated question. We understand from good authority, wever, that there is no foundation for this surmise, and that the authorship of the celebrated letters bearing the signature of Junius kely to remain as great a mystery as ever.

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and in 1551 he removed to that city with his family. This employment was suspended on the accession of Queen Mary; but on a proper representation being made in his favour, it was restored to him. Queen Elizabeth conferred the honour of knighthood upon him, and appointed him her agent in foreign parts. About this time he thought of providing himself in the city with a mansion-house, suited to his station and dignity; and with this view he built a large house on the west side of Bishopsgate Street, afterwards known by the name of *Gresham College.* His father had proposed building a house or exchange for the merchants to meet in, instead of walking in the open street; but this design it was reserved for the son to execute. Sir Thomas in fact went beyond his father. He offered, if the citizens would provide a proper piece of ground, to build a house at his own expense; and this offer being accepted, he fulfilled his promise, and built an exchange upon the plan of that at Antwerp. When the new edifice was opened, the queen, on the 29th of January 1570, came and dined with the founder, and caused a herald with a trumpet to proclaim it by the name of the *Royal Exchange.* In pursuance also of a promise to endow a college for the profession of the seven liberal sciences, he by a testamentary disposition bequeathed his house in London for that purpose; leaving one moiety of the Royal Exchange to the corporation of London, and the other to the mercers' company, for the salaries of seven lecturers in divinity, law, physic, astronomy, geometry, music, and rhetoric, at L.50 per annum each. He left several other considerable benefactions, and died in 1579. As to the college, it was afterwards pulled down in consequence of an application to parliament from the city, and the excise office erected in its stead. The lectures are read, or rather hurried through, in a chamber over the Royal Exchange. Sir Thomas Gresham had the happiness of a mind every way suited to his fortune; he was generous and benign; ready to perform any good action, and to encourage the same disposition in others. He was a great friend and patron of John Fox the martyrologist. He was acquainted with the ancient and several of the modern languages; he had a comprehensive knowledge of all affairs relating to commerce, whether foreign or domestic; and his success as a merchant was proportioned to his general attainments, for in his time he was esteemed the highest commoner in England. He transacted Queen Elizabeth's mercantile affairs so constantly, that he was called *the royal merchant;* and his house was sometimes appointed for the reception of foreign princes upon their arrival in London.

GREVILLE, Fulke, Lord Brooke, a poet and miscellaneous writer, was born in the year 1554, and descended from the noble families of Beauchamps of Powick and Willoughby de Brooke. In company with his cousin Sir Philip Sidney, he began his education at a school in Shrewsbury; whence he went to Oxford, where he remained for some time as a gentleman commoner, and then removed to Trinity College, Cambridge. Having left the university, he visited foreign courts, and thus to his knowledge of the ancient languages added an acquaintance with the modern. On his return to England he was introduced to Queen Elizabeth by his uncle Robert Greville, at that time in her majesty's service; and by means of Sir Henry Sidney, lord president of Wales, he was nominated to some lucrative employments in that principality.

On the accession of King James I. he was installed knight of the bath; and soon afterwards obtained a grant of the ruinous castle of Warwick, which he repaired at a considerable expense, and where he probably resided during the earlier part of this reign. In the year 1614, he was made under-treasurer and chancellor of the exchequer, a member of the privy-council, and gentleman of the bed-chamber; and in 1620 he was raised to the dignity of baron by the style and title of Lord Brooke of Beauchamp's Court. He was also privy-councillor to King Charles I., in the beginning of whose reign he founded an historical lecture in Cambridge. Having thus attained the age of seventy-four, through a life of continued prosperity, and being universally admired as a gentleman and a scholar, he fell by the hand of an assassin, one of his own domestics, who immediately stabbed himself with the same weapon with which he had murdered his master. Notwithstanding Lord Orford's flippant and depreciatory estimate of Lord Brooke's talents, he appears to have cherished a taste for polite learning, particularly for poetry and history. His principal works are, 1. The Life of the renowned Sir Philip Sidney, London, 1652, in 12mo; 2. Certaine Learned and Elegant Workes of the Right Hon. Fulke Lord Brooke, written in his youth and familiar exercise with Sir Philip Sidney, London, 1633; 3. The Remains of Sir Fulke Greville Lord Brooke, being Poems of Monarchy and Religion, never before printed, London, 1670, in 8vo. Lord Orford erroneously attributes to him "Five Yeares of King James, or the condition of the State of England, and the relation it hath to other Provinces," 1643; a work which was evidently written by one of the Presbyterians, and which was republished with additions in 1651, 4to.

GREVIUS. See Græviuſ.

GREW, Nehemiah, the first vegetable anatomist and physiologist of this country, was born at Coventry about the year 1628. He was educated as a Presbyterian; and on the change of the national form of religion, at the restoration of Charles II., he was sent to study at some foreign university, where he took his degree of doctor of physic. He settled first at Coventry, but removed afterwards to London, where he obtained considerable practice as a physician; and at length succeeded Mr Oldenburg in the office of secretary to the Royal Society. In this capacity, pursuant to an order of council, he drew up a catalogue of the natural and artificial rarities belonging to the society, under the title of *Musæum Regalis Societatis,* 1681. Besides several papers in the Philosophical Transactions, he also wrote, 1. The Comparative Anatomy of the Stomach and Guts, folio; 2. The Anatomy of Vegetables, of Roots and of Trunks, 1682, in folio; 3. *Tractatus de Salis Cathartici Natura et Usu;* 4. *Cosmologia Sacra,* or a Discourse of the Universe, as it is the Creature and Kingdom of God, folio. The works of Grew were translated into French and Latin; but, as it appears, by no means correctly, at least in the latter of these languages. He died suddenly, on the 25th of March 1711.

GREY, Lady Jane, an illustrious and unfortunate lady, descended of the blood-royal of England by both parents, was the eldest daughter of Henry Grey marquis of Dorset, and Frances, daughter of Charles Brandon Lord Suffolk, by Mary, dowager of Louis XII. king of France, and youngest daughter of Henry VII. king of England. Born in the year 1537, at Broadgate, Leicestershire, she discovered an early propensity to all kinds of literature; and having a fine genius, improved under the tuition of Elmer, she made surprising progress in the languages, arts, and sciences. She understood and could express herself with propriety in the Latin and Greek tongues; she was well versed in Hebrew, Chaldee, Arabic, French, and Italian; and she performed instrumental music, and was excellent at the needle. We also learn from Chaloner, that she accompanied her performances on a musical instrument, with a voice exquisitely sweet in itself, assisted by all the graces that art could bestow. In the year 1553, the Dukes of Suffolk and Northumberland, who, after the fall of Somerset, had reached the height of power, began, on the decline of the king's health, to think of preventing that reverse of fortune which, as things then stood, they foresaw would happen upon the death of Edward. To attain this end, no other remedy was judged sufficient but a change in the succession of the crown, and transferring it to their own families, by proclaiming Lady Jane Grey queen. The excellent and amiable qualities which had rendered her dear to all who had the happiness to know her, joined to her near affinity to the king, exposed her to become the tool of an ambition notoriously not her own. Upon this account she was married to Lord Guildford Dudley, fourth son of the Duke of Northumberland, but without discovering to her the real object of the match, which was celebrated with great pomp in the latter end of May, and so much to the king's satisfaction, that he contributed bounteously towards the expense. The young king Edward VI. died in July following; and our fair scholar, with infinite reluctance, overpowered by the solicitations of her ambitious friends, allowed herself to be proclaimed Queen of England, on the strength of a deed of settlement extorted from Edward by her father-in-law the Duke of Northumberland, which set aside the succession of Mary, Elizabeth, and Mary Queen of Scots. But her regal pageantry continued only a few days. Queen Mary's undoubted right prevailed; and the unfortunate Lady Jane Grey, with her husband, being committed to the Tower, were, on the 13th of November, arraigned and found guilty of high treason, and, on the 12th of February following, beheaded on Tower-hill. Her magnanimity in this dreadful catastrophe was astonishing. Immediately before her execution, she addressed herself, with amazing composure, to the weeping multitude, acknowledged the justice of the law, and died in charity with that world which she had so much reason to execrate. Her writings are, 1. Four Latin Epistles, three to Bullenger, and one to her sister Lady Catharine, printed in a book entitled *Epistolæ Helveticæ Reformatoribus, vel ad eos scriptæ*, Tiguri, 1742, 8vo; 2. Her Conference with Fleckenham, Ballard; 3. A Letter to Dr Harding, her father's chaplain, printed in the Phœnix (vol. ii. p. 28); 4. A Prayer for her own use during her confinement (see Fox's *Acts and Monuments*); 5. Four Latin Verses, written in prison with a pin; 6. Her Speech on the Scaffold, Ballard.

Grey-Hound. See Mammalia.

GRIERSON, Constantia, one of the most learned women on record, though she died in 1733, at the early age of twenty-seven, was the daughter of poor parents resident in the county of Kelkenny, in Ireland. She was an excellent Greek and Latin scholar, and understood history, divinity, philosophy, and mathematics. She proved her skill in Latin by her dedication of the Dublin edition of Tacitus to Lord Carteret, and by that of Terence to his son, to whom also she addressed a Greek epigram. She wrote many elegant English poems, several of which were inserted by Mrs Barber amongst her own. When Lord Carteret was lord lieutenant of Ireland, he obtained for her husband Mr Grierson the patent office of king's printer; and to reward the uncommon merit of his wife, caused her life to be included in it.

GRIFFON, or Griffin (*Gryphus*, Γρυψ), in the natural history of the ancients, the name of an imaginary bird of prey, of the eagle species, represented with four legs, wings, and a beak; the upper part resembling an eagle, and the lower a lion. This animal, which was supposed to watch over gold mines and hidden treasures, was consecrated to the sun; and the ancient painters represented the chariot of the sun as drawn by griffins. According to Spanheim, those of Jupiter and Nemesis were similarly provided. The griffin of Scripture is that species of the eagle called in Latin *ossifraga*, or osprey. The griffin is frequently seen on ancient medals, and is still borne in escutcheons. Guillim blazons it rampant, alleging, that any very fierce animal may be so blazoned as well as the lion; but Sylvester, Morgan, and others, use the terms *segreiant* instead of rampant. The griffin was also an architectural ornament in constant use amongst the Greeks, and was copied from them, with the other elegancies of architectural enrichment, by the Romans.

GRIMALDI, Francisco, an eminent painter, generally known by the appellation of *Bolognese*, was born at Bologna in 1606, where he became a disciple of Annibal Caracci, and proved an honour to that illustrious master. From the school of Annibal he went to complete his studies at Rome, and improved himself daily by copying the works of those artists in which he observed the greatest excellence. He died of a dropsy at Rome in 1680, and left a considerable fortune to his children. The genius of Grimaldi directed him chiefly to landscape, which he executed most happily. His colouring is strong, and his touch light and delicate; his situations are uncommonly pleasing, and the leafing of his trees is admirable.

GRIMMA, a bailiwick in the circle of Leipsic, in the kingdom of Saxony, containing five cities, ninety-three villages, and 18,460 inhabitants. The capital, of the same name, is a city situated on the Mulda, containing five churches, 560 houses, and 3500 inhabitants. Several manufactures are carried on, for cloth, flannels, hosiery, cotton articles, linen; surgical, mathematical, and musical instruments; and especially tobacco-pipes, of which some millions are annually made.

GRIMSBY, Great, a borough-town of the county of Lincoln, of the hundred of Bradley, in the division of Lindsay, 171 miles from London, and thirty-six from Lincoln. It stands at the mouth of the river Humber, opposite to Hull. The harbour having been injured, the trade declined; but some recent improvements have produced a revival. It is an ancient borough, and now returns one member to parliament, but formerly two, who were chosen by the freemen, which privilege was obtained by being born in the town, or by marriage with the daughter of a freeman. It had formerly two churches, but only one remains, which is large, in the form of a cross, and contains some handsome monuments. There is an excellent corn market on Thursday. The population amounted in 1801 to 1524, in 1811 to 2747, in 1821 to 3064, and in 1831 to 4225.

GRINDELWALD, a town situated in one of the most picturesque valleys of the canton of Berne, in Switzerland. This valley is, however, 3100 feet above the level of the sea, but is surrounded by the lofty Wetterhorn, Schrechhorn, and Grindelwald Mountains. It contains 5000 inhabitants.

GRINDING, or Trituration, the act of breaking or comminuting a solid body, and reducing it into powder.

Grinding is also used to indicate the rubbing or wearing off the irregular parts of the surface of a body, and reducing it to the destined figure, whatever that may be.

Grinding, in cutlery, is an operation universally understood, by which edge-tools are sharpened. According to the usual practice, this operation is attended with considerable inconvenience, occasioned by the extrication of heat from friction. The steel very soon becomes ignited when the friction is performed on a dry stone; and even when immersed in water, the operation must be slow, to prevent the water from being thrown off by the centrifugal force; whilst, on the other hand, if the water be poured on the stone from above by means of a cock, the quantity will be too small to preserve a sufficiently low temperature. But let the quantity of water be ever so great, if the instrument to be sharpened have not its point or edge so held as to meet the stream, it will almost inevitably be rendered softer.

To remedy these defects in the common mode of grinding, Mr Nicholson made an experiment with a grindstone from Newcastle, of a fine grit, ten inches in diameter, with a block of mahogany, having emery on the face of it. The grindstone and block were fixed on an axis, to be applied occasionally between the centres of a strong lathe. Both were cylindrical, and of the same diameter; the wood was grooved in opposite directions, that the emery might be lodged therein. The face of the stone was left smooth, with a trough under it to contain the water. The cylinder of wood was faced with emery and oil, and the stone was used with water. A file was the instrument ground, and it was proposed to efface all the teeth. The mechanism of the lathe produced the rotation, by which the grinding apparatus made five revolutions in a second. The operation of the stone was slow, and the workman found inconvenience from the water in the trough being soon exhausted; but the emery cylinder cut rather faster. The friction operated by quick changes on the whole surface of the file, yet it soon became too hot to be held conveniently by the uncovered hand; and even when it was held with a cloth, such was the rapid increase of heat as to decompose the oil, which emitted an empyreumatic odour. When the stone became dry, the file was tried on the face of it, which soon became blue, and then nearly red hot. After this both cylinders were covered with tallow, and emery was sprinkled upon the wood cylinder, when the same instrument was again held to the stone in rapid motion. The friction at first was scarcely apparent; but the pressure of the tool soon fused the tallow, and the stone cut very fast. When the tool after some time began to be a little heated, it was removed to a new zone of the cylinder, by which means the temperature was diminished. Similar effects accompanied the use of the wooden cylinder.

When oil was used upon the cylinder of wood, the heat occasioned by the friction raised the temperature of the instrument and of the oil; but when tallow instead of oil was employed, most of the heat was absorbed in fusing that substance. The increased capacity of the melted tallow absorbed this heat, which became latent, and did not raise the temperature; and when the tallow already melted began to grow hot, as well as the tool, the employing another zone of consistent tallow reduced the temperature.

GRINSTEAD, East, a borough-town and extensive parish of the county of Sussex, in the hundred of Rushmonden and rape of Pevensey, twenty-nine miles from London. It is situated on an eminence, and its tower is a prominent object to a large extent of country. It was a burgage tenure borough, and returned two members to parliament; but has been disfranchised. The houses were the property of the Duke of Dorset, but are now in possession of the Earl of Plymouth, to whom they descended by marriage. There is a market, chiefly for corn, held on Thursday. The population amounted in 1801 to 2659, in 1811 to 2804, in 1821 to 3153, and in 1831 to 3364. The assizes for the county are held here alternately with Horsham.

GRIPES, in *Medicine*, a colic or painful disorder of the lower belly, occasioned by irritating matters, or by wind in the intestines.

GRISGRIS, a superstition very prevalent amongst the negroes in the interior parts of Africa. The grisgris, according to Le Maire, are certain Arabic characters mixed with magical figures drawn by the marabouts or priests upon paper. Labat affirms that they are nothing else than scraps of the Koran in Arabic; but this is denied by Barbot, who brought over one of these grisgris to Europe, and showed it to a number of persons deeply skilled in oriental learning, none of whom could find in it the least trace of any character they understood. Yet, after all, this might be owing to the badness of the handwriting; and the words are probably of the Mandingo language, though the characters are an attempt to imitate the Arabic. The poorest negro never goes to war without his grisgris, as a charm against wounds; and if it proves ineffectual, the priest transfers the blame on the immorality of his conduct. These priests invent against all kinds of dangers, and provide in favour of all desires and appetites, grisgris, by virtue of which the possessors may obtain or avoid whatever they like or dislike. These, according to the marabouts, defend them from storms, enemies, diseases, pains, and misfortunes; and preserve health, long life, wealth, honour, and merit. No clergy in the world are more honoured and revered by the people than these impostors are by the negroes; nor are any people in the world more impoverished by their priests than the negroes, a grisgris being frequently sold at three slaves and four or five oxen. The grisgris intended for the head is made in the form of a cross, reaching from the forehead to the neck behind, and from ear to ear; nor are the arms and shoulders neglected. Sometimes they are planted in their bonnets in the form of horns; and at other times they are made like serpents, lizards, or some other animals, cut out of a kind of pasteboard. There are not wanting Europeans, otherwise intelligent seamen and merchants, who are in some degree infected with the weakness of the country, and believe that the negro sorcerers have an actual communication with the devil, and that they are filled with the malignant influence of that evil spirit when they are seen to distort their features and muscles, make horrid grimaces, and at last imitate the appearances exhibited by epileptics.

GRISONS, one of the cantons of Switzerland, called by the inhabitants Graubundten. It has been composed out of three confederacies, called the League of God's House, the League of the Ten Bailiwicks, and the Grey League. These, with some other small portions, had long continued independent states, until 1798, when, after invasion by the French, they were formally united into one state, and admitted as such into the Swiss confederation. It is one of the largest of the cantons, being about 3010 square miles in extent. It is bounded by Glarus, St Gall, and Austria, on the east by the Tyrol, on the south by Austrian Italy and the canton Ticino, and on the west by Uri. It is a most picturesque country. The Alps reach the height of 11,000 feet, with a line of perpetual snow of from 8200 to 8400 feet. There are said to be within the canton 240 glaciers and 56 waterfalls. The valleys are strikingly beautiful, and in them both the Rhine and the Inn have their sources. There are five of these greater valleys, distinguished as the Hither Rhine, the Farther Rhine, Engadine, the Albula, and the Brettegau, and nearly 150 smaller valleys are connected with them, each with its peculiar features. The chief products are those of the dairy, which are exchanged for corn, of which only half as much is raised as the consumption requires. The chief trade is by the passes of the Alps with Milan. The inhabitants are about 83,000, of whom 40,000 speak a lingua-franca, the old Romana rustica; about 30,000 speak German, and 13,000 Italian. The Roman Catholic church has 33,000 adherents, with six ministers and eighty-six parish churches. The Protestants are 50,000, of the Helvetic confession, and have six colleges, with 132 parish churches; but the pastors are so poor that they are often compelled to have recourse to manual labour or trade to support themselves. The government is a pure democracy. The three divisions, as in old times, are still adhered to, and deputies, twenty-one from each portion, meet, and all have separate presidents, and are assisted by councils annually elected. The contingent of men furnished by the cantons to the Swiss confederacy is 1600, and of money 12,000 francs. The annual revenue was, in 1831, L.21,590, and the expenditure L.20,100. The public debt is now nearly extinguished. Chur is the capital of the whole, as well as of

Groningen
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Gronovius.

the League of God's House; but the League of the Bailiwick has for its capital the town of Davos, and that of the Grey League the town of Dissentis. Chur contains 350 inhabitants, and is on the great road from Germany to Lombardy.

GRIST, in country affairs, denotes corn ground, or ready for grinding.

GRIT, or Gritstone, a kind of stone which is used for building, and for millstones or grindstones, and sometimes for filtrating water.

GROAT, an English money of account, equal to fourpence. Other nations, as the Dutch, Poles, Saxons, Bohemians, and French, have likewise their groats, groots, grochen, gros, and the like. In the Saxon times, no silver coin bigger than a penny was struck in England, nor after the Conquest, till the reign of Edward III., who, about the year 1351, coined grosses or great pieces, which went for fourpence each; and so the matter stood till the reign of Henry VIII., who, in 1504, first coined shillings.

Groats, in country affairs, oats after the husks are taken off, or great oatmeal.

GROCERS were anciently such persons as engrossed all merchandise that was vendible; but now they are incorporated, form one of the companies of the city of London, and deal in sugar, foreign fruits, spices, and other articles.

GRODNO, one of the provinces of West Russia, formerly a part of Lithuania. It is bounded on the north by Wilna, on the east by Minsk, on the south by Volhynia, on the south-west by Poland, and on the west by Bialystock. It extends over 11,792 square miles, and is divided into eight circles, containing 108 towns and 936 villages, with 842,500 inhabitants. The latter consist of Lithuanians, Poles, Russians, Jews, Germans, and gipsies. The nobility are chiefly Poles, the traders are Jews or Poles, the merchants Germans, and the labourers and peasants Lithuanians. The chief city, of the same name, is situated on the river Niemen. It is an ancient town, with palaces of the great Lithuanian nobles, now in a state of decay. It contains twelve churches, of which nine are Catholic, one Greek, and two Lutheran, with 800 houses and 5000 inhabitants. Long. 23. 46. 20. E. Lat. 53. 40. 48. N.

GROENLAND, or Greenland. See Greenland.

GROGRAM, a kind of stuff made of silk and mohair.

GROIN, that part of the abdomen next the thigh.

Groin, amongst builders, is the angular curve formed by the intersection of two semicylinders or arches, and is either regular or irregular. A regular groin is when the intersecting arches, whether semicircular or semielliptical, are of the same diameters and heights. An irregular groin is where one of the arches is semicircular and the other semielliptical.

GROLL, or Groenloo, a town of the Netherlands, in the circle of Zutphen, and province of Guelderland. It stands on the river Slink, and is strongly fortified as a frontier town on the side of Westphalia. It contains 2100 inhabitants.

GRONENBACH, a bailiwick of the circle of the Upper Danube, in the kingdom of Bavaria, extending over 115 square miles. It contains three market-towns, fifty-two villages, and 155 detached agricultural establishments, and 11,492 inhabitants. It is a poor district, mostly covered with woods. The capital, of the same name, has only a population of about 1000 persons.

GRONINGEN, one of the provinces of the Netherlands. It is bounded on the north by the German Ocean, on the east by the mouth of the Ems, the Dollart, and the kingdom of Hanover, on the south by the province of Drenthe, and on the west by that of Friesland. It extends over 806 square miles, and contains 159,321 inhabitants. On the shore there is a tract of land from eighteen to twenty miles in breadth, which, by being well drained and embanked, bears excellent crops of oats and some barley, and feeds a great number of cows. The butter and cheese is however inferior to what is produced in the provinces of Holland and Friesland. The land farther from the shore is generally sandy heath, producing much turf, and yielding with much care, on a large extent, a supply of potatoes. The province is divided into three circles, viz. Groningen, Windshotten, and Apingadam.

Groningen, a city, the capital of the province of the same name, in the Netherlands. It stands on the rivers Hunse and Aa, the waters of both which run through the city, and fill the ditches which surround the walls. It is a well-built town, very strongly fortified, with broad streets and good houses. It contains 6000 dwellings, and in 1819 27,800 inhabitants, who were lessened by the fatal fever which visited the province in 1826, so as in 1831 to be only 26,069. There are manufactures of linen and woollen goods. The university contains nineteen professors, and commonly 200 students. The commerce chiefly consists of the export of oats, butter, cheese, and turf. Long. 6. 34. E. Lat. 53. 10. N.

Groningen, a town of the Prussian province of Saxony, in the circle of Oschersleben. It stands on the river Bode, and contains 421 houses, with 2354 inhabitants, employed in flax and wool spinning. Long. 11. 6. 27. E. Lat. 51. 36. 3. N.

GRONOVIUS, the Latinized form of Gronov, John Frederick, a learned scholar and critic, was born at Hamburg on the 10th of September 1611. His father, who was councillor to the Duke of Holstein, having been appointed syndic or town-clerk of Bremen, carried his son to that city, where he went through his early studies with great distinction. He then visited the universities of Leipsic and Iena, and proceeded to Altdorf, where he studied law under the learned professors who had conferred celebrity on that school. After the death of his father he returned to Bremen, and having settled his affairs, he, in 1634, repaired to Groningen to enjoy the benefit of the society and instructions of Antony Mathieu, a great jurisconsult, and the friend of his family. Here, however, he remained only a short time. For, being desirous to extend his knowledge by travel, he visited the principal cities of Holland, in order to converse with the learned and explore the libraries; passed, with the same design, into England in 1639; and the year following proceeded to France. He stopped several months at Paris; received the degree of doctor of law at Angers; and then travelled into Italy, whence he returned, through Switzerland and Germany, to Deventer, where he was offered the chair of literature and history. In 1658, he succeeded Daniel Heinsius, the celebrated professor of belles-lettres in the university of Leyden, and died in that city on the 28th of December 1671. Gronovius was a man of equal learning and modesty, and, as he was naturally disinclined to controversy, he avoided those literary disputes by which so many then sought to obtain distinction. For a correct list of his numerous works, we refer to the *Biblioth. Erudit. Præcoc.* of Klefeker, and to the *Dictionaire* of Chauffèpié, and shall only mention the following: 1. Diatribe in Statii poetæ Sylvas, Hague, 1637, in 8vo; 2. De Sesterciis sive subsesivorum Pecuniæ veteris Græcæ et Romanæ libri iv. Deventer, 1643, in 4to; 3. Observationum libri iv. Deventer, 1662, in 12mo; 4. Laudatio funebris Joannis Golii, Leyden, 1668, in 8vo; 5. De Musæo Alexandrino Exercitationes Academicæ, inserted in the eighth volume of the *Thesaurus Antiquitatum Græcarum;* 6. Lectiones Plautinæ, quibus non tantum fabulæ Plautinæ et Terentianæ, verum etiam Cæsar, Cicero, Livius illustrantur, Amsterdam, 1740, in 8vo; 7. Notes on the treatise of Grotius *De Jure Belli et Pacis.* Gronovius also revised

Gronovius.

the text, and published editions with notes, of Titus Livius, Statius, Pliny the Elder, Justin, Tacitus, the Senecas, Aulus Gellius, Phædrus, and Paulinus, almost all of which form part of the *Variorum* collection. (A.)

Gronovius, *James*, son of the preceding, and one of the most laborious philologers of the seventeenth century, was born at Deventer on the 20th of October 1645. At an early age he had read all the masterpieces of antiquity, and appreciated their beauties; but this precocious discernment was not so much the result of natural genius as of obstinate perseverance. Having resolved to travel through part of Europe to acquire knowledge, and visit the old friends of his father, he came over to England, where he remained several months, during which he occupied himself in collating the manuscripts in the libraries of Oxford and Cambridge. He then returned to Leyden, and there published, in the year 1670, an edition of Polybius, with notes, amongst which he inserted those that Casaubon had on his death-bed bequeathed to him. This first editorial effort did him much honour, and well merited the offer, which was in consequence made him, of a chair in the academy of Deventer. But entertaining the intention of continuing his travels, he declined the proffered situation, and almost immediately set out for Paris, where he met with a most distinguished reception. The death of his father obliged him to return a second time to Leyden; but as soon as he had arranged his affairs, he again set out, along with M. Paats, ambassador of the states-general, to Spain; and having seen all that is curious or interesting in that country, he embarked for Italy. The Grand Duke of Tuscany retained him in his states by appointing him professor in the university of Pisa; and Gronovius profited by the facility he had of visiting Florence, to form a connection with Magliabecchi, who placed at his disposal all the treasures of the Medicean library. At the end of two years he prevailed on the grand duke to accept his resignation; visited Venice and Padua; and traversed Germany on his way to Deventer, where it was his intention to settle. But scarcely had he arrived in that city when the curators of the university of Leyden tendered him a chair, and pressed their offer so urgently that he was induced to accept. His opening discourse increased the high idea which had been formed of his knowledge; and the curators, to testify their desire of retaining him, immediately raised his salary to four hundred florins. Gronovius was very sensible of this mark of esteem, and constantly refused the propositions which were made to draw him to Kiel, to Padua, and to other universities of Germany and Italy. If he inherited the erudition of his father, he had neither his gentleness nor his moderation. Never was there a man fonder of disputation, or more unjust towards the adversaries whom, for the most part, he raised up against himself by his asperity and haughtiness. It would be tedious, if not disgusting, to enter into details respecting the quarrels he had to maintain with Fabretti on the sense of some passages in Livy; with Feller and Perizonius as to the manner of Judas's death; with Vossius on Pomponius Mela; with Bentley and John Leclerc on the corrections of Menander; with Kuster on Suidas, &c. The scurrility he indulged in these discussions, which did not always terminate to his advantage, and his exorbitant vanity, caused him to be compared to Scioppius, and procured for him the unenviable distinction of a place in the work of Mencken on the Empiricism of the Learned. But though the temper of Gronovius was thus violent, his heart was sound, and he loved his children with so much tenderness that the grief occasioned by the loss of his daughter accelerated his own death, which took place at Leyden on the 21st of October 1716, in the seventy-first year of his age. In the Memoirs of Niceron will be found a notice of his life, followed by a catalogue of his works, forty-six in number. The most celebrated, as well as the most important, of these, is the *Thesaurus Antiquitatum Græcarum*, Leyden, 1697 and the following years, in 13 vols. folio. For this invaluable collection he adopted the plan traced out by Grævius in the *Thesaurus Antiquitatum Romanarum*, Utrecht, 1694, in 12 vols. folio. Both works ought to be united; and, to form a complete collection of antiquities, there should be added, 1. *Novus Thesaurus Antiquitatum Romanarum*, by Sallengre, Hague, 1716, in 3 vols. folio; 2. *Utriusque Thesauri Nova Supplementa*, by Polleni, Venice, 1737, in 5 vols. folio; 3. *Inscriptiones Antiquæ totius Orbis Romani*, by Gruter, Amsterdam, 1707, in 4 vols. folio; 4. *Lexicon Antiquitatum Romanarum*, by Pitiscus, Leuwarden, 1713, in 2 vols. folio. Gronovius published new editions of several authors already commented on by his father, such as Seneca the tragic poet, Aulus Gellius, Phædrus, and others; and he also edited Macrobius, Polybius, Tacitus, Pomponius Mela, Cicero, Ammianus Marcellinus, Quintus Curtius, Suetonius, Arrian, Minutius Felix, Herodotus, Cebes, and some ancient geographers; the poem of Manetho on the stars; the *Dactylotheca* of Gorlæus; the *Lexicon* of Harpocration, &c. the greater part of which, enriched with corrections and notes, form part of the *Variorum* collection, though, in general, not held in much estimation. The other productions of Gronovius consist of Theses, Discourses, and Diatribes, of which a list will be found in the Memoirs of Niceron, and also in the *Biblioth. Erudit. Præcocium* of Klefeker. (A.)

GROOM, a name particularly applied to several superior officers belonging to the king's household, as groom of the chamber, groom of the stole.

Groom is more particularly used for a servant appointed to attend on horses in the stable. The word is formed from the Flemish *grom*, a boy.

GROOTE EYLANDT, a large island on the north coast of New Holland, and on the western shore of the Gulf of Carpentaria. It was so called by the Dutch navigators who first visited this gulf, and is about sixty miles from north to south. It is generally barren and unproductive on the coast; but towards the interior is covered with wood. It extends from lat. 13. 39. to 14. 17. S.

GROOVE, amongst miners, is the shaft or pit sunk into the earth, sometimes in the vein, and sometimes not.

Groove, amongst joiners, the channel made by their plough in the edge of a moulding, style, or rail, to put their panels in, in wainscotting.

GROSE, Francis, born about the year 1731, was the son of Francis Grose, a jeweller of Richmond, by whom the coronation crown of George II. was filled up. Young Grose obtained an independent fortune by the death of his father, which happened in the year 1769. He was then paymaster and adjutant in the Surrey militia, but dissipation so far prevented him for some time from giving proper attention to his duty, that, in his own humorous mode of expressing himself, he kept but two books of accounts, his right and left hand pockets. The losses which this thoughtless conduct occasioned him awakened his dormant talents, and he resolved to turn his attention to literary pursuits. Having received a classical education, he united to it an excellent taste for drawing, which induced him to commence his *Views of Antiquities in England and Wales*. He began this work in numbers in 1773, and completed it in 1776; and by it he obtained both reputation and profit, which last his unpardonable prodigality had rendered extremely welcome. In 1777 he added to his English Views other two volumes, including the islands of Guernsey and Jersey, finished in 1778. All his expectations were fully gratified by the publication of this work; and during the remainder of his life he continued to publish others, which in general increased his reputaon as an author, and tended to augment his substance. n the summer of 1789 he paid a visit to Scotland, and in 790 began to publish in numbers, the Views taken by im in that country. He next proceeded to Ireland, with view to give a similar description of that country; but n the 6th of May 1791, whilst at Dublin, in the house of Ir Horne, he was suddenly seized at table with an apolectic fit, and immediately expired. He was buried in Drumcondra churchyard, near Dublin. Although his lierature was very respectable, it was exceeded by his ood humour, his convivial turn of mind, and his friendly isposition. Both at home and abroad he was always in e best company, and his knowledge of the world was o extensive that his conversation was useful and enteraining. He was free from the malignity and pride of ome authors; for as he felt the independence of his own alents, he scorned to depreciate those of others. Of the ost careless, open, and artless disposition, he was often e prey of the designing, and more than once embarrassd himself by placing too implicit confidence in the probity f others. A tale of distress never failed to touch his heart, nd to bedew his cheek with tears of commiseration. His orks are, 1. The Antiquities of England and Wales, in 8 ols. 4to and 8vo; 2. The Antiquities of Scotland, in 2 vols. to and 8vo; 3. The Antiquities of Ireland, in 2 vols. 4to nd 8vo, a posthumous work edited by Mr Ledwieh, 1794; . A Treatise on ancient Armour and Weapons, 1785, in to; 5. A Classical Dictionary of the Vulgar Tongue, 785, in 8vo; 6. Military Antiquities, being a History of e English Army from the Conquest to the present time, 786, 1788, in 2 vols. 4to; 7. The History of Dover astle by the Rev. William Darell, 1786, in 4to; 8. A rovincial Glossary, with a Collection of Local Proverbs nd Popular Superstitions, 1788, in 8vo; 9. Rules for rawing Caricatures, 1788, in 8vo; 10. Supplement to e Treatise on ancient Armour and Weapons, 1789, in to; 11. A Guide to Health, Beauty, Honour, and Riches, eing a collection of humorous advertisements, pointing ut the means to obtain these blessings, with a suitable ntroductory preface, 8vo; 12. The Olio, a Collection of ssays, Jests, and small pieces of Poetry, highly characeristic of Grose, though not made by him, nor all of his omposition, 1793, in 8vo.

GROSS, amongst us, means twelve dozen.

Gross Weight, is the weight of merchandise and goods ith the dust and dross, as also of the bag, cask, chest, c. in which they are contained; and out of this gross eight allowance is to be made for tare and tret.

Gross
||
Grotesque.

Gross, or *Grossus*, in our ancient law writers, denotes a thing absolute, and not depending on another. Thus, *villein in gross, villanus in grosso*, was a servant who did not belong to the land, but immediately to the person of the lord; or a servile person not appended or annexed to the lord or manor, or an accessory of the tenures as an appurtenant, but, like other personal goods and chattels of his lord, at his lord's pleasure and disposal.

GROSSASPERN, a town of Austria, in the province of the Lower Ens. It is situated on an arm of the Danube, and remarkable for the battle fought there on the 22d and 23d July 1809, which led to the capture of Vienna by the French. It contains 110 houses, and 710 inhabitants.

GROSSCHANAU, a town of the circle of Lausatia, in the kingdom of Saxony. It is situated on the Lousebaeh, and is one of the chief seats of the linen manufacture, especially for damask tablecloths and napkins. It is 1000 feet above the level of the sea. The population is 4600.

GROSSENHAIN, a bailiwick of the circle of Meisen, in the kingdom of Saxony. It contains two cities, two market-towns, and 229 villages, with 24,729 inhabitants. It is a fruitful district, but much of it is covered with forests. The capital, of the same name, is a city standing on the river Roder, which runs to the Elbe. It contains 620 houses, and about 5000 inhabitants, amongst whom are calico printers, weavers, dyers, stocking makers, and other trades. Lat. 51. 18. 6. N.

GROSSWARDEIN, a city of Hungary, in the circle of the Hither Theiss. It is strongly fortified, and is the seat of a bishop, and of the several civil and military boards of the circle. There is a Catholic ecclesiastical seminary, with ten professors, and several religious houses for both males and females. It contains 1200 houses, with 6768 inhabitants. Several natural warm springs in the city are visited by patients. It has considerable trade in the products of its vicinity, the chief of which is wine; and marble is furnished from some valuable quarries. Long. 21. 50. 45. E. Lat. 47. 2. 50. N.

GROTESQUE, in sculpture and painting, something whimsical, extravagant, and monstrous, consisting either of things which are merely imaginary, and have no existence in nature, or of things so distorted as to excite surprise and ridicule. The name arises from the circumstance that figures of this kind were anciently much used to adorn the *grottoes* in which the tombs of eminent persons or families were enclosed. Such was that of Ovid, whose grotto was discovered near Rome more than a century ago.

END OF VOLUME TENTH.

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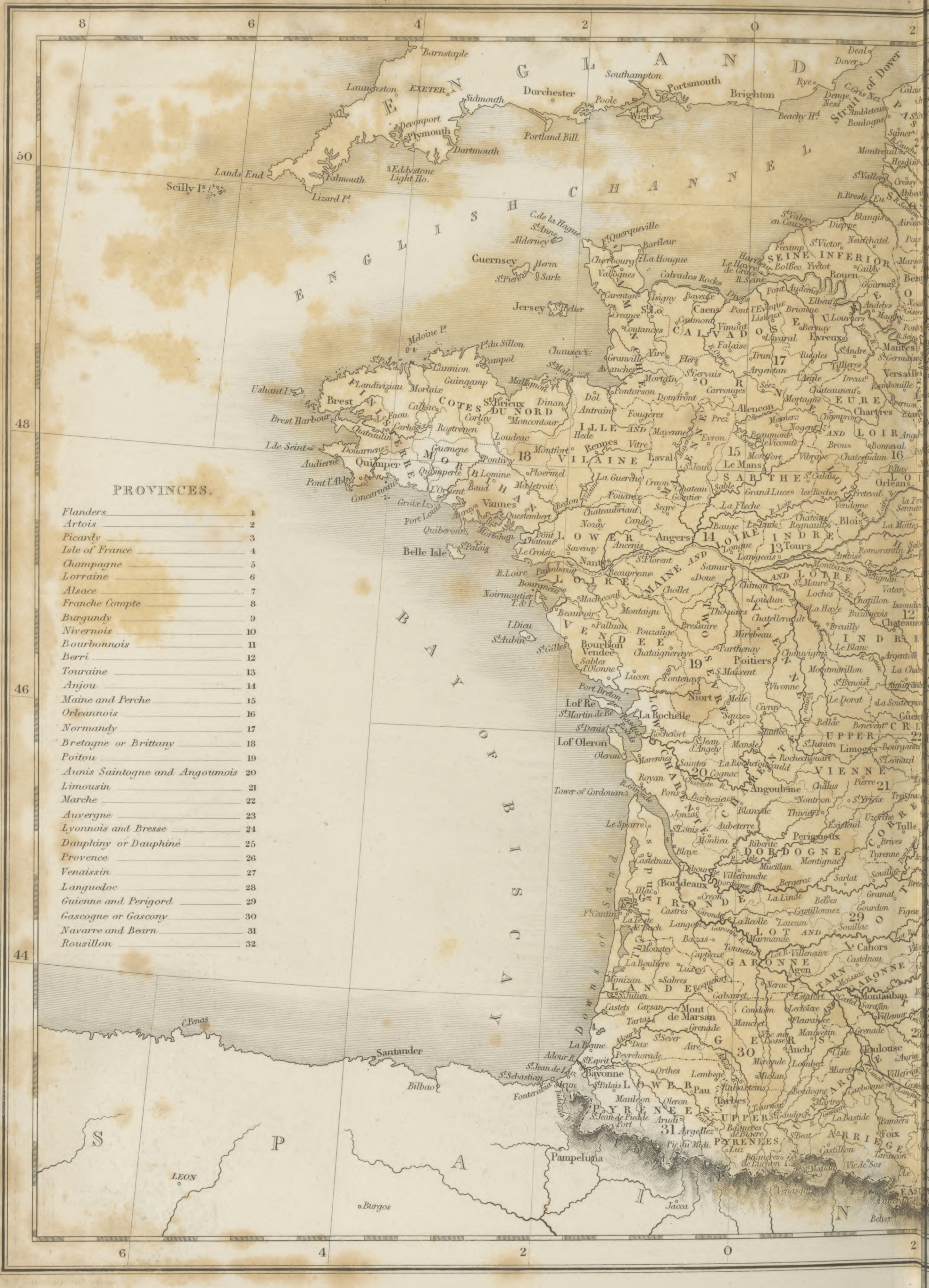
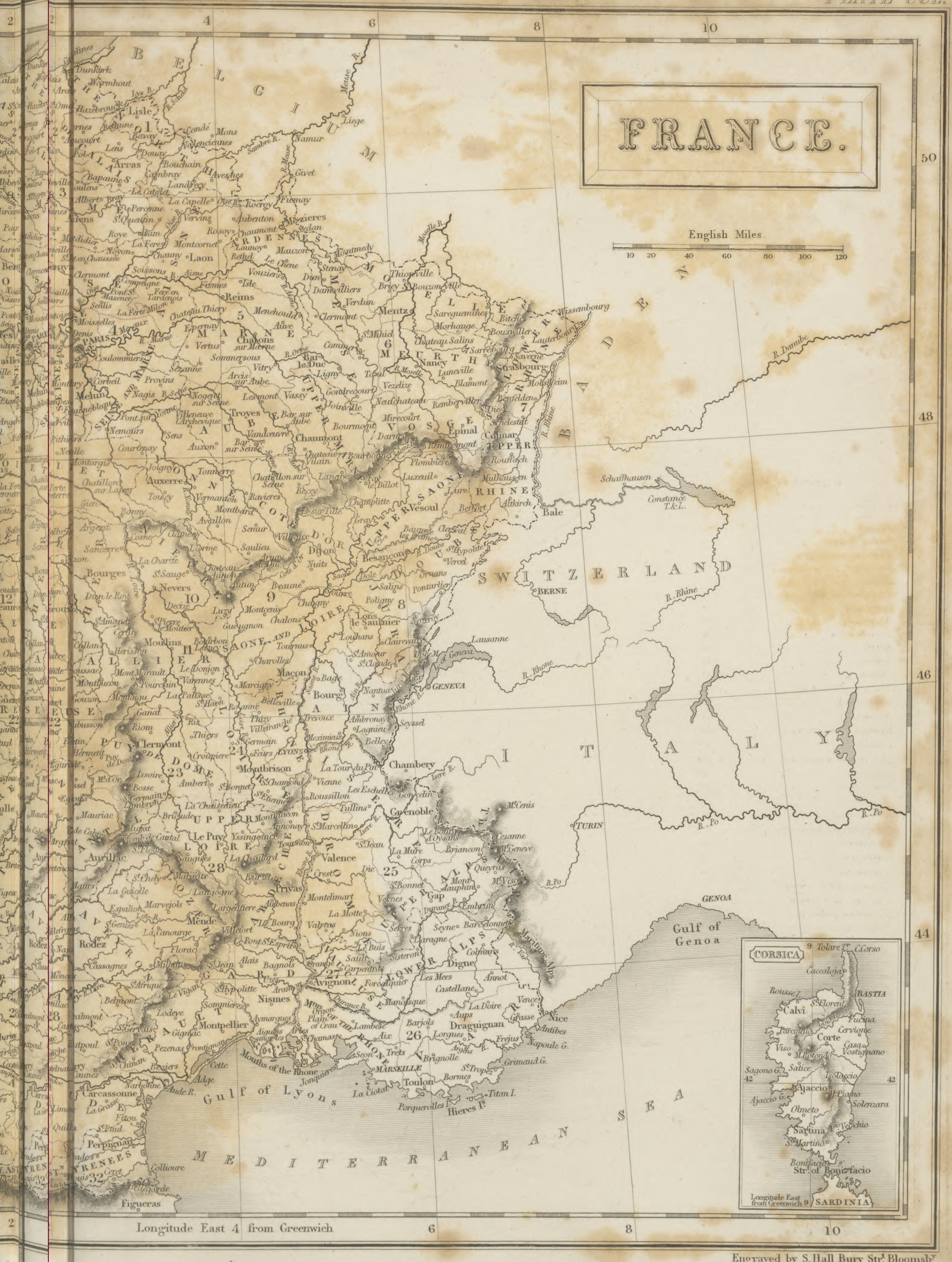


PROVINCES.

Flanders	1
Artois	2
Picardy	3
Isle of France	4
Champagne	5
Lorraine	6
Alsace	7
Franche Compte	8
Burgundy	9
Nivernois	10
Bourbonnois	11
Berri	12
Touraine	13
Anjou	14
Maine and Perche	15
Orleannois	16
Normandy	17
Bretagne or Brittany	18
Poitou	19
Aunis Saintogne and Angoumois	20
Limousin	21
Marche	22
Auvergne	23
Lyonnois and Bresse	24
Dauphiny or Dauphiné	25
Provence	26
Venaissin	27
Languedoc	28
Guienne and Perigord	29
Gascogne or Gascony	30
Navarre and Bearn	31
Rousillon	32



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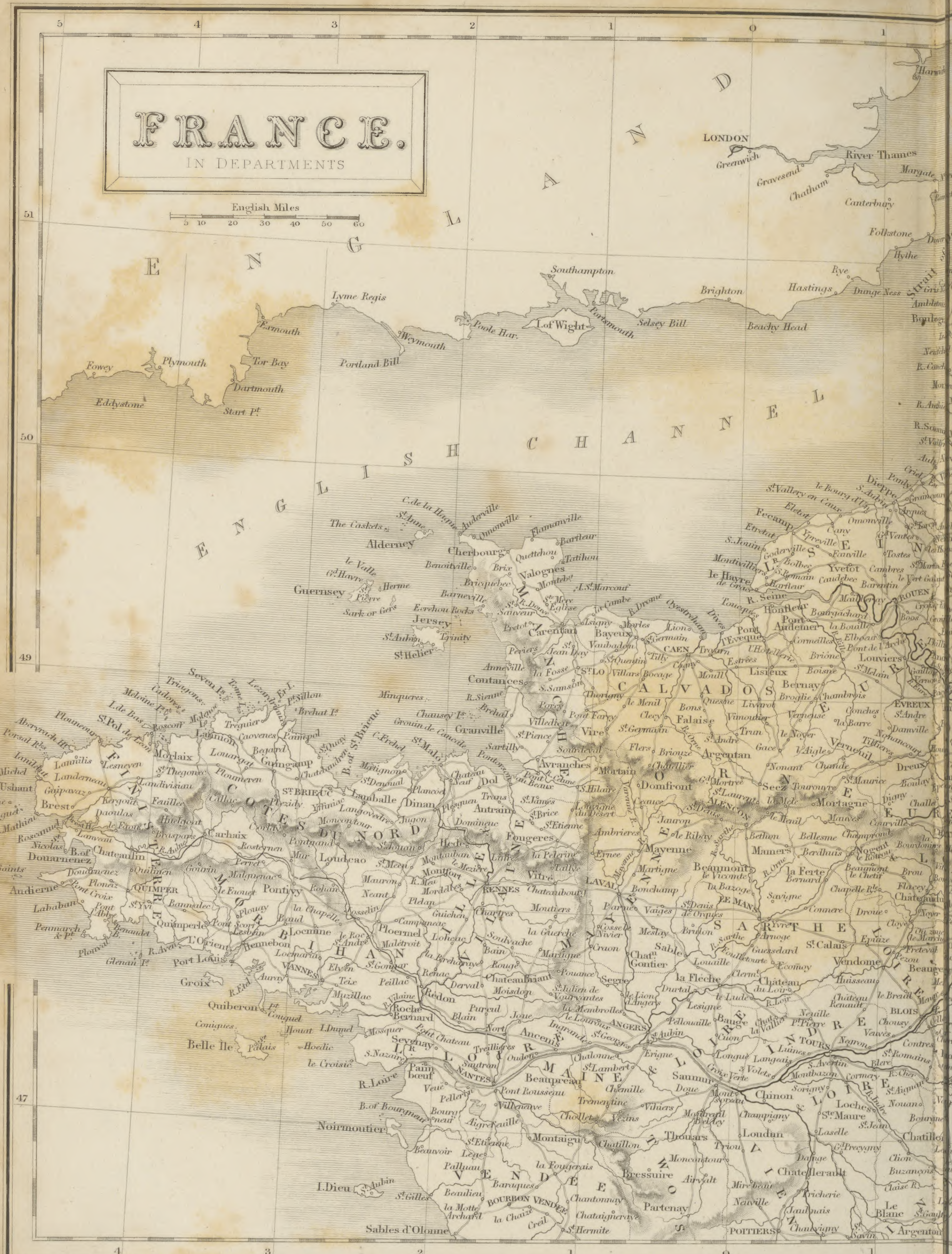
FRANCE.
IN DEPARTMENTS
English Miles
5 10 20 30 40 50 60
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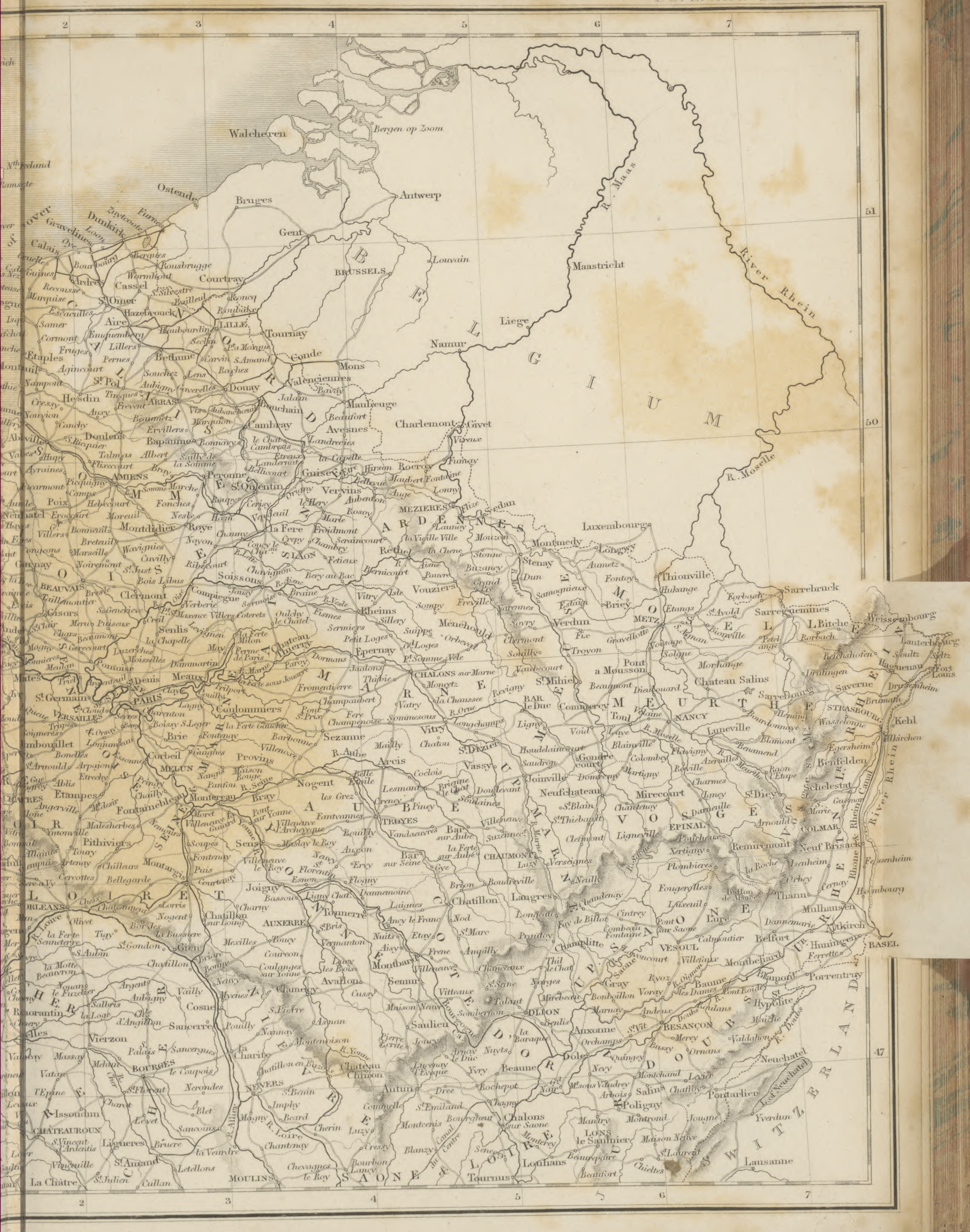
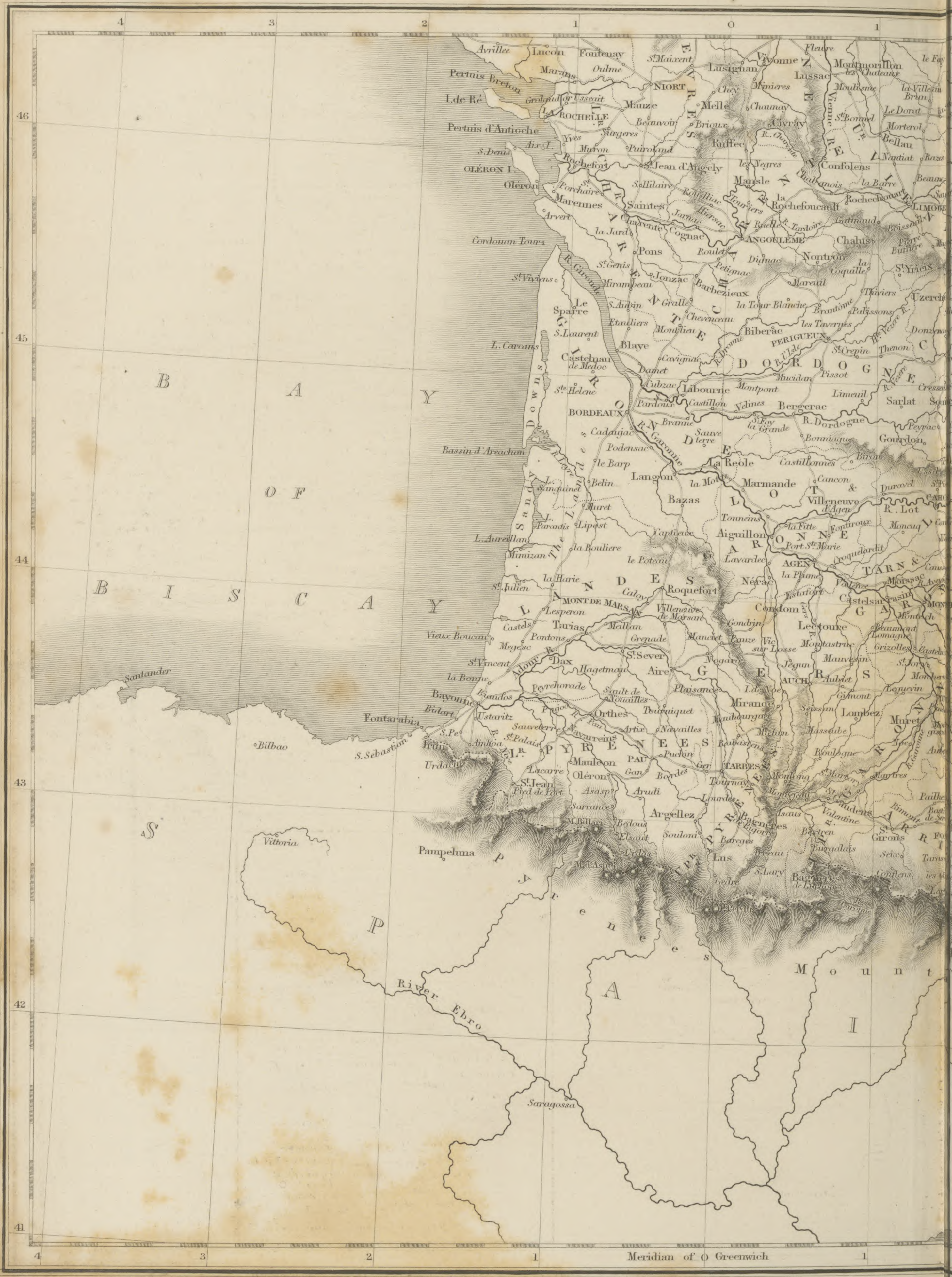
ENGLAND
ENGLISH CHANNEL
LONDON
Greenwich
Gravesend
Chatham
River Thames
Margate
Canterbury
Folkstone
Hythe
Rye
Hastings
Dunge Ness
Brighton
Beachy Head
Selsey Bill
Portsmouth
I. of Wight
Southampton
Poole Har.
Weymouth
Portland Bill
Lyme Regis
Exmouth
Tor Bay
Dartmouth
Start Pt.
Plymouth
Fowey
Eddystone
The Caskets
Alderney
C. de la Hague
St. Anne
Auderville
Omonville
Flamanville
Barfleur
Cherbourg
Quettehou
Valognes
Tatihou
Benoitville
Brix
Montebg.
I. St. Marcouf
le Valle
Gd. Havre
St. Pierre
Herme
Guernsey
Sark or Gers
Ecrehou Rocks
Bricquebec
Barneville
St. Mere Eglise
Jersey
Trinity
St. Aubin
St. Helier
Minqueres
Chausey Is.
MANCHE
Carentan
Periers
St. Jean Day
St. Lo
Anneville
Coutances
la Fosse
Granville
Villedieu
Vire
Avranches
Mortain
Pontorson
Sartilly
CALVADOS
Bayeux
Isigny
Caen
Troarn
Falaise
Lisieux
Pont l'Eveque
Honfleur
Pont Audemer
Bernay
EURE
Evreux
Louviers
Elbeuf
Dreux
Verneuil
ORNE
Argentan
Domfront
Alencon
Seez
Mortagne
le Mele
St. Maurice
SEINE INFERIEURE
Dieppe
St. Valery en Caux
Fecamp
Etretat
Yvetot
Bolbec
le Havre de Grace
Harfleur
R. Seine
Rouen
Caudebec
Barentin
Montivilliers
Canny
Fauville
Tostes
Aumale
Eu
Boulogne
Calais
Strait of Dover
St. Malo
Dinan
Dol
Cancale
St. Brieuc
Lamballe
COTES DU NORD
Guingamp
Paimpol
Treguier
Lannion
Morlaix
St. Pol de Leon
Roscoff
Sept Iles
Brehat I.
FINISTERE
Brest
Landerneau
Landivisiau
Lesneven
Ushant
St. Mathieu
Chateaulin
Carhaix
Douarnenez
B. of Douarnenez
Quimper
Audierne
Pont Croix
Pont l'Abbe
Penmarch & Pt.
Quimperle
Glenan Is.
MORBIHAN
L'Orient
Port Louis
Hennebon
Pontivy
Loudeac
Ploermel
Vannes
Auray
Quiberon
Belle Ile
Palais
Houat
Hoedic
Groix
Muzillac
La Roche Bernard
Redon
ILLE ET VILAINE
Rennes
Fougeres
Vitre
Montfort
Bain
Chateaubriant
St. Aubin
Hede
Antrain
MAYENNE
Laval
Mayenne
Ernee
Chateau Gontier
Craon
Ambrieres
SARTHE
le Mans
Mamers
la Ferte Bernard
St. Calais
la Fleche
Sable
Beaumont le Vicomte
Chateau du Loir
Vendome
EURE ET LOIR
LOIR ET CHER
Blois
MAINE ET LOIRE
Angers
Saumur
Beaupreau
Chollet
Segre
Baugé
LOIRE INFERIEURE
Nantes
Ancenis
Paimboeuf
Savenay
St. Nazaire
le Croisic
Blain
R. Loire
INDRE ET LOIRE
Tours
Chinon
Loches
Amboise
Loudun
VENDEE
Bourbon Vendee
Sables d'Olonne
Fontenay
Noirmoutier
I. Dieu
St. Gilles
Montaigu
Chantonnay
la Chataigneraye
DEUX SEVRES
Bressuire
Thouars
Parthenay
VIENNE
Poitiers
Chatellerault
Montmorillon
INDRE
Le Blanc
Argenton
Chatillon

DUPLICATE PLATE CCL-1.




B A Y
O F
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Pertuis Breton
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Pertuis d'Antioche
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Oléron
Cordouan Tour
L. Carcans
Bassin d'Arcachon
L. Aureillan
Vieux Boucau
Santander
Bilbao
S. Sebastian
Fontarabia
Bayonne
Vittoria
Pampeluna
River Ebro
Saragossa
Lucon
Fontenay
Marans
NIORT
LA ROCHELLE
Rochefort
St. Jean d'Angely
Saintes
Cognac
ANGOULÊME
Lusignan
Melle
Ruffec
Civray
Confolens
Rochechouart
LIMOGES
Pons
Jonzac
Barbezieux
Blaye
Libourne
BORDEAUX
PERIGUEUX
Bergerac
Sarlat
Gourdon
Castelnau de Medoc
Langon
Bazas
la Reole
Marmande
Villeneuve d'Agen
Tonneins
Aiguillon
Nérac
AGEN
Moissac
Castelsarrasin
Condom
Lectoure
AUCH
Mirande
Lombez
Muret
MONT DE MARSAN
Roquefort
St. Sever
Aire
Dax
Orthes
PAU
TARBES
Lourdes
Bagneres de Bigorre
St. Gaudens
St. Girons
Bagneres de Luchon
Mauleon
Oléron
St. Jean Pied de Port
M. Billari
Mt. Aspe
Mt. Perdu
D O R D O G N E
L A N D E S
G I R O N D E
C H A R E N T E
L O T & G A R O N N E
G E R S
TARN & GARONNE
B. P Y R E N E E S
H. P Y R E N E E S
R. Gironde
R. Garonne
R. Dordogne
R. Lot
Adour R.
Downs
The Landes
Meridian of 0 Greenwich
4
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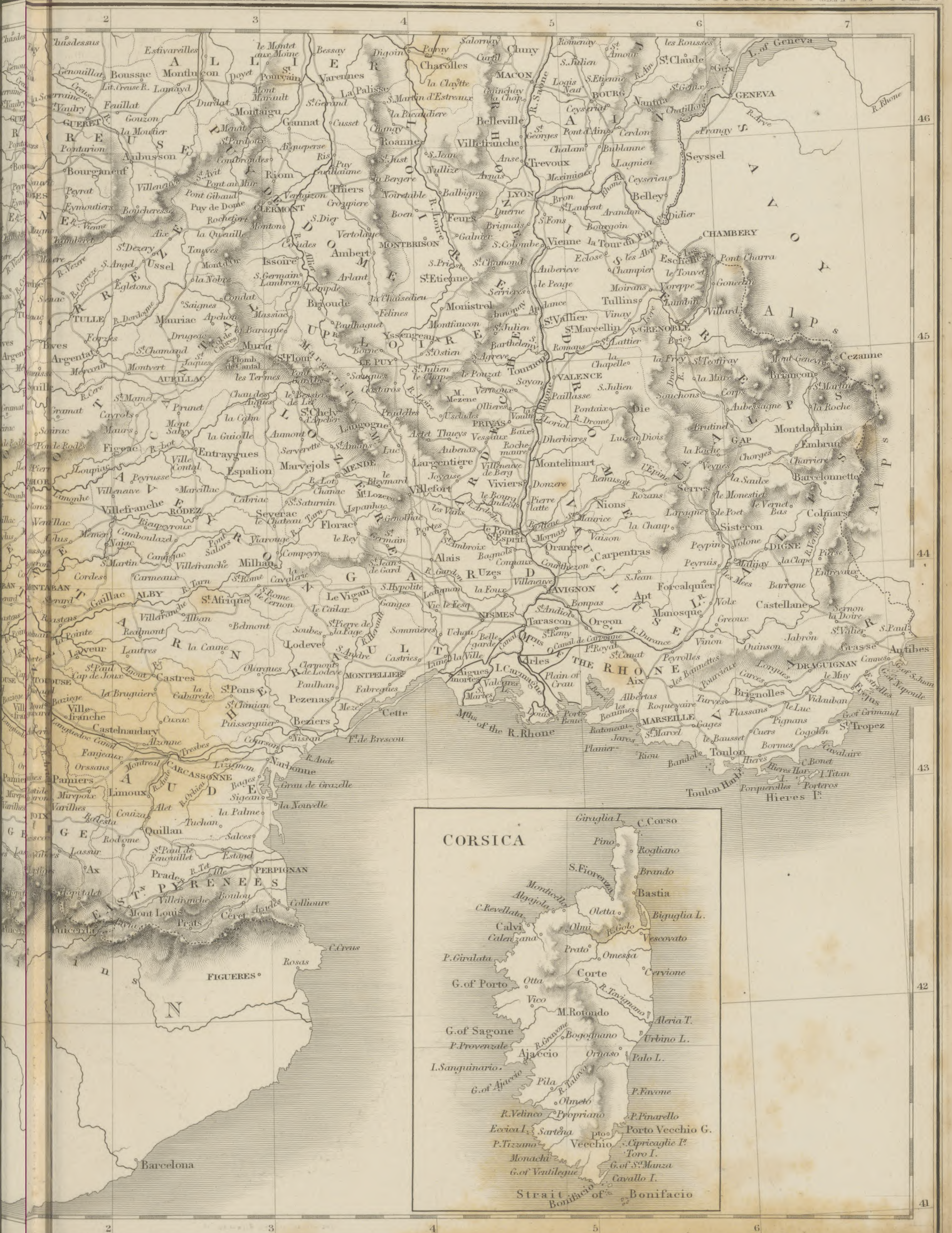

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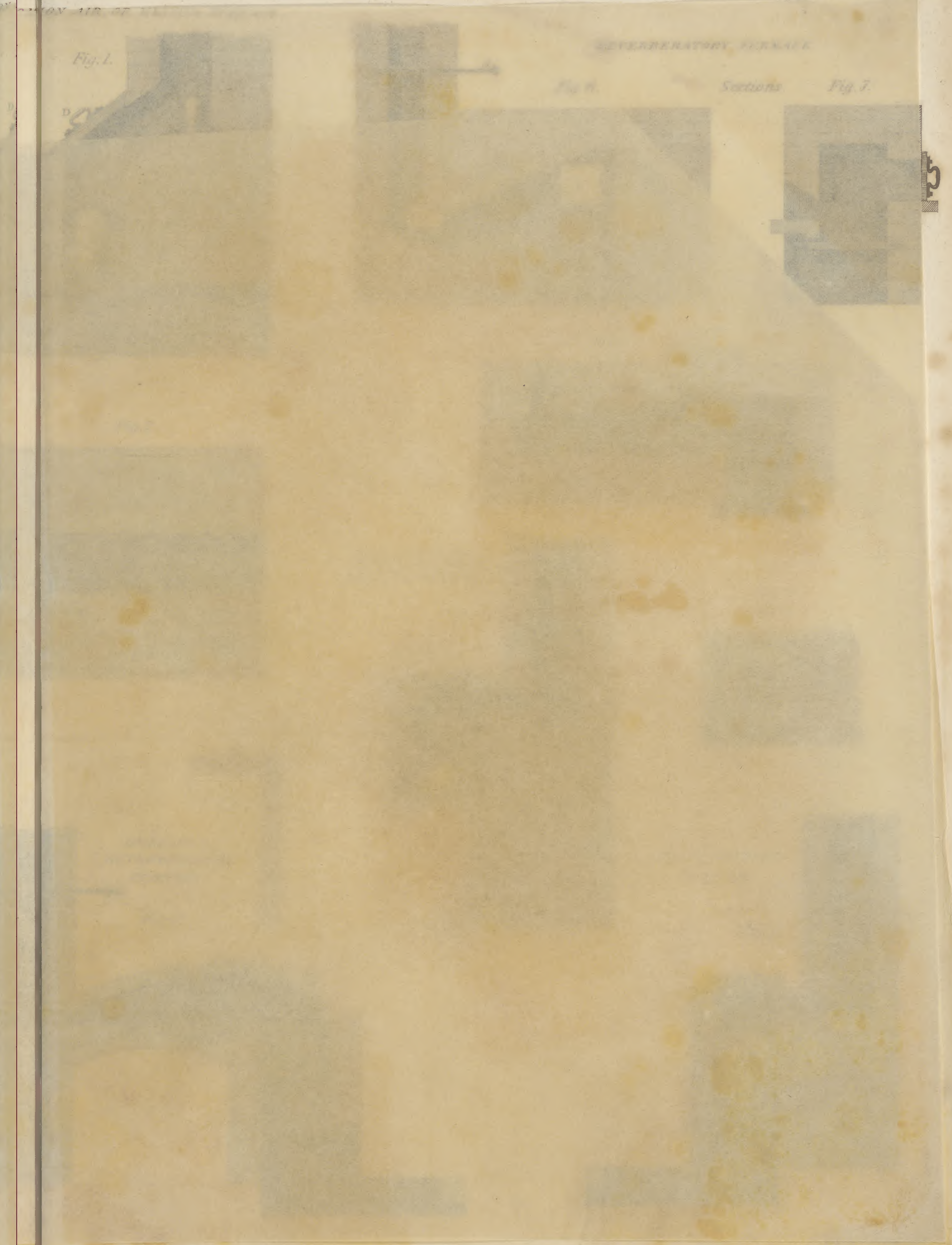
FURNACE. *PLATE CCLI.*

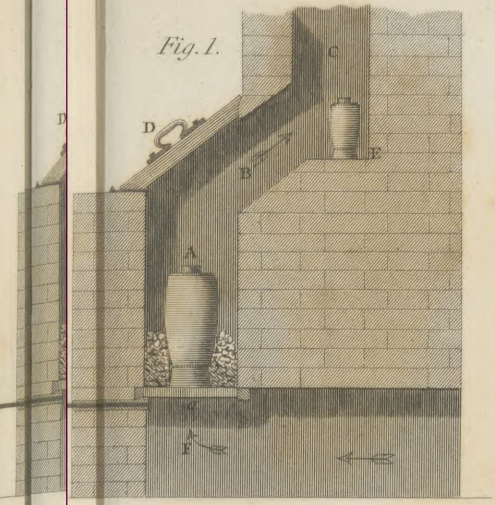


FURNACE.

PLATE CCLI.

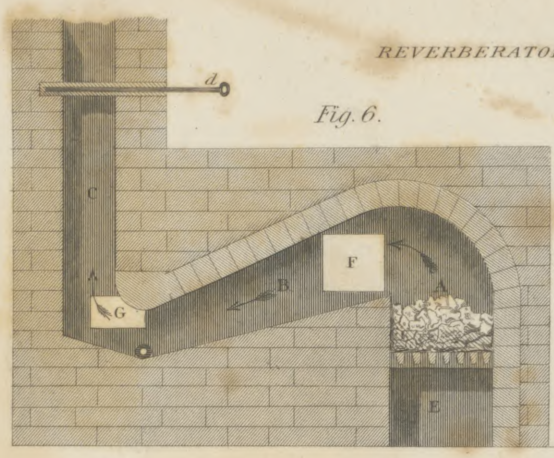
COMMON AIR, OR MELTING FURNACE.

Fig. 1.

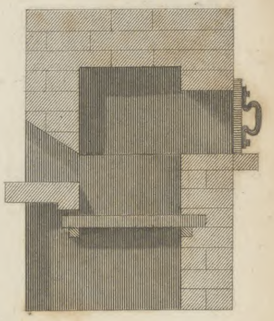


REVERBERATORY FURNACE.

Fig. 6.



Sections. Fig. 7.



Plan. Fig. 8.

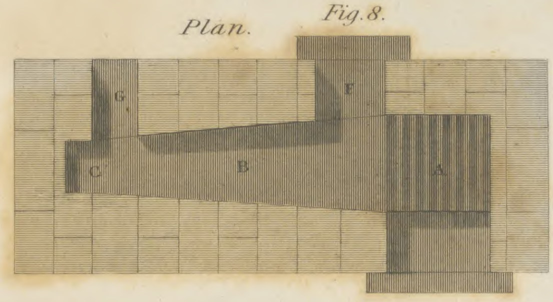
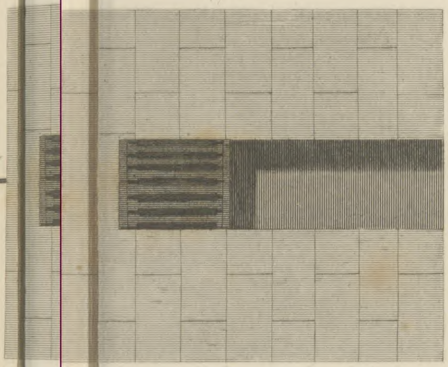


Fig. 2.



BRASS FOUNDERS MELTING FURNACE.

Fig. 4.

Section.

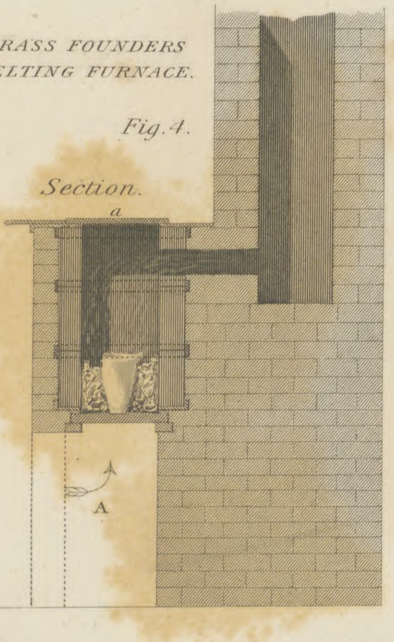
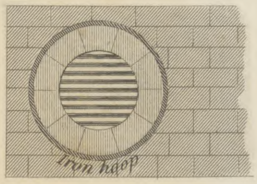
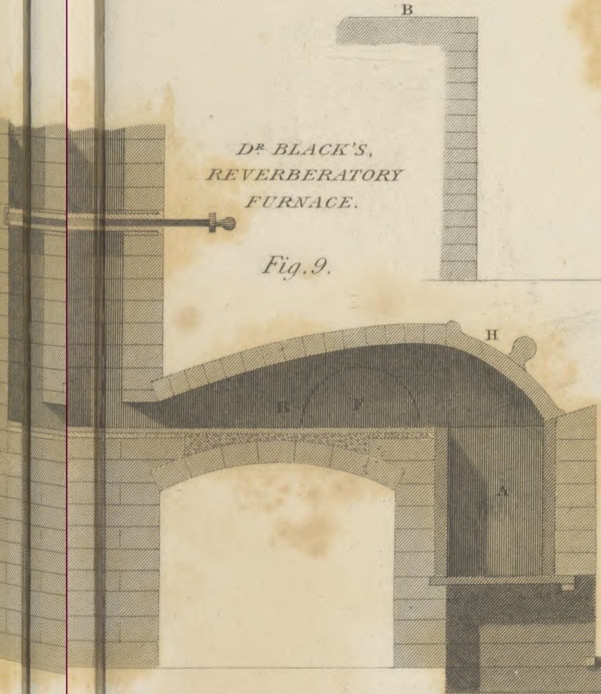


Fig. 5.
Plan.



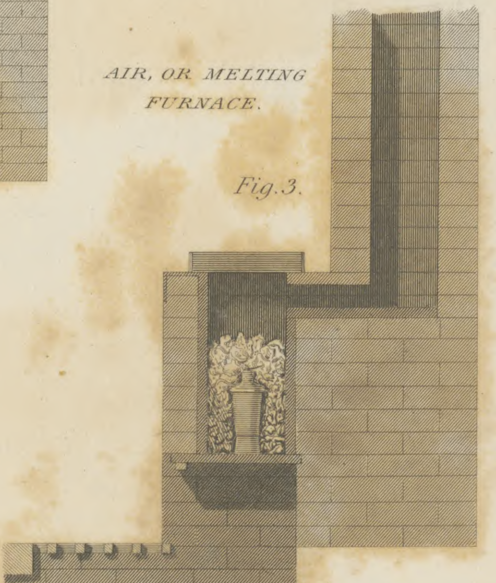
D^{r} BLACK'S, REVERBERATORY FURNACE.

Fig. 9.



AIR, OR MELTING FURNACE.

Fig. 3.



Eng^{d} by G. Aikman. Edin^{r}.

MUFFLE FURNACE.

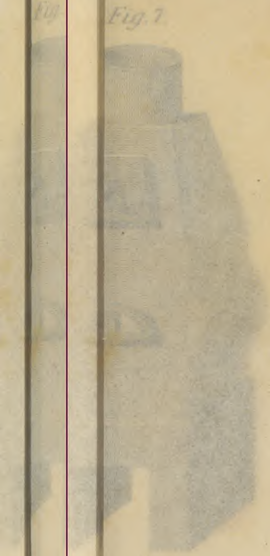
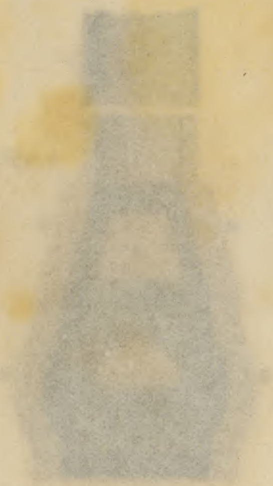


Fig. 7.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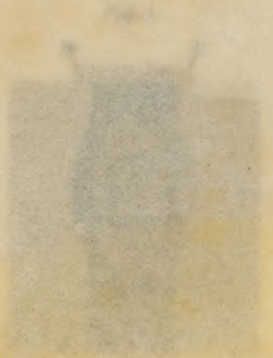
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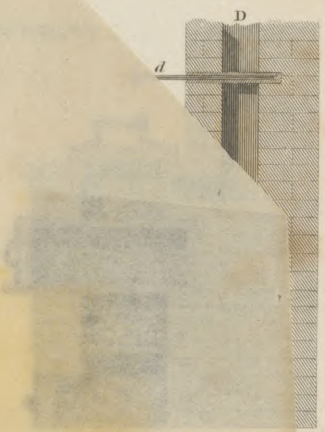
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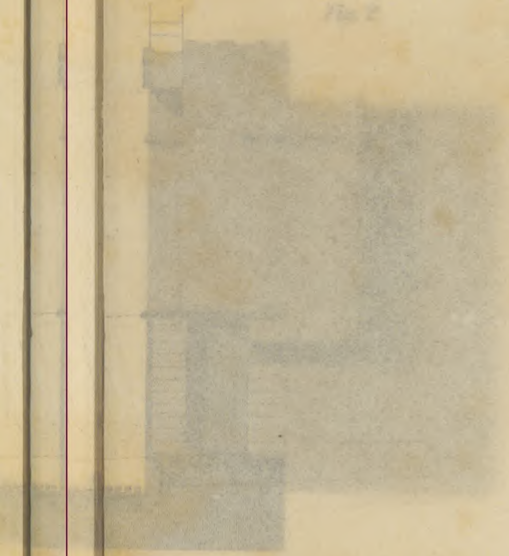
Fig. 2.

REVERBERATORY FURNACE.

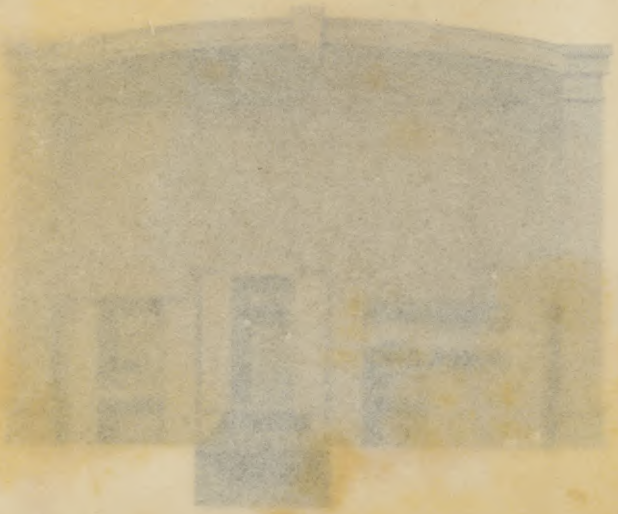
Fig. 1.

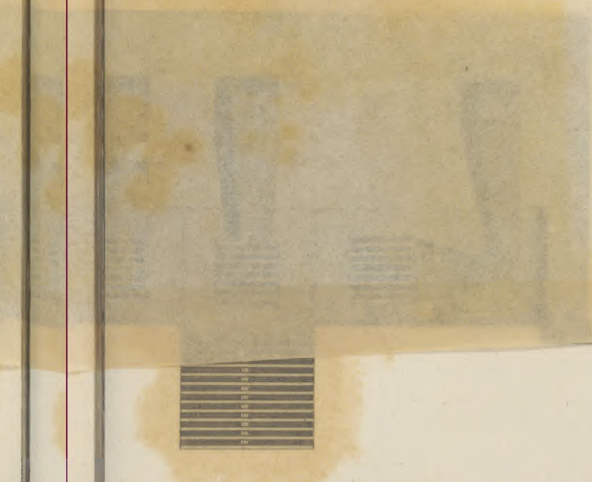
Fig. 3.

CUPELLING FURNACE.

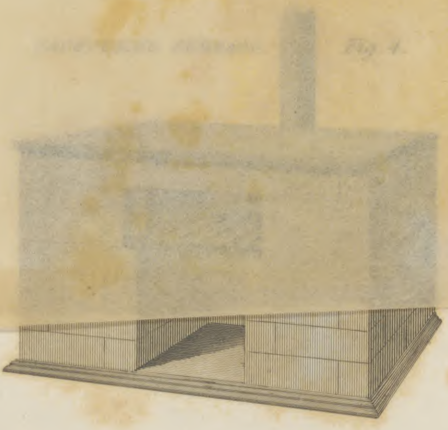
Fig. 4.

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FURNACE.

PLATE CCLII.

MUFFLE FURNACE.

Fig. 7.

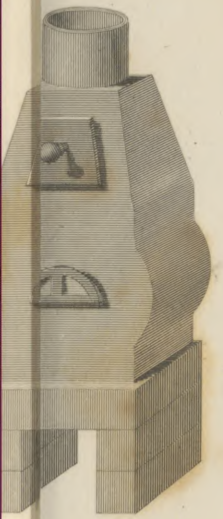
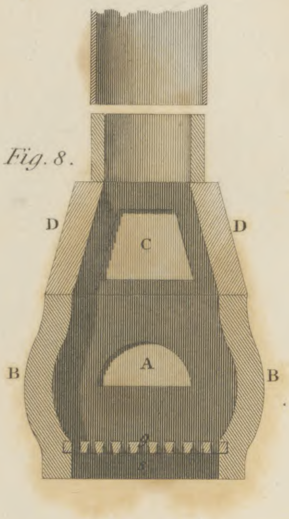


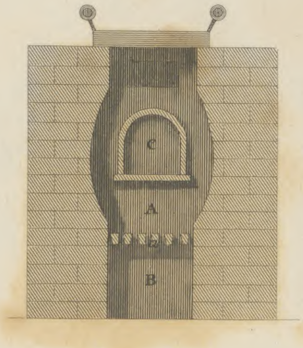
Fig. 9.

Fig. 8.



ENAMELLERS MUFFLE FURNACE.

Fig. 5.



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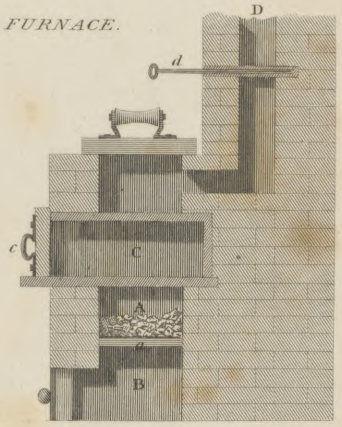
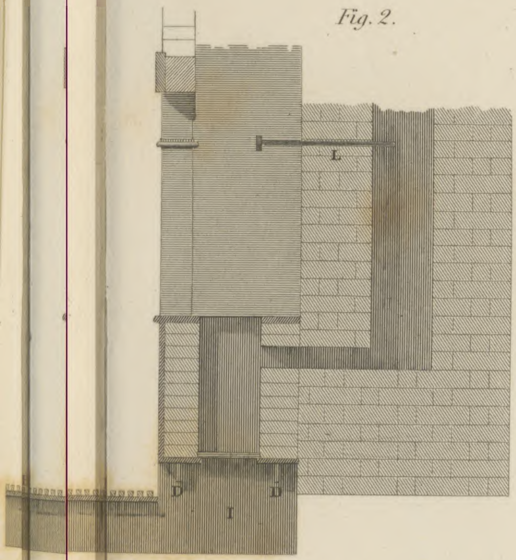


Fig. 2.



Mr MUSHET'S FURNACE.

Fig. 1.

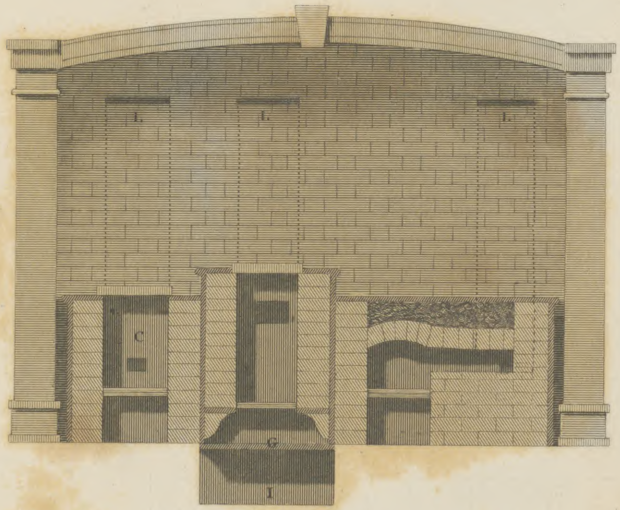
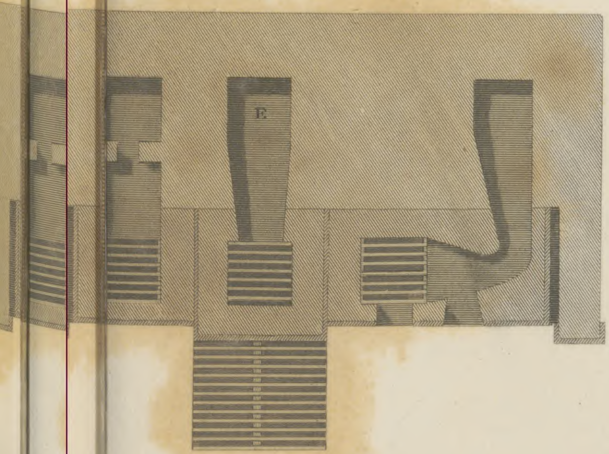
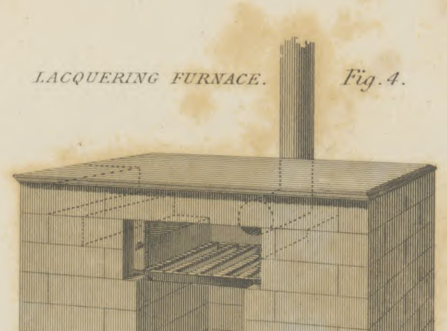


Fig. 3.



LACQUERING FURNACE. *Fig. 4.*



Engd. by G. Aikman. Edinr.

Fig. 1.

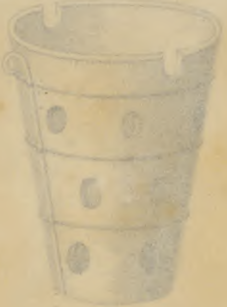


Fig. 8.

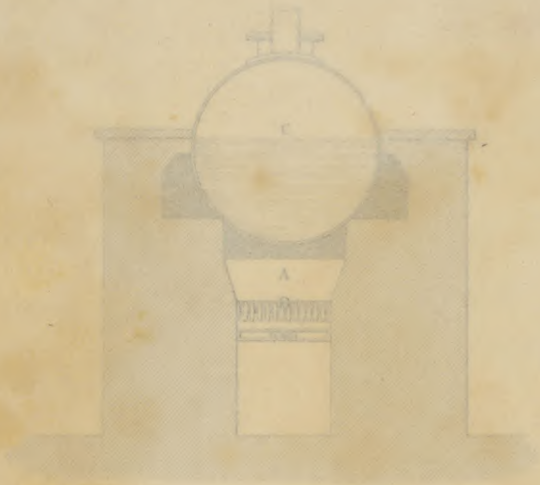


Fig. 7.

Fig. 4.

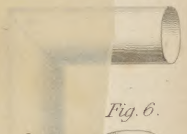
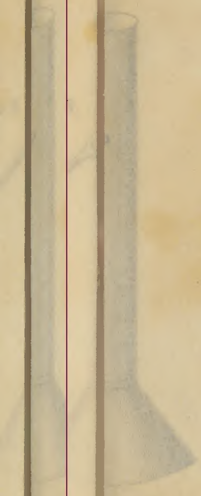


Fig. 2.

Fig. 6.

Fig. 5.



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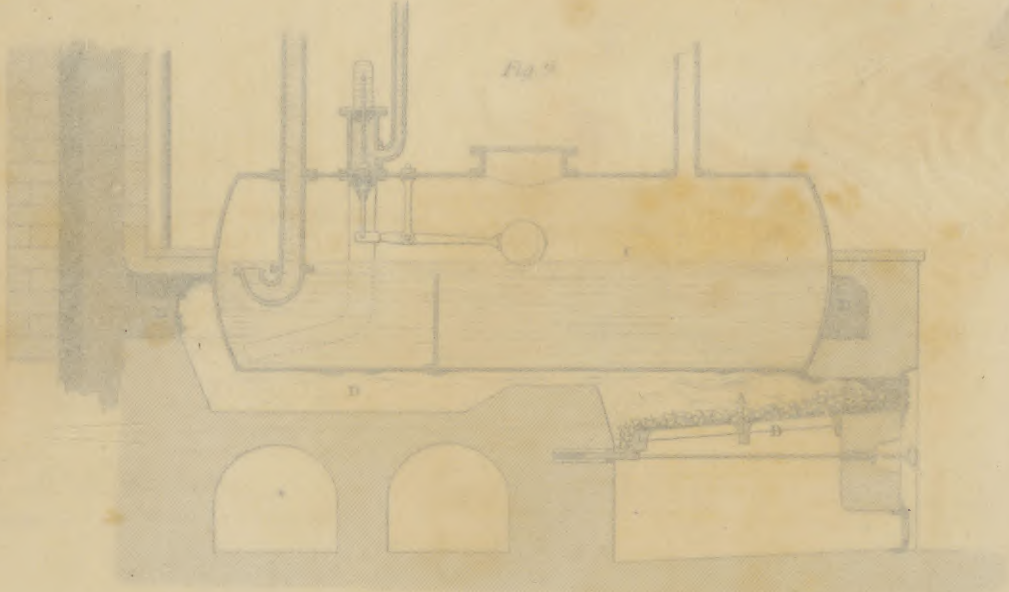
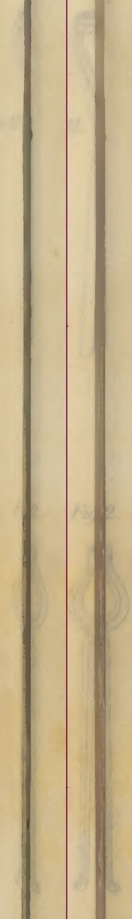


Fig. 13.

Fig. 12.



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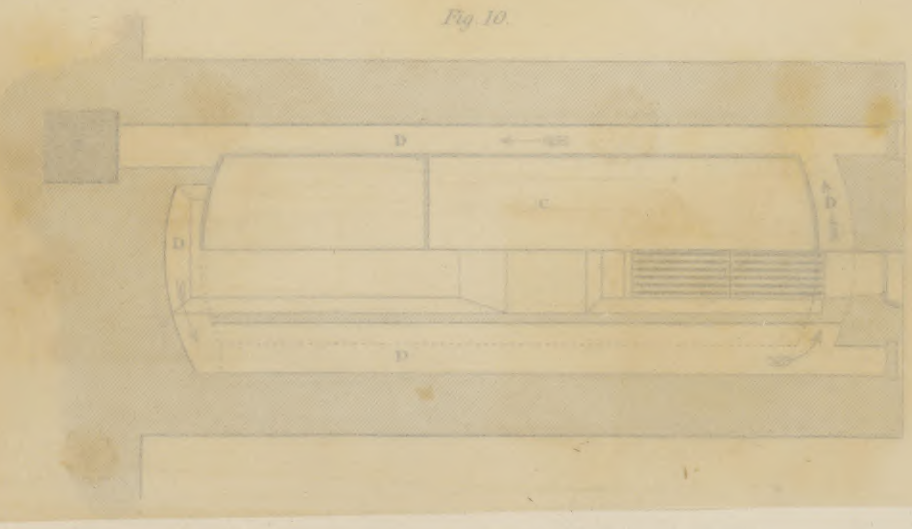


Fig. 14.

FURNACE.

PLATE CCLIII.

Fig. 1.

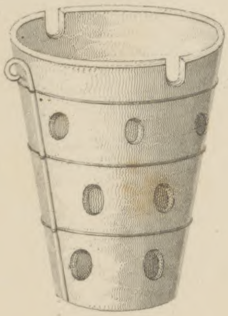


Fig. 2.

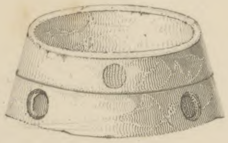


Fig. 8.

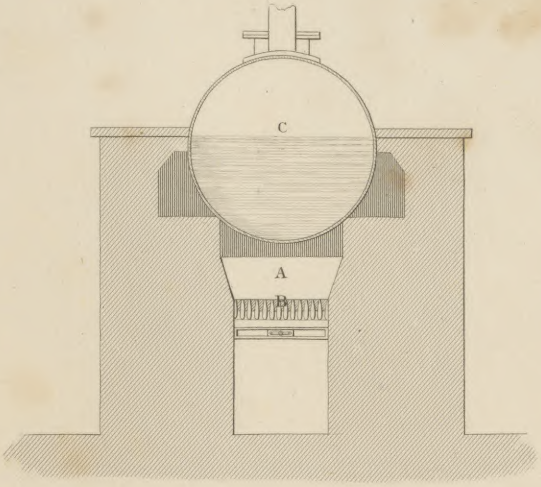
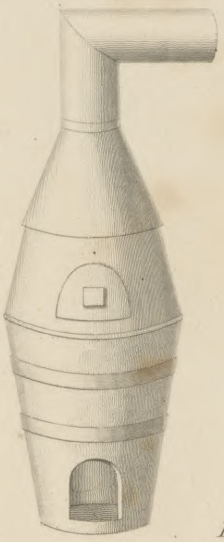


Fig. 7.



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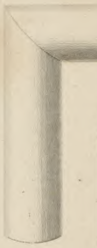


Fig. 6.

Fig. 5.

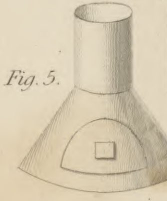


Fig. 9.

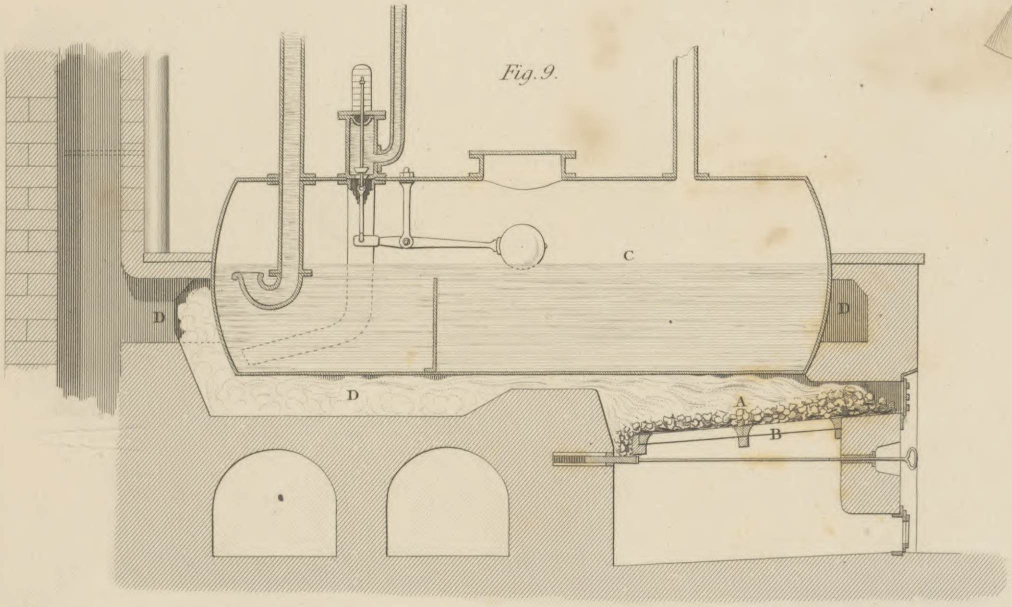


Fig. 13

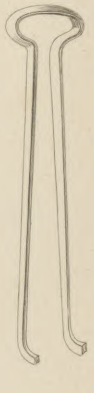
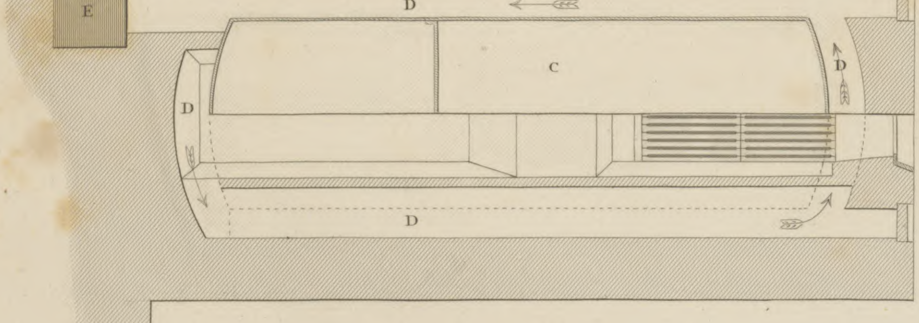


Fig. 10.



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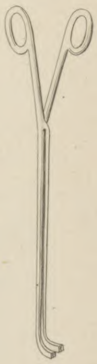

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Fig. 1.

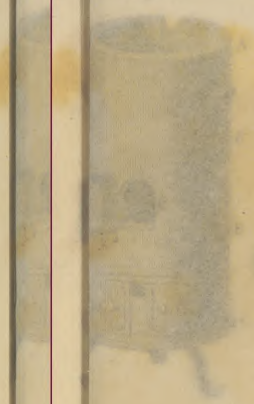


Fig. 2.

Fig. 3.

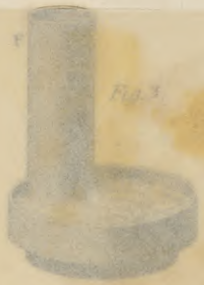


Fig. 5.

Fig. 4.

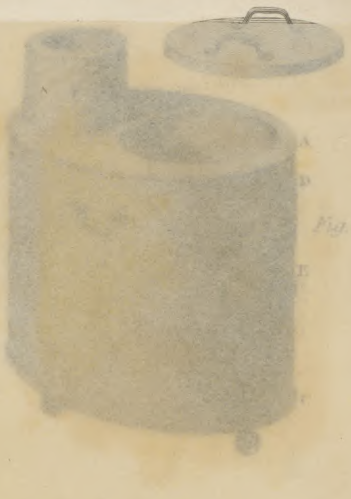
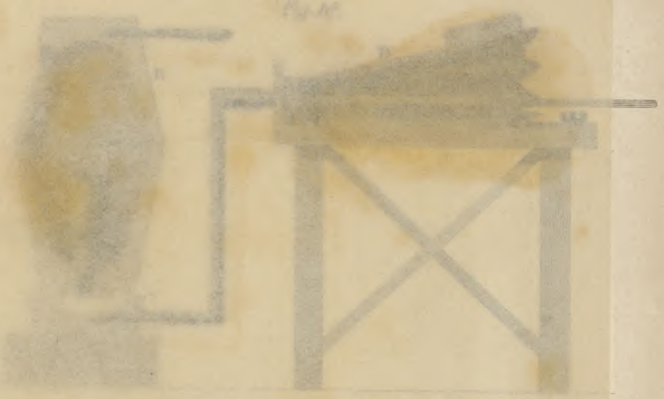


Fig. 6.

Fig. 8.

Fig. 10.



LABORATORY [illegible]

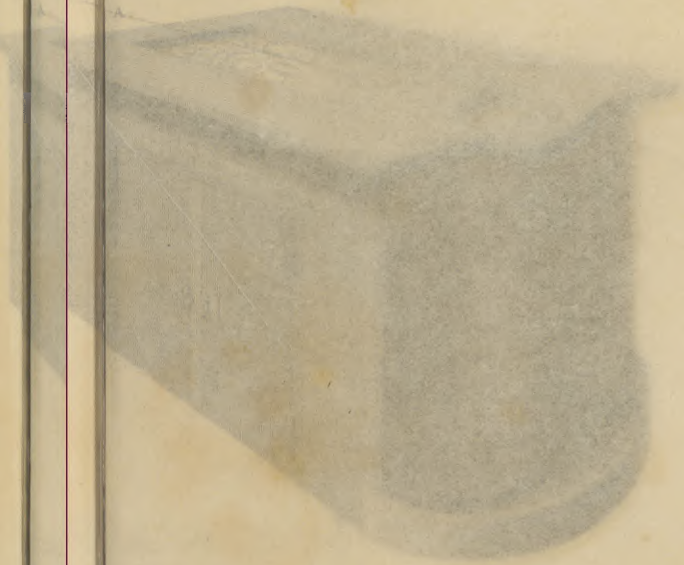
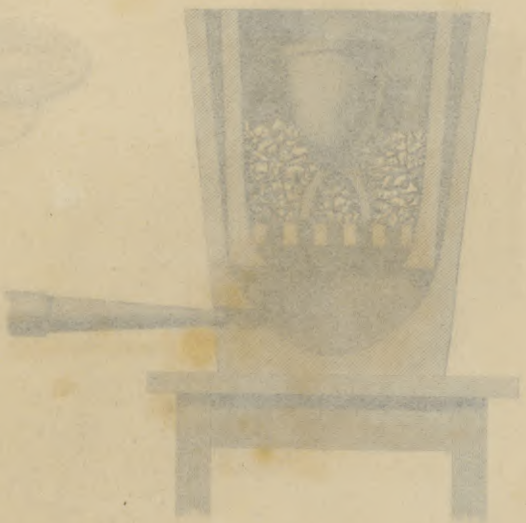


Fig. 11.

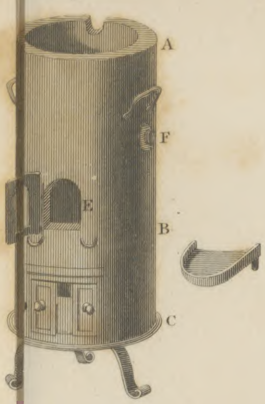


[illegible] Edin^{r}

FURNACE.

PLATE CCLIV.

Fig. 1.



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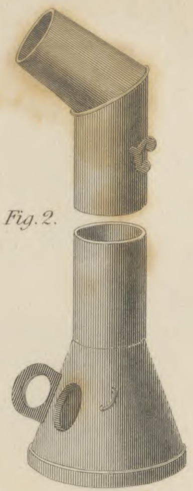


Fig. 3.

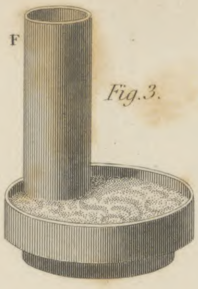
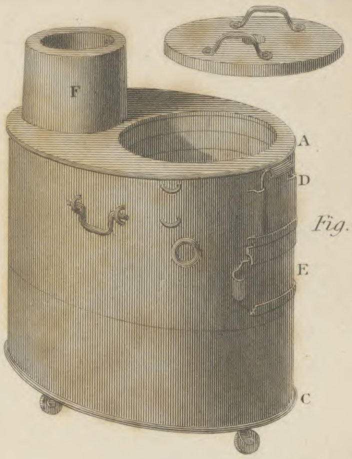


Fig. 5.

Fig. 4.



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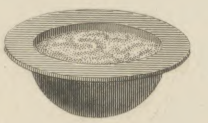


Fig. 8.

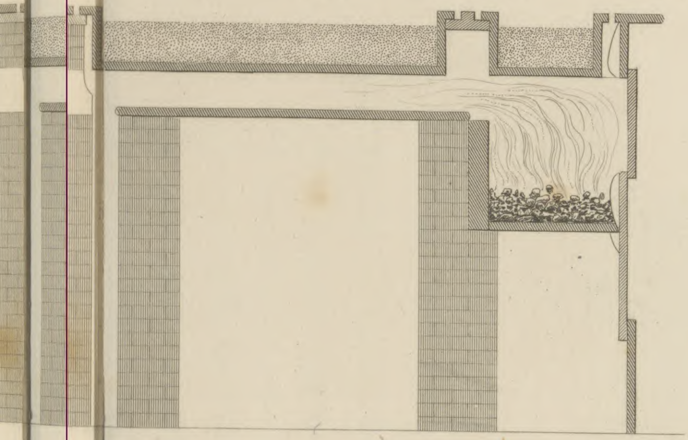
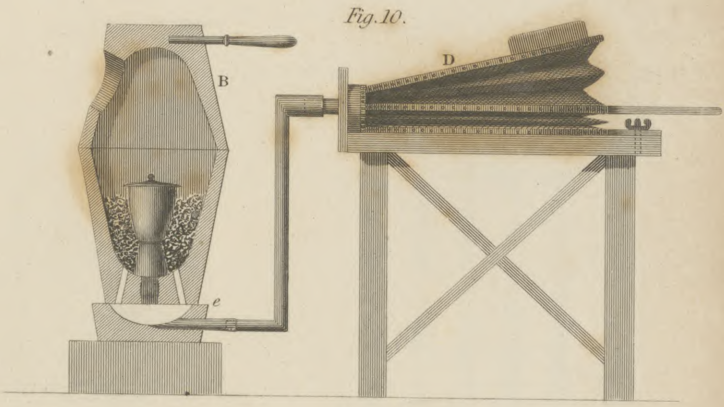


Fig. 10.



LABORATORY FURNACE.

Fig. 7.

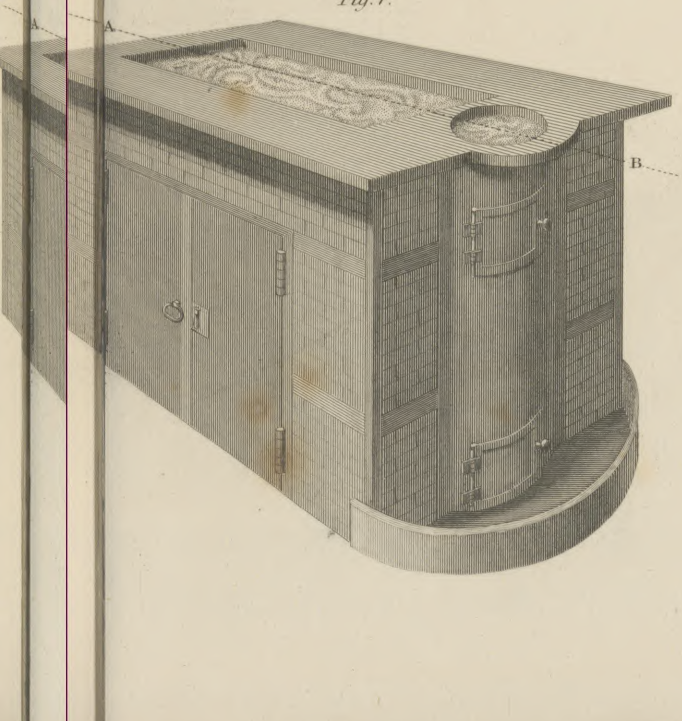
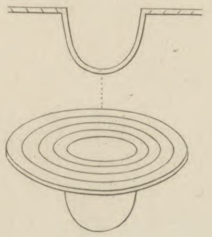


Fig. 9.



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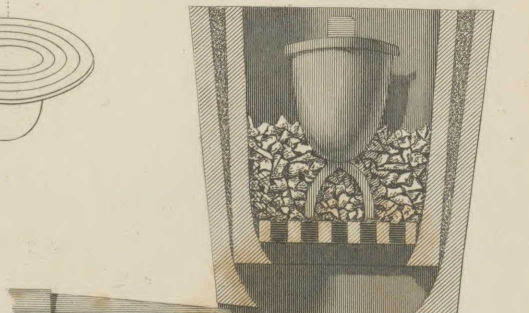

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Fig.4.

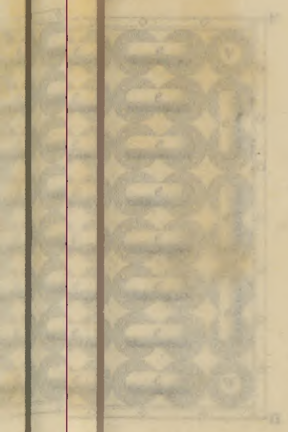


Fig.3. Fig.1. Fig.2.

Fig.5.

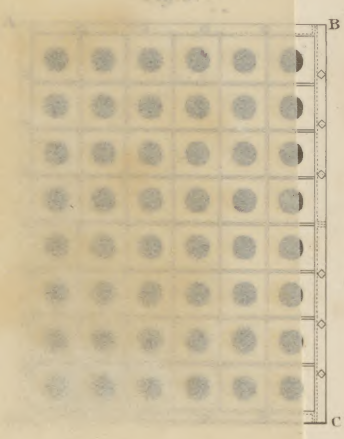
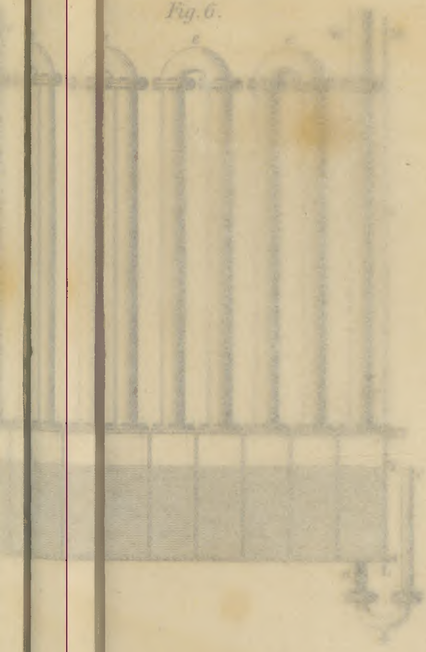
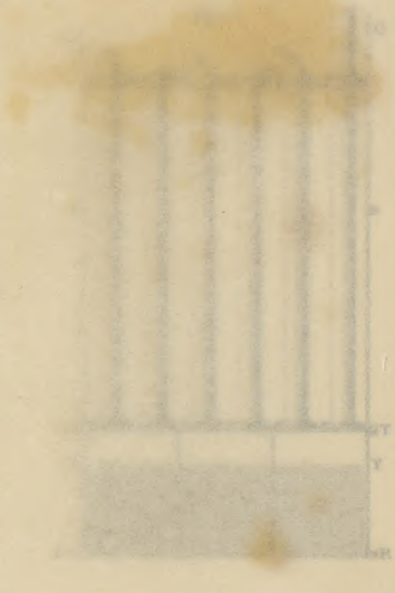


Fig.6.





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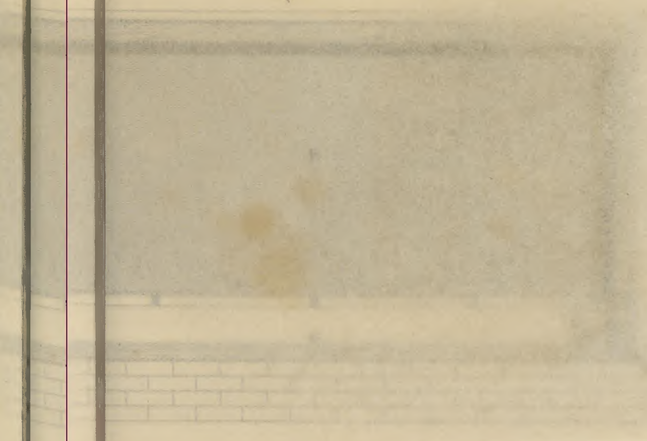
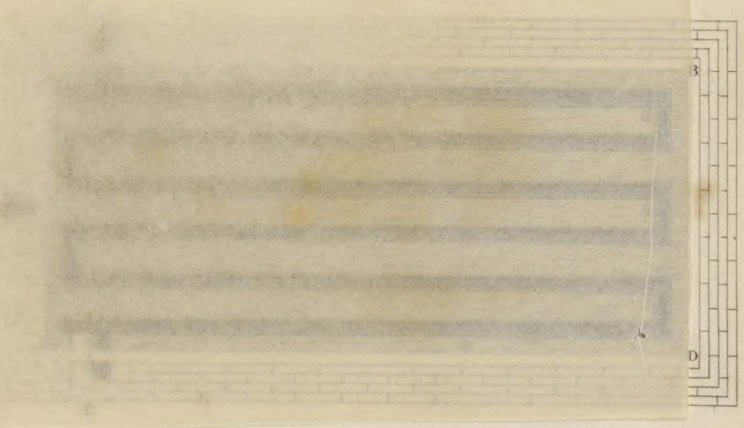


Fig.9.



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GAS-LIGHT.

PLATE CCLV.

Fig.4.

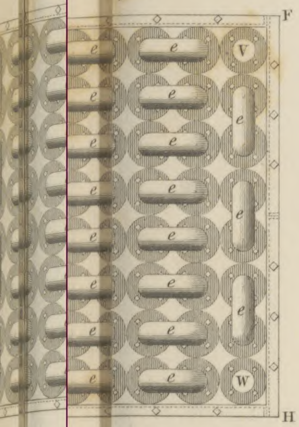


Fig.2.

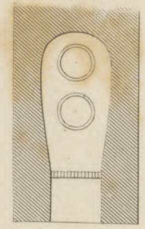
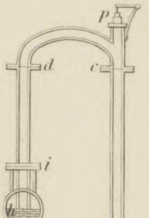


Fig.1.



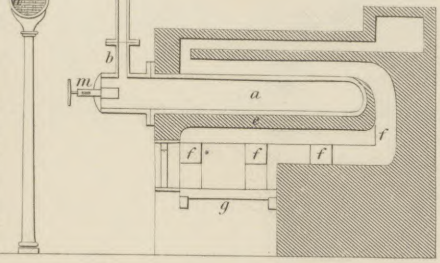


Fig.3.

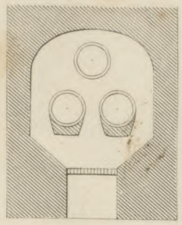
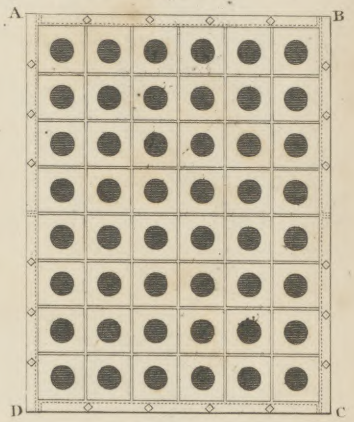


Fig.5.



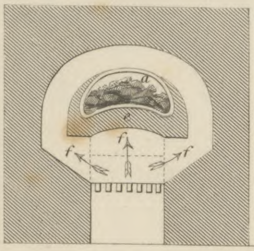


Fig.6.

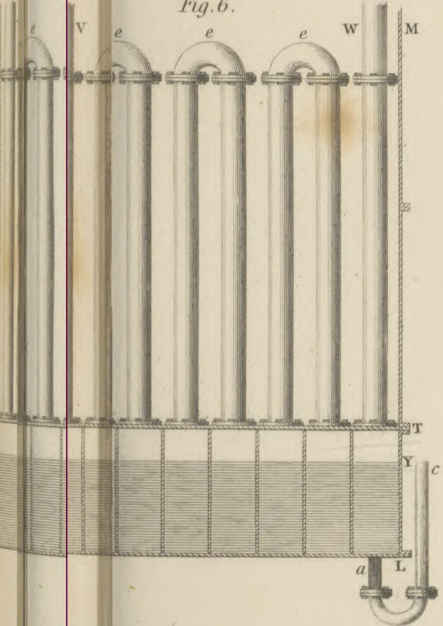
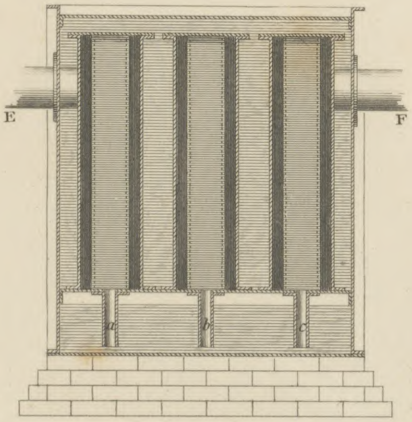


Fig.10.



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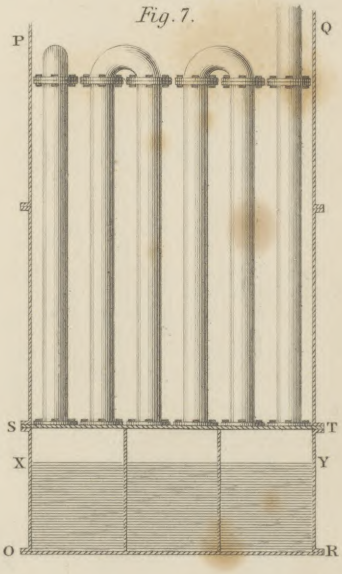

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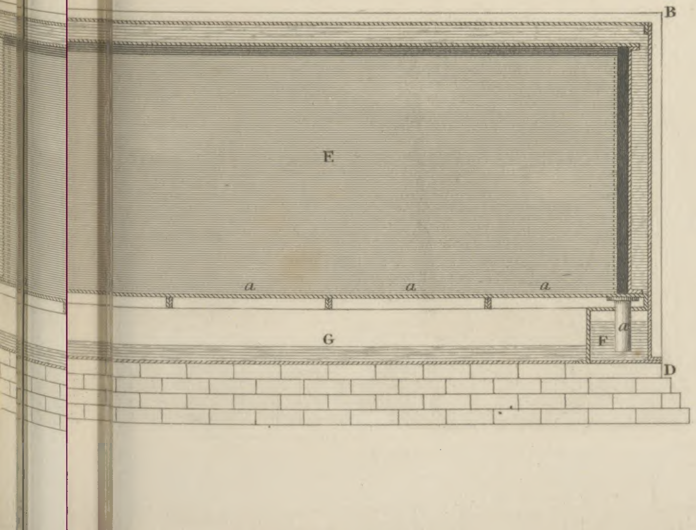

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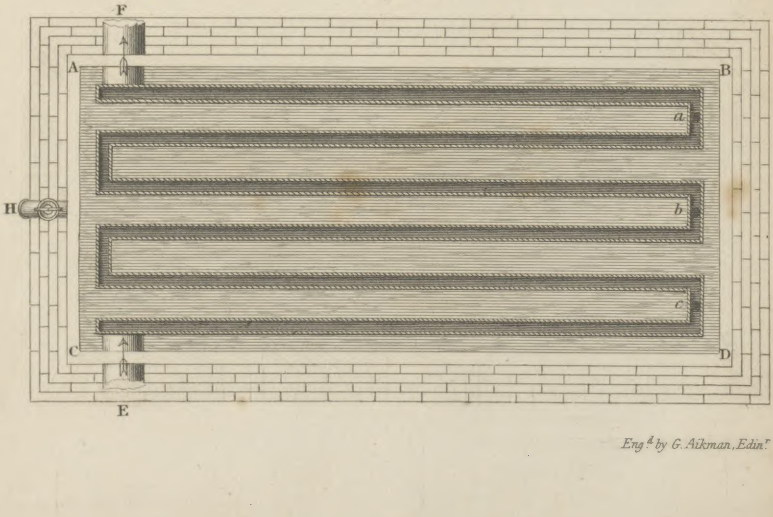

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GAS-LIGHT.

PLATE CCLVI.

Fig. 1.

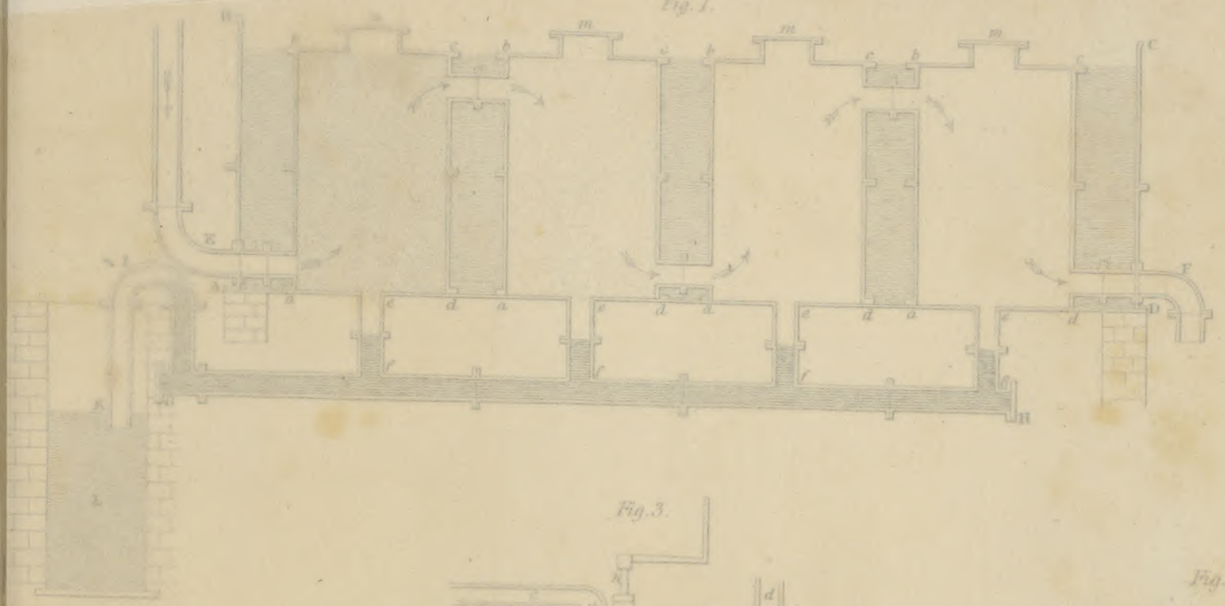


Fig. 2.

Fig. 3.

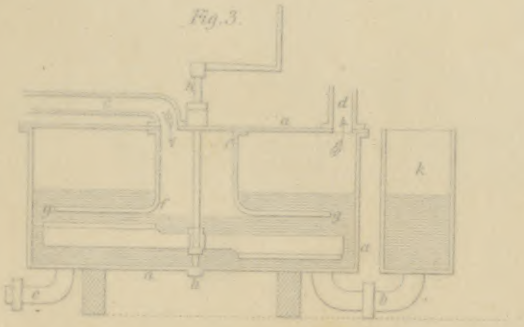


Fig. 5.

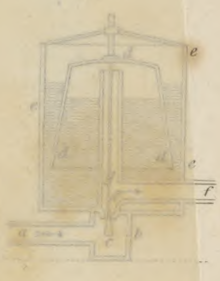
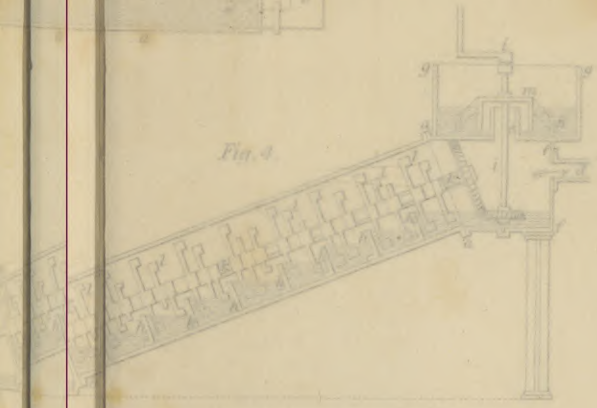
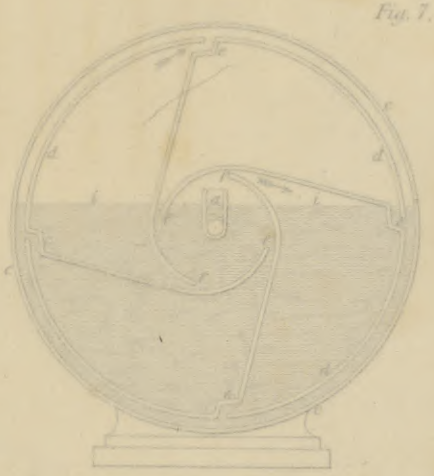


Fig. 4.





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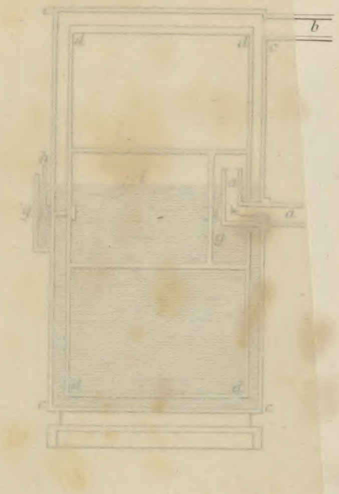


Fig. 6

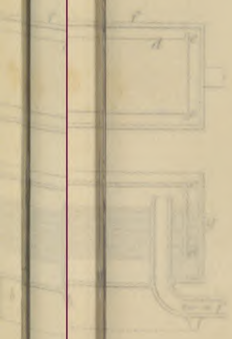


Fig. 9.

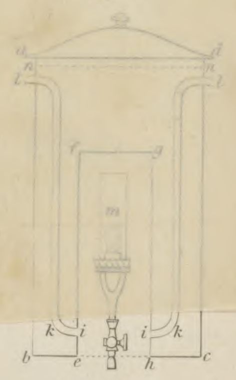
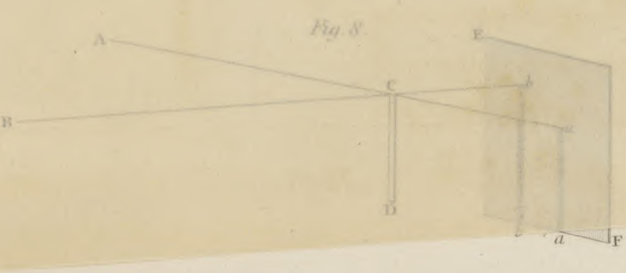


Fig. 8.



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Fi
Fi
b

GAS-LIGHT.

PLATE CCLVI.

Fig. 1.

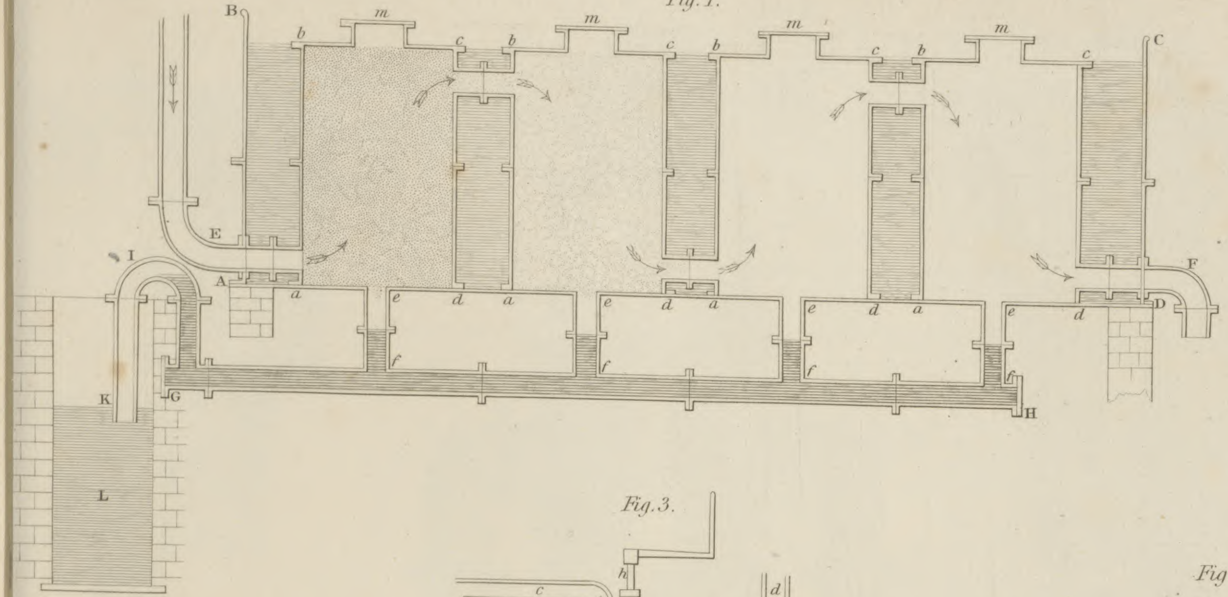


Fig. 2.

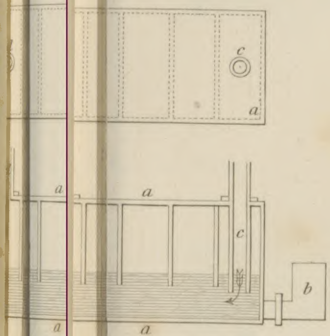
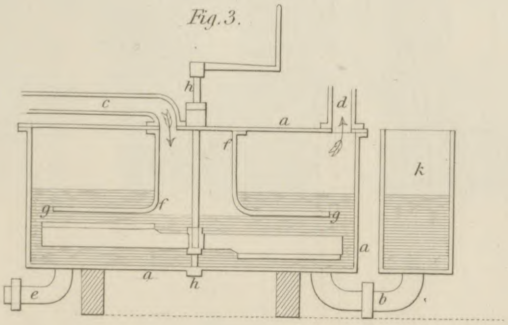


Fig. 3.



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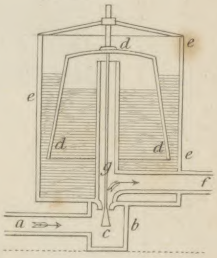

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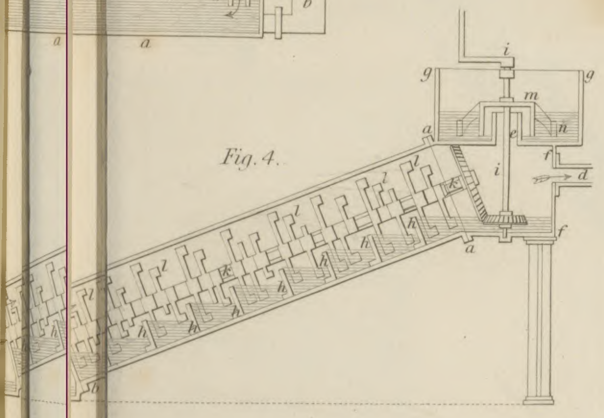

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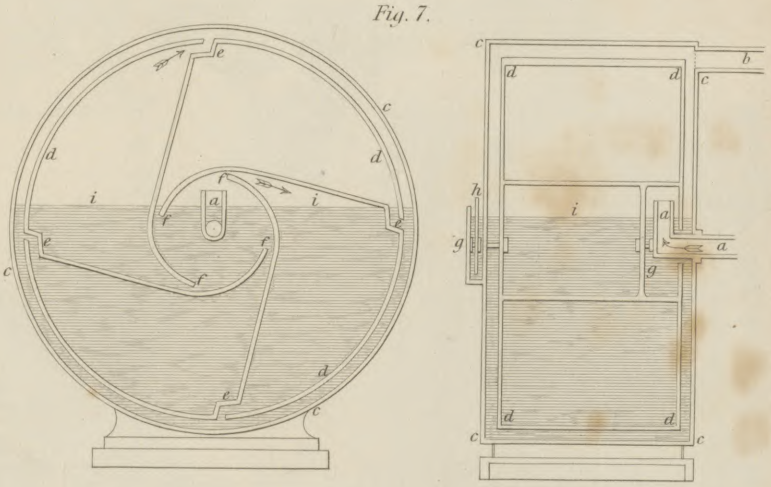

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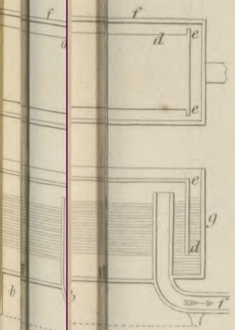

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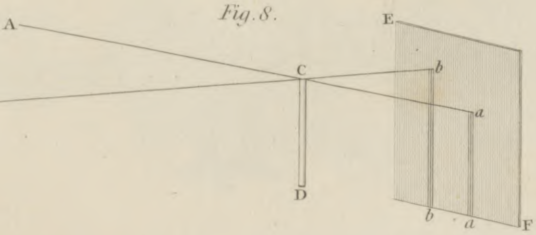
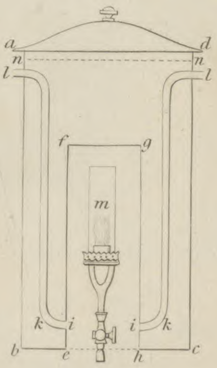


Fig. 9.



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GAS-LIGHT.

PLATE CCLVII.

Fig. 1.

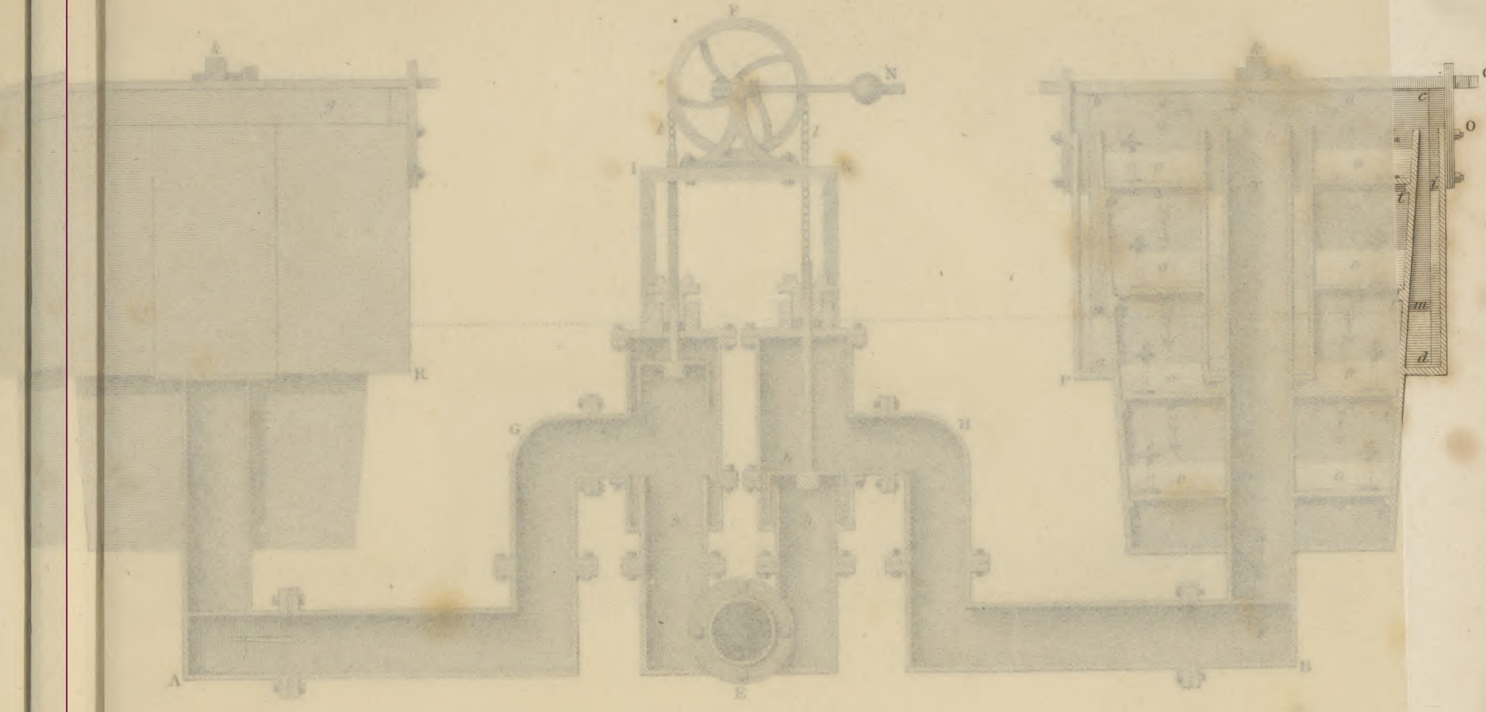
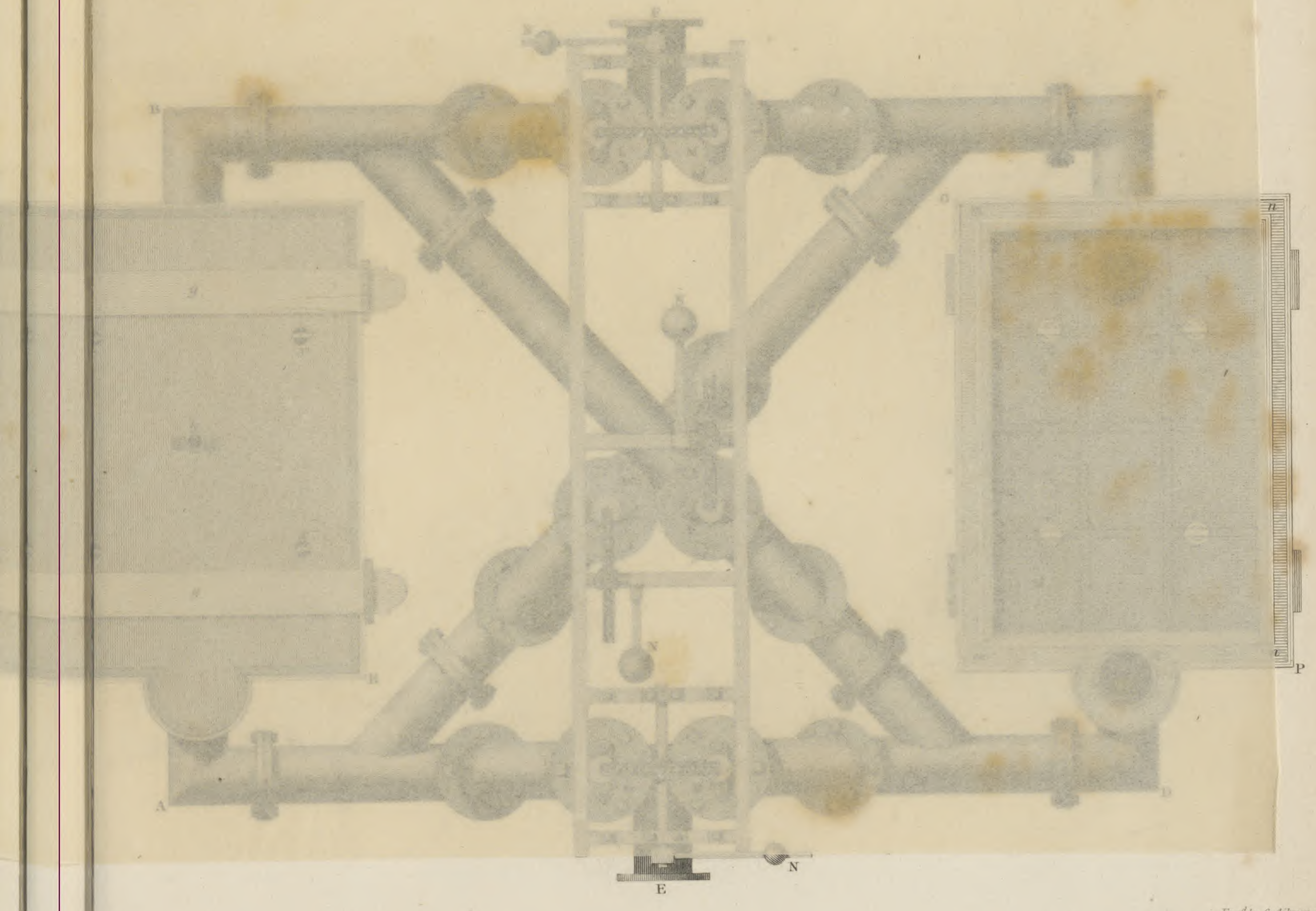


Fig. 2.



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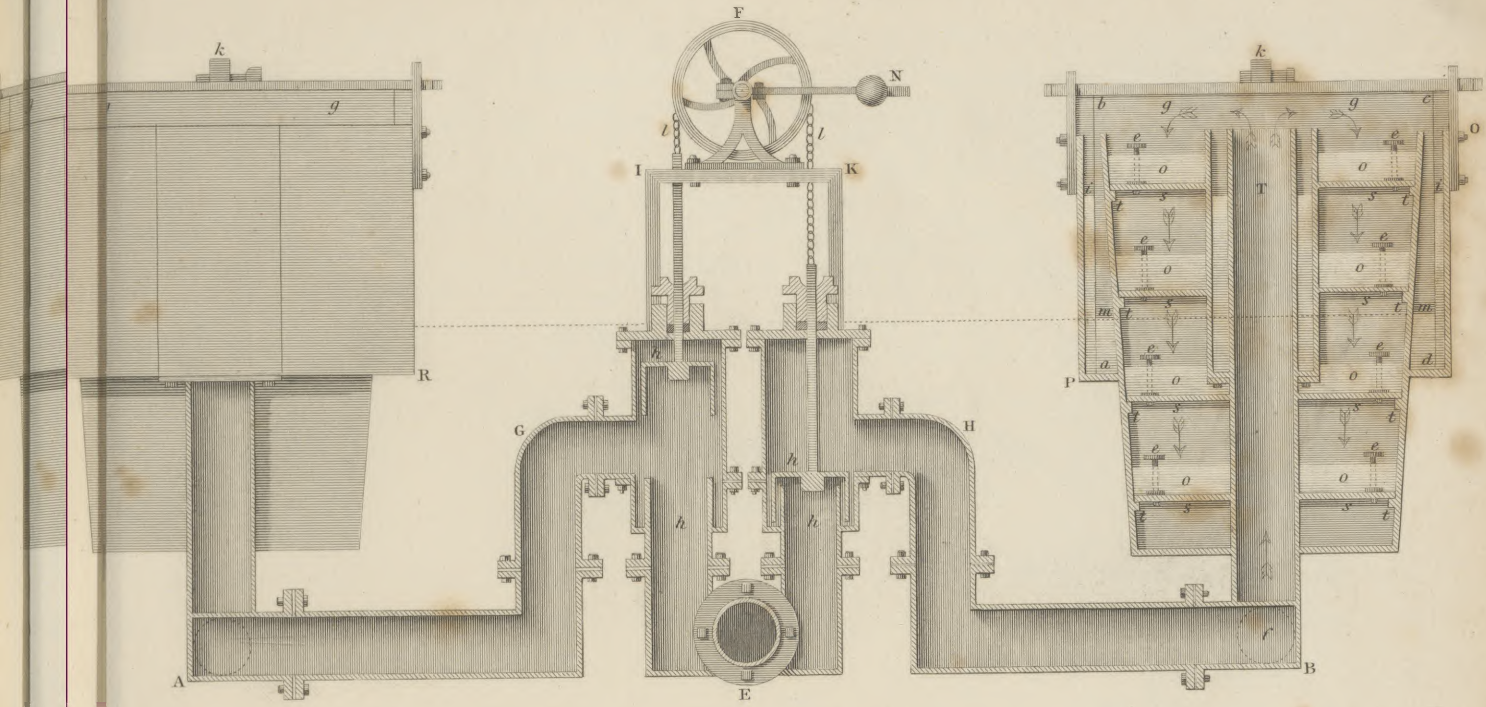
GAS-LIGHT.

PLATE CCLVII.

Fig. 1.



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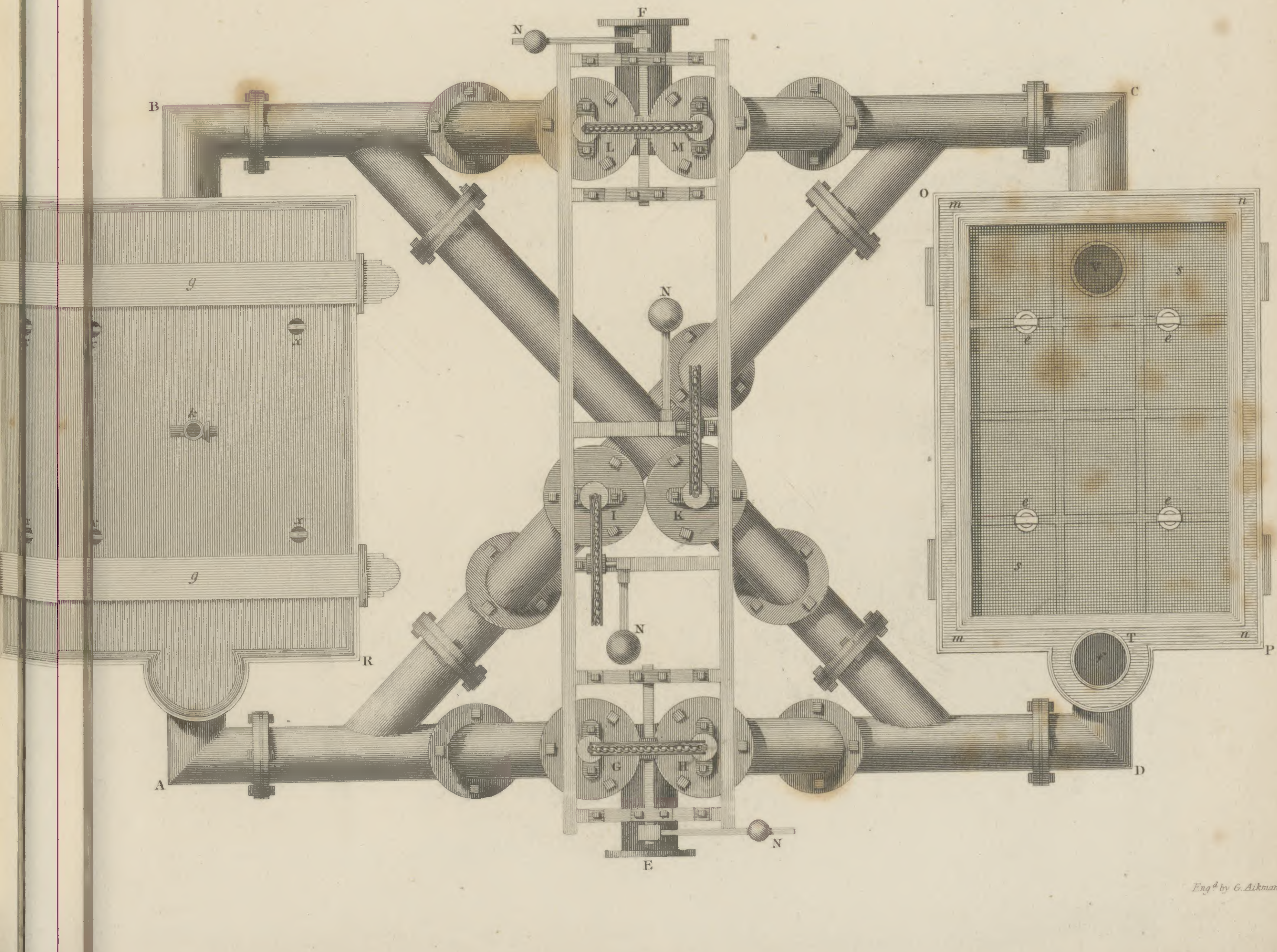

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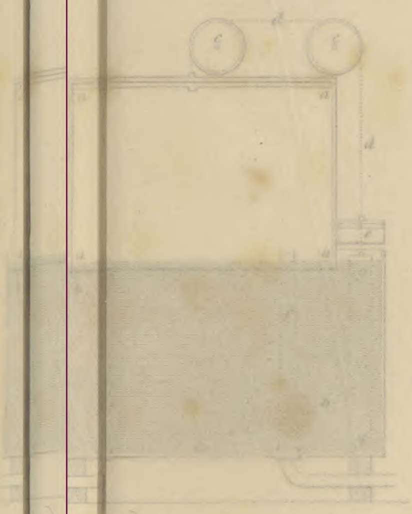
Fig. 1.



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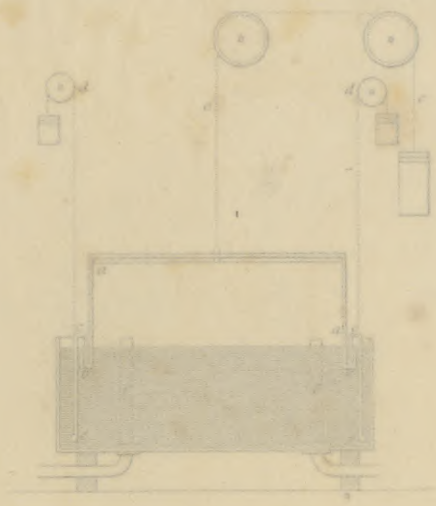

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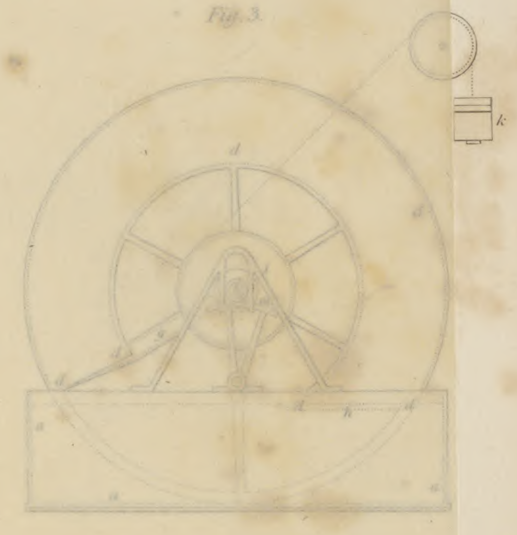

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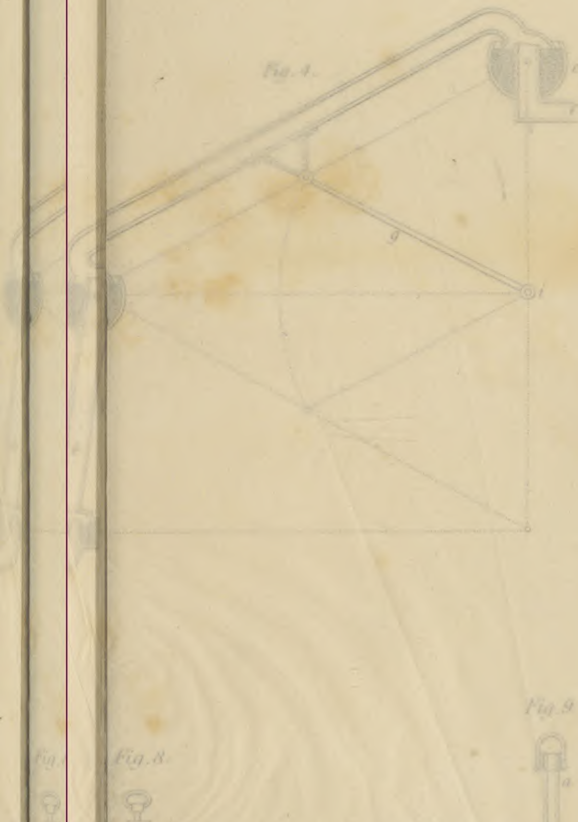

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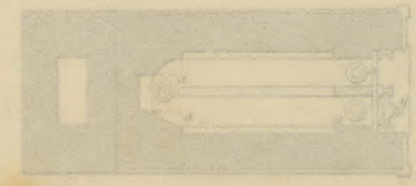

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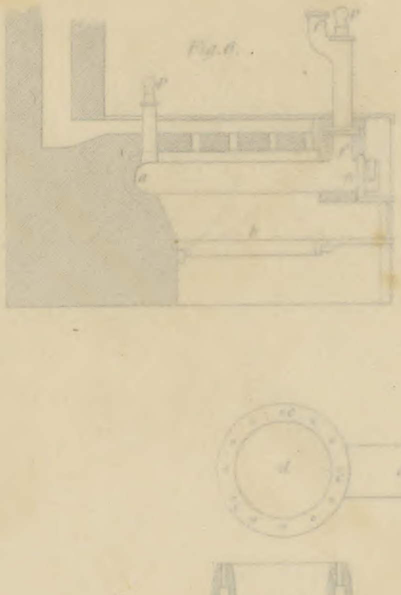

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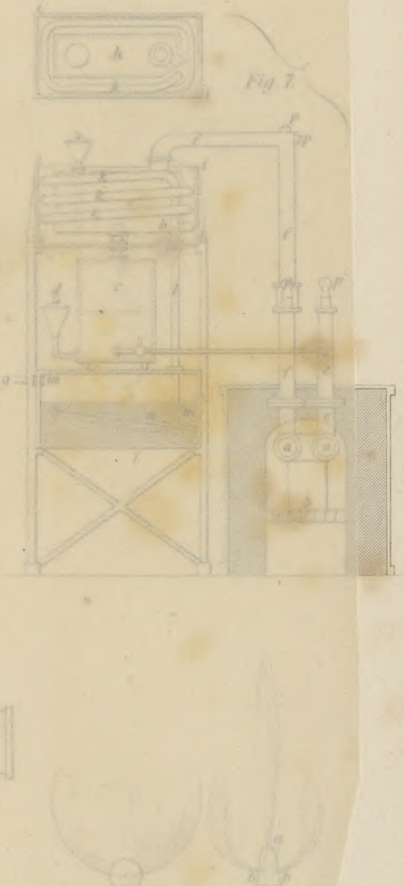

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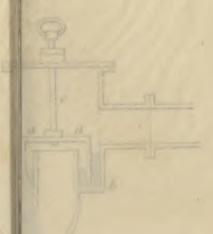

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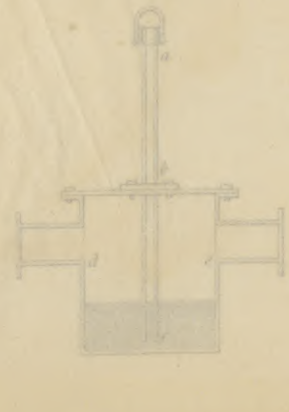

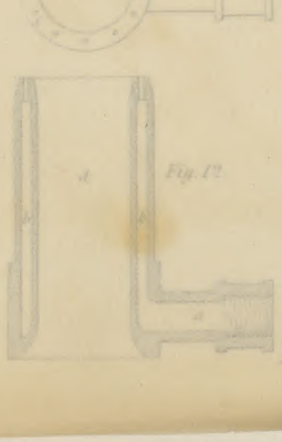

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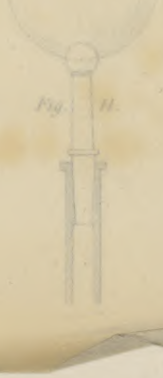

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Fig. 10.

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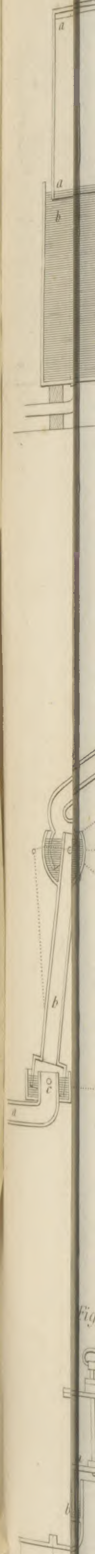
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PLATE CCLVIII.

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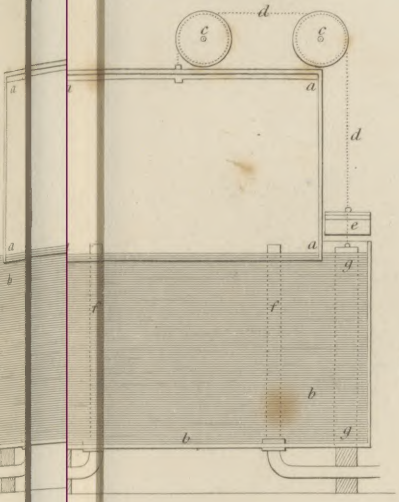

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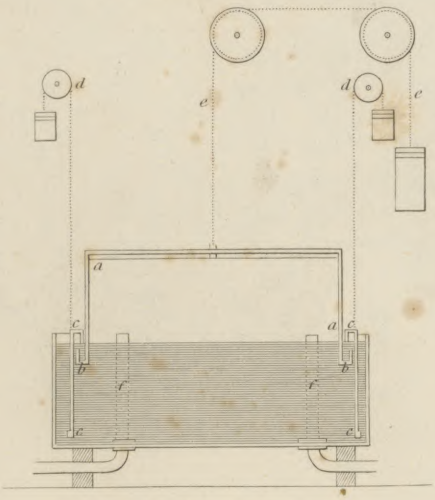

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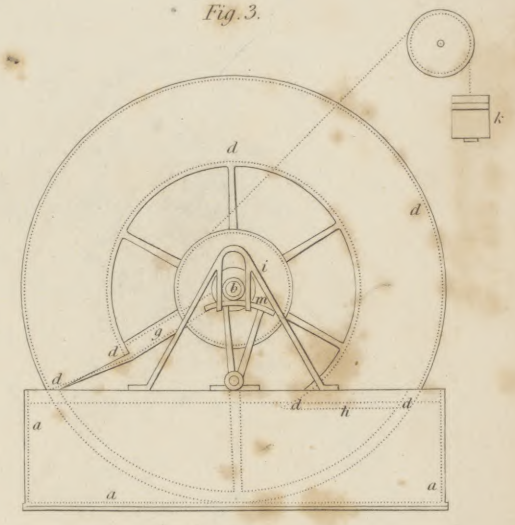

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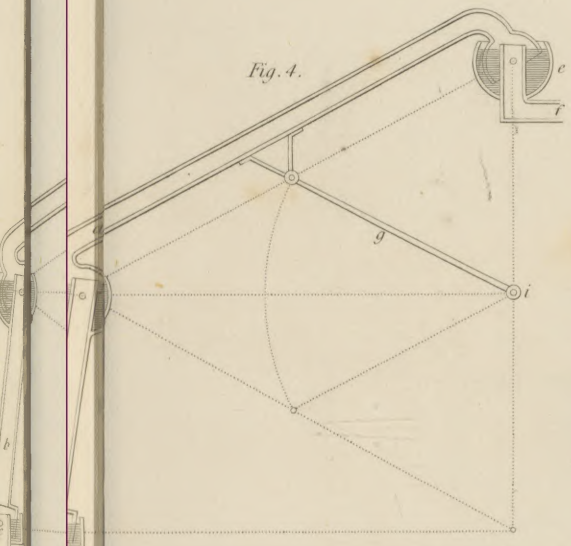

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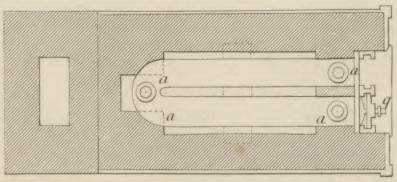

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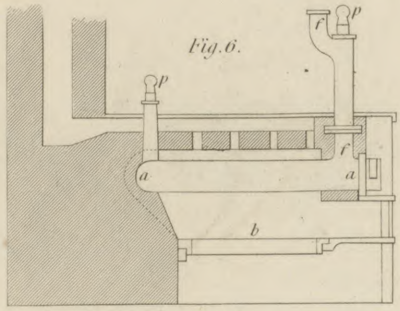

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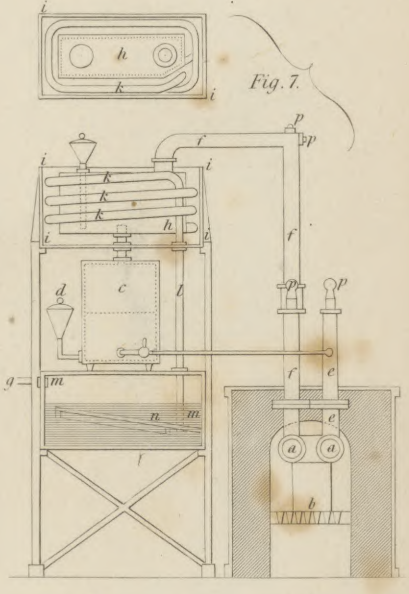

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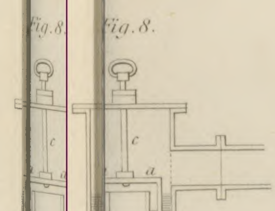

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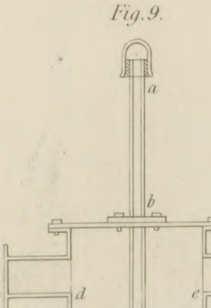

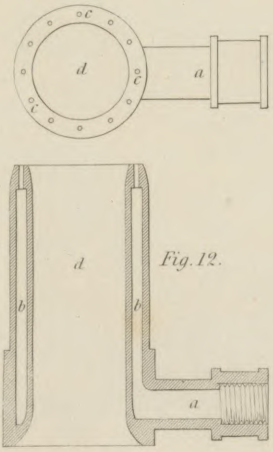

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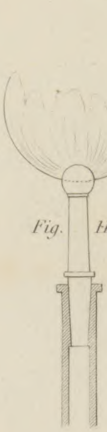

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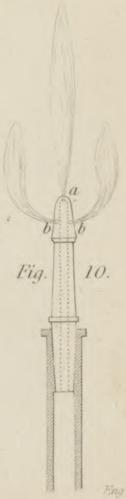

Fig. 10.

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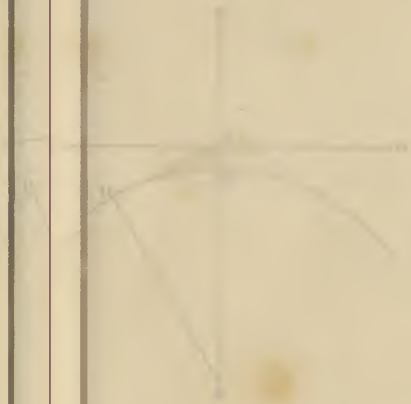

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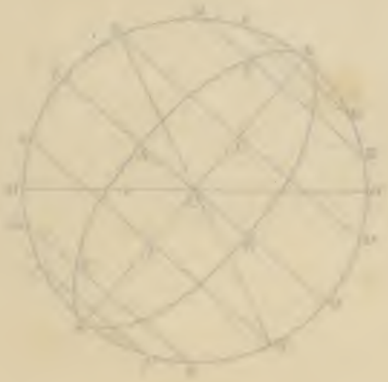

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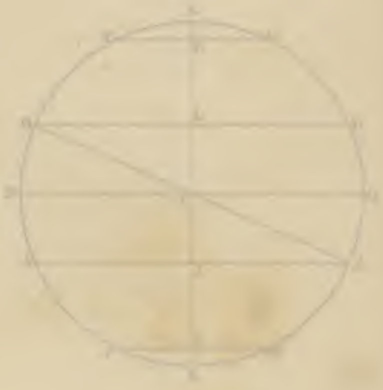

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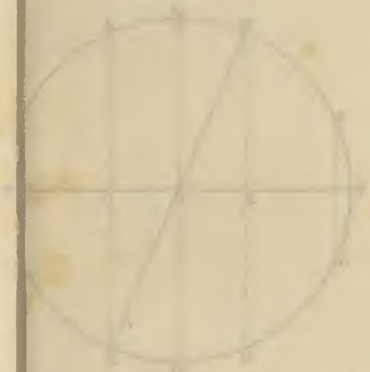

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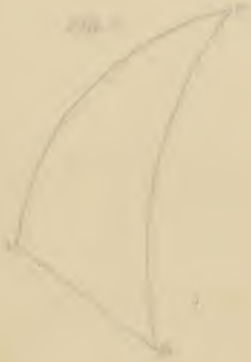

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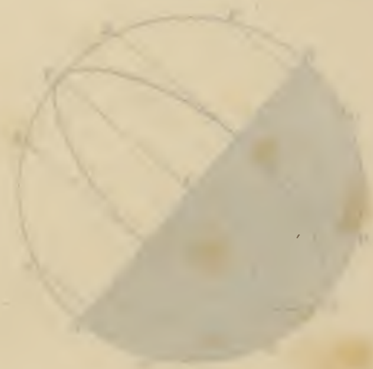

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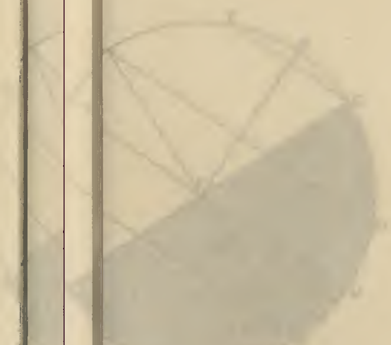

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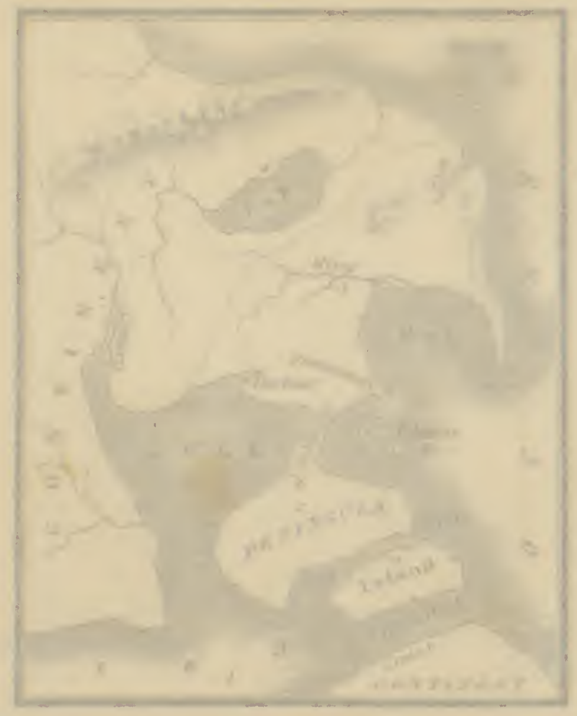

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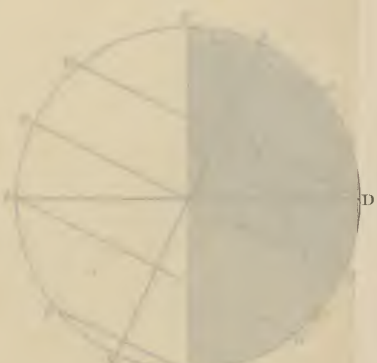

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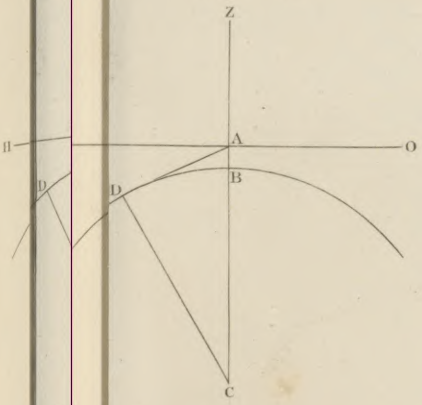

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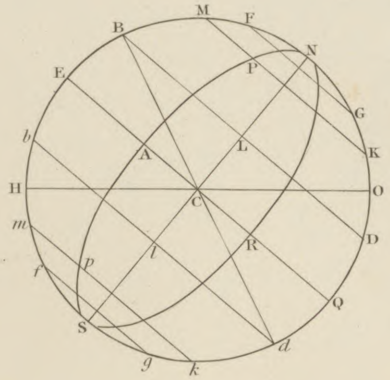

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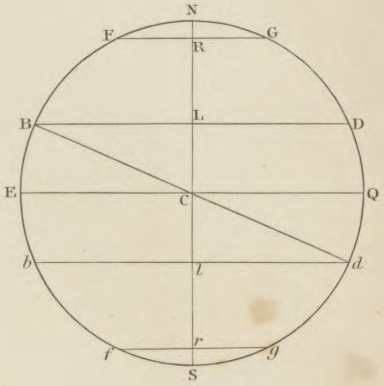

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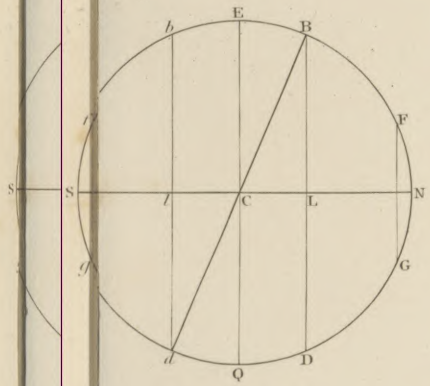

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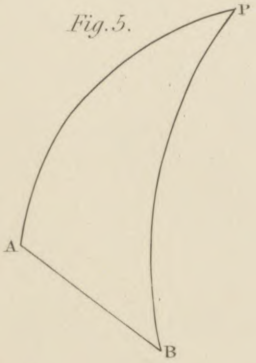

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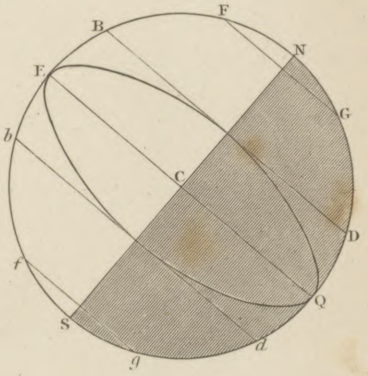

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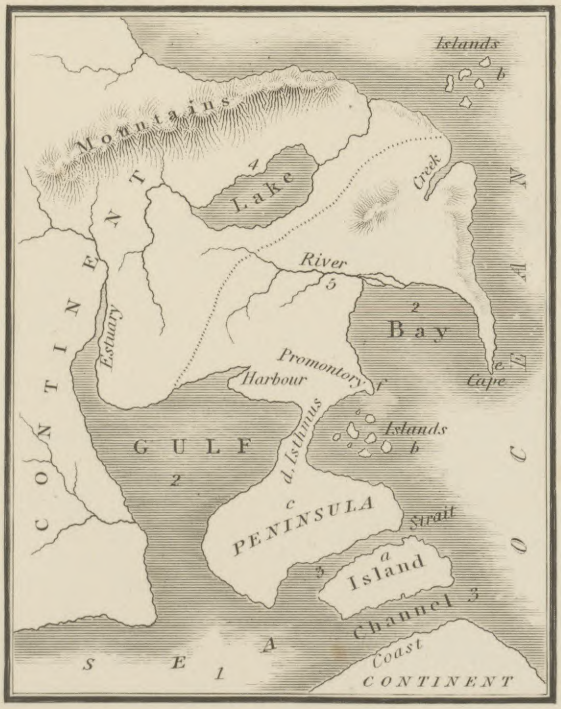

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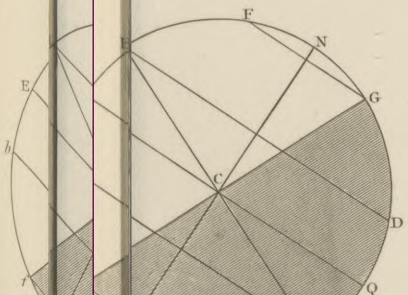

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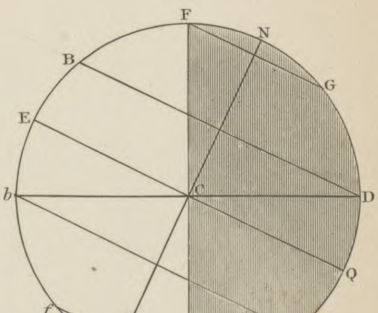

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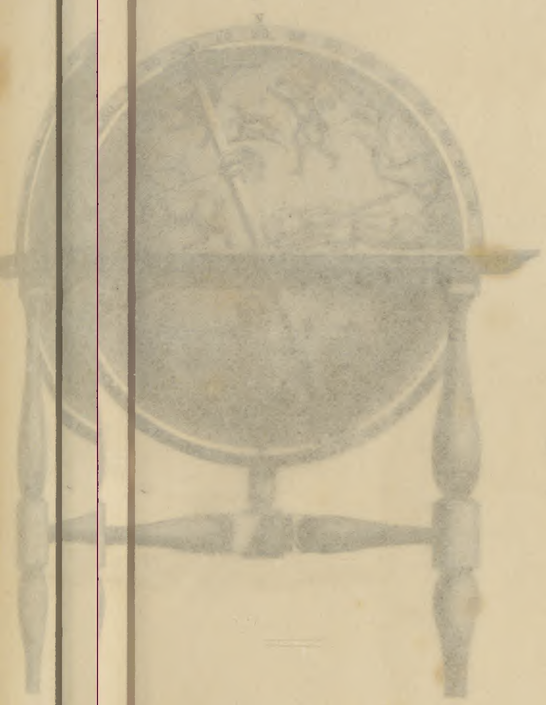

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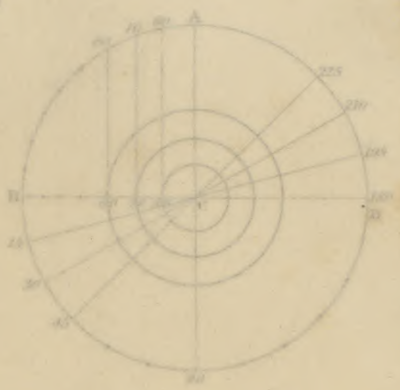

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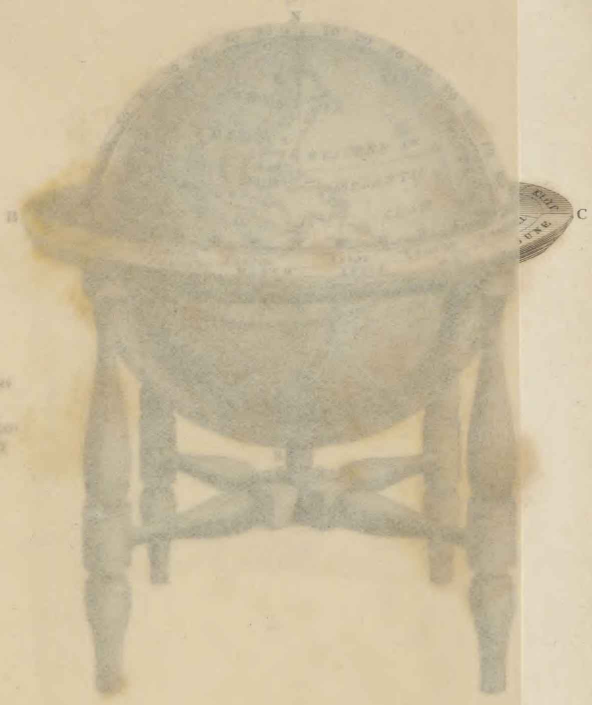

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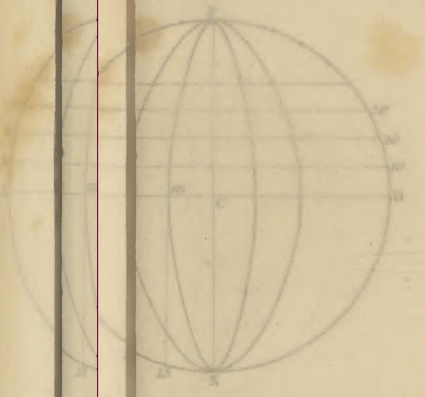

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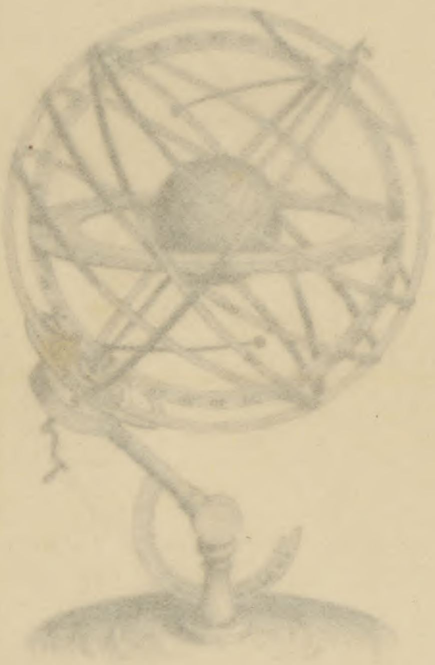

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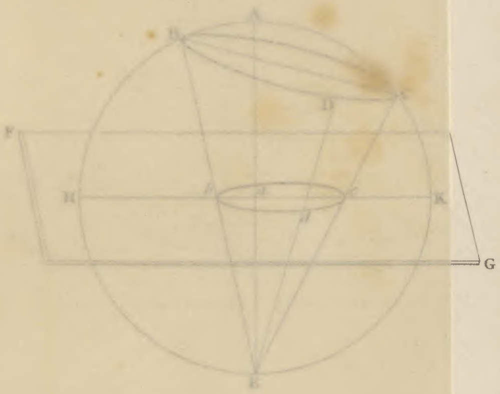

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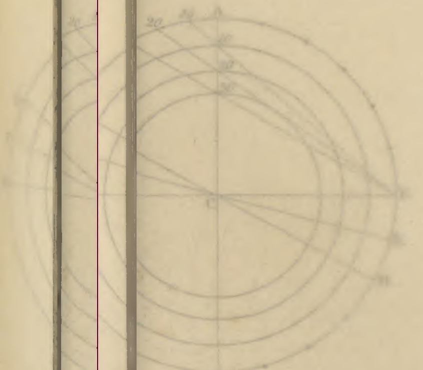

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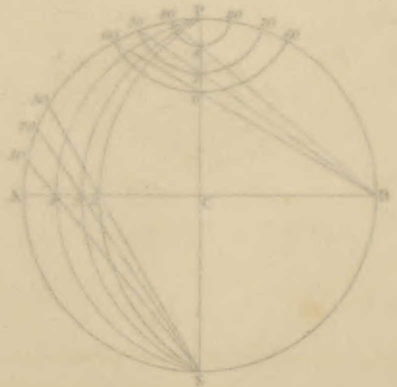

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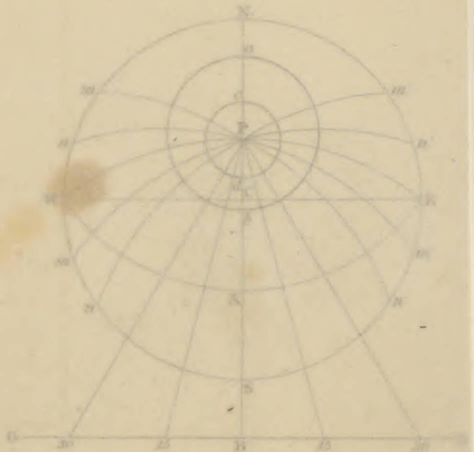

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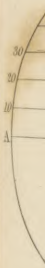
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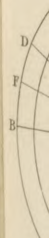
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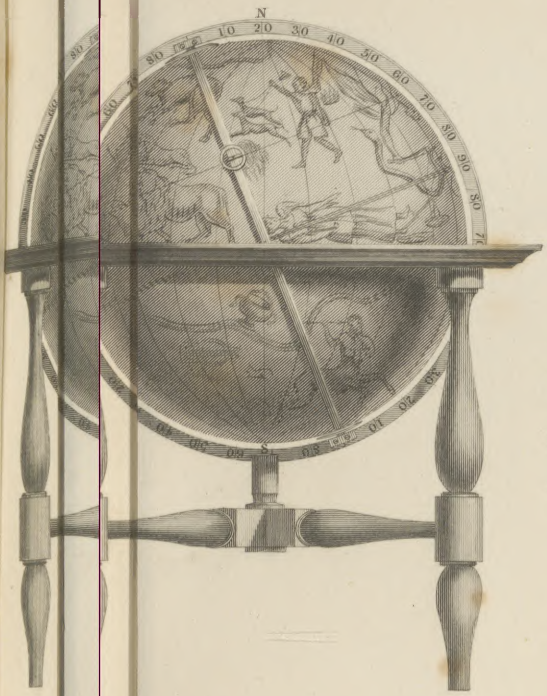

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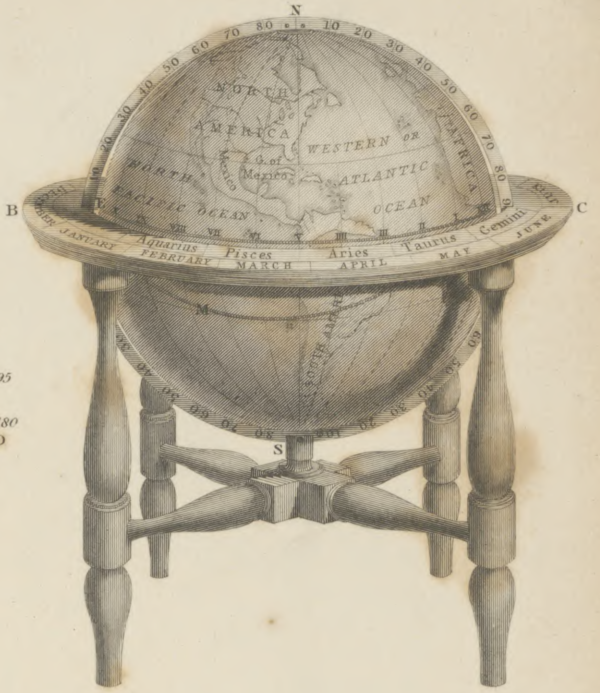

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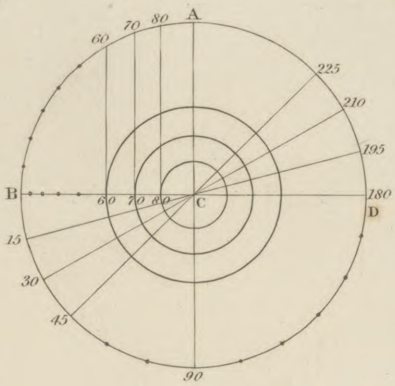

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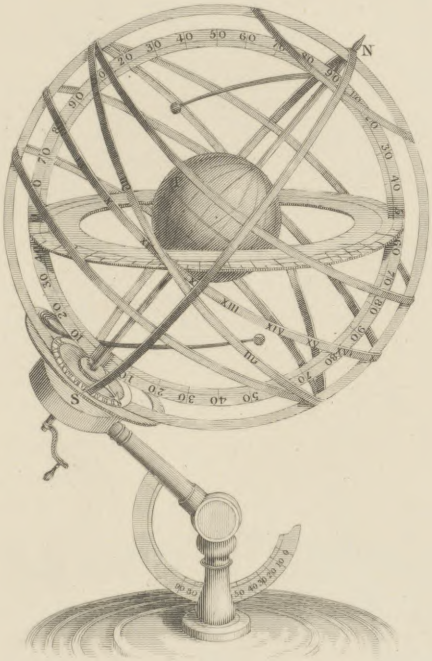

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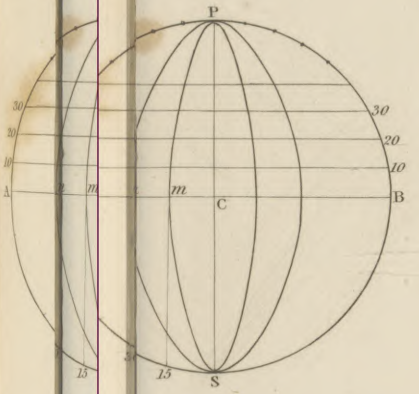

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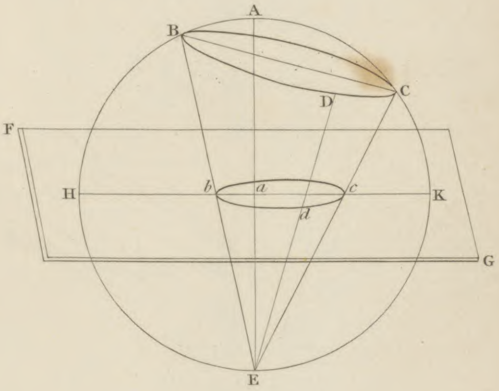

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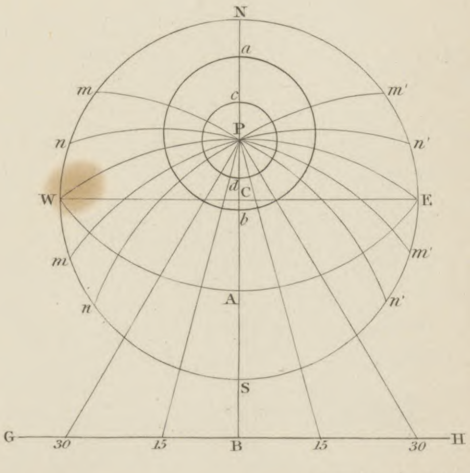

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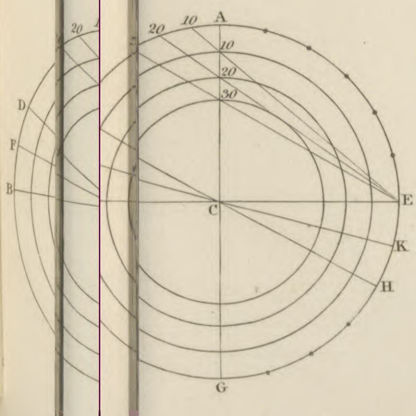

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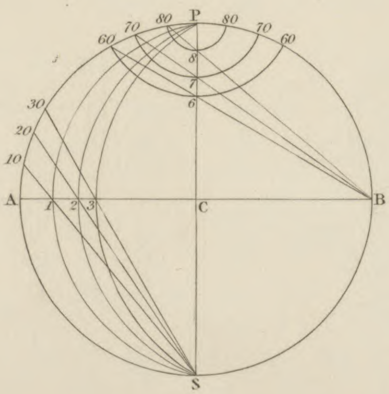

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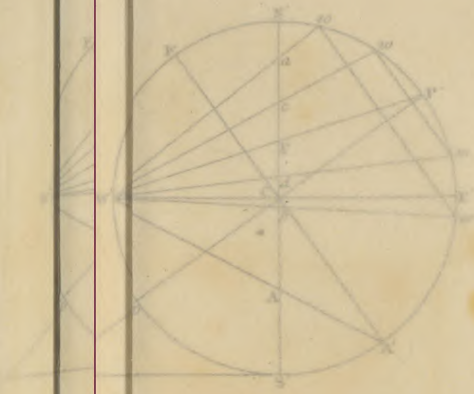

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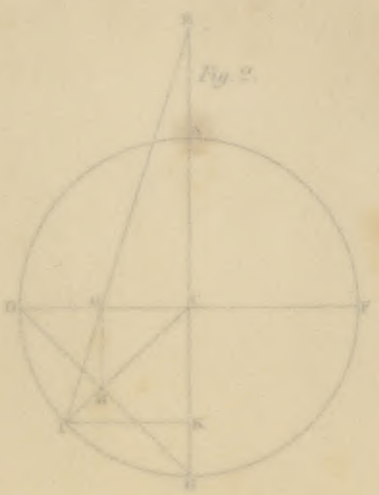

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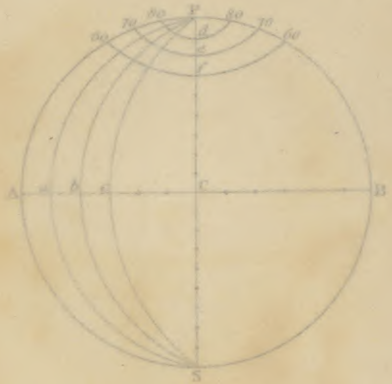

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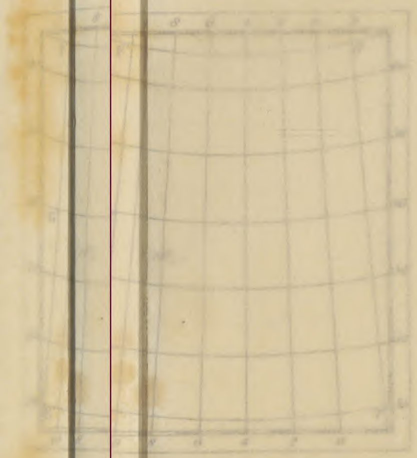

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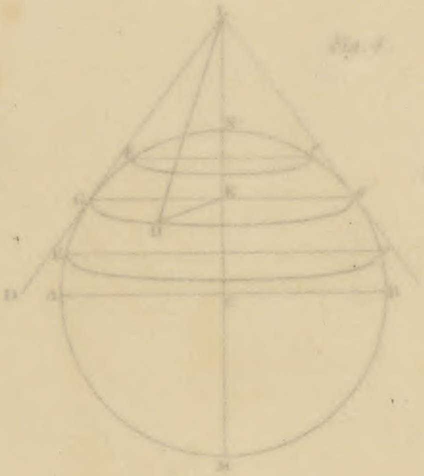

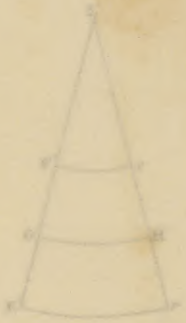

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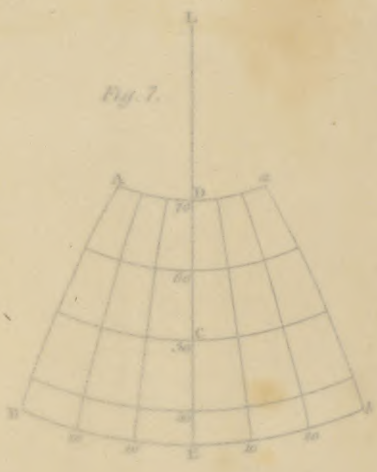

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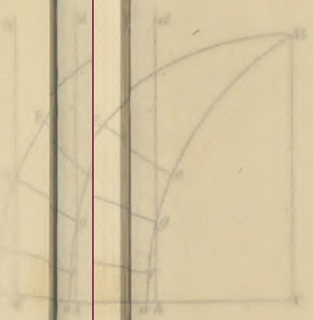

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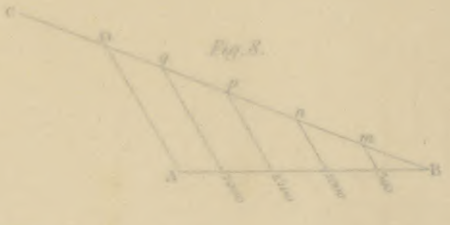

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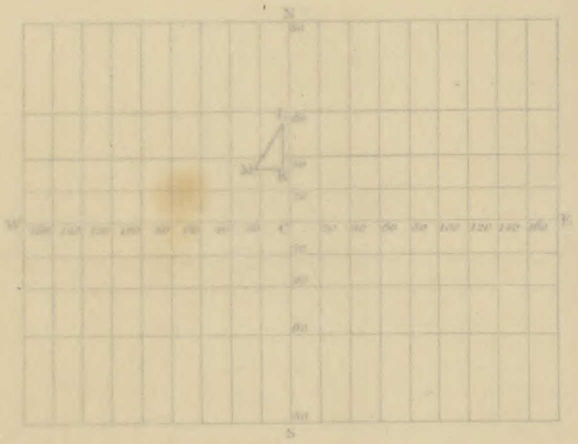
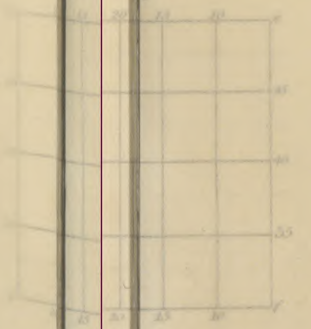


Fig. 1? Fig. 10.



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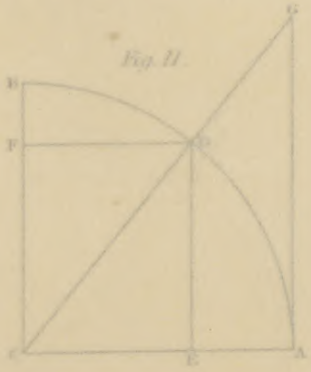

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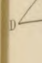
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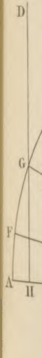
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G
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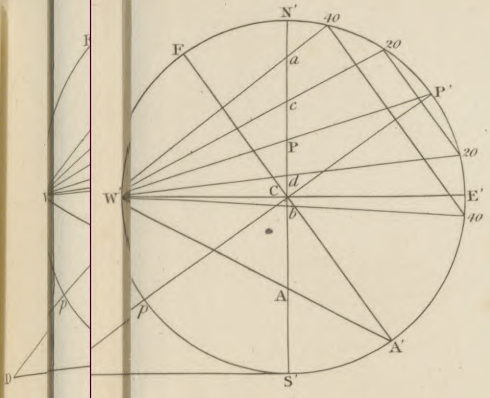
Fig. 1.



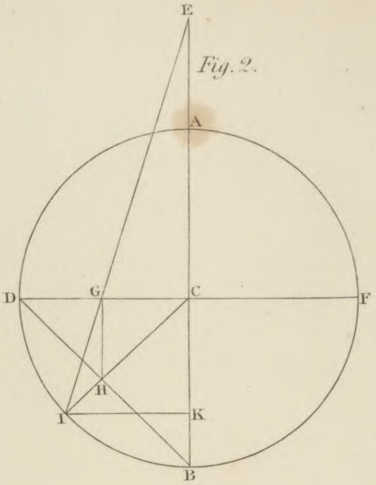
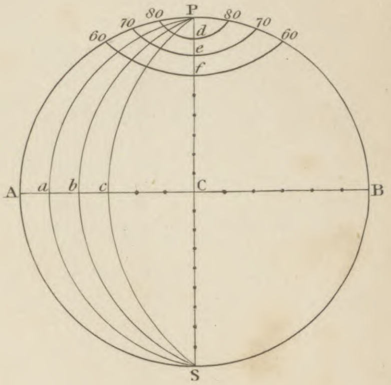


Fig. 2.

Fig. 3.



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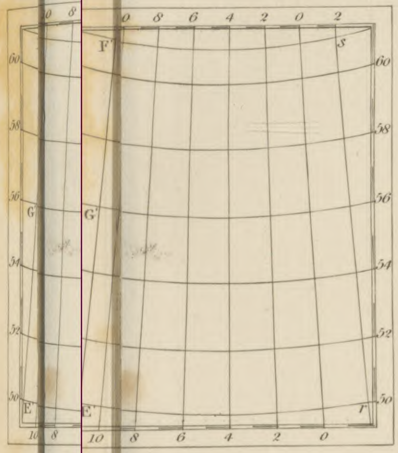

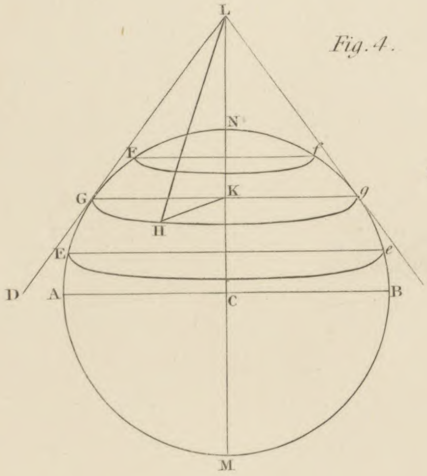

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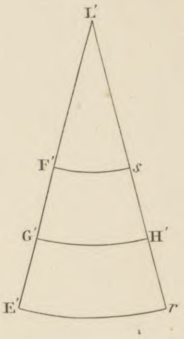

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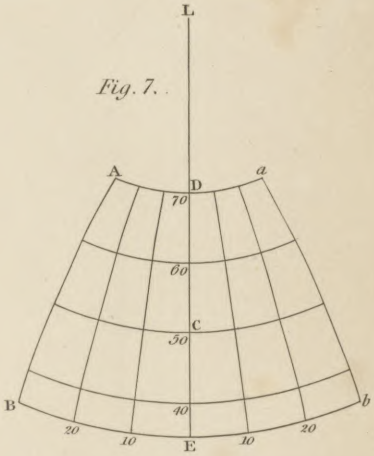

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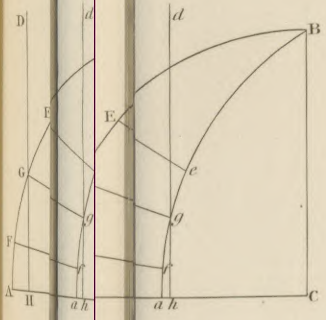

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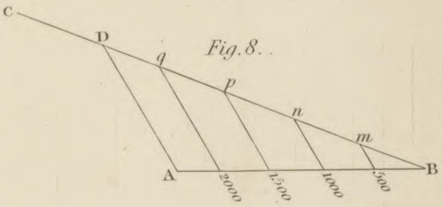

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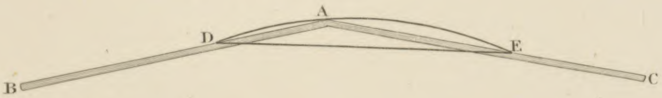

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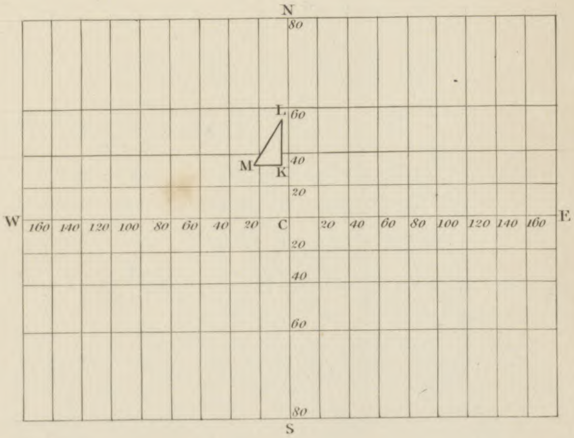

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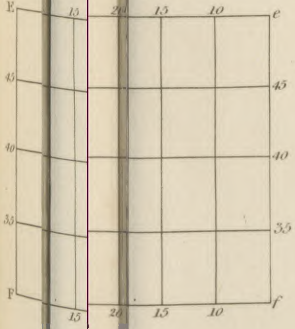

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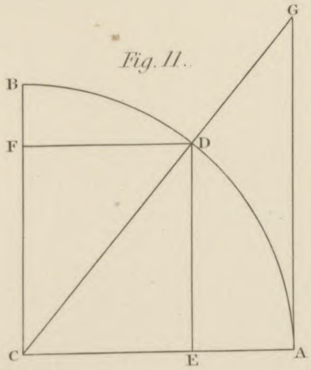
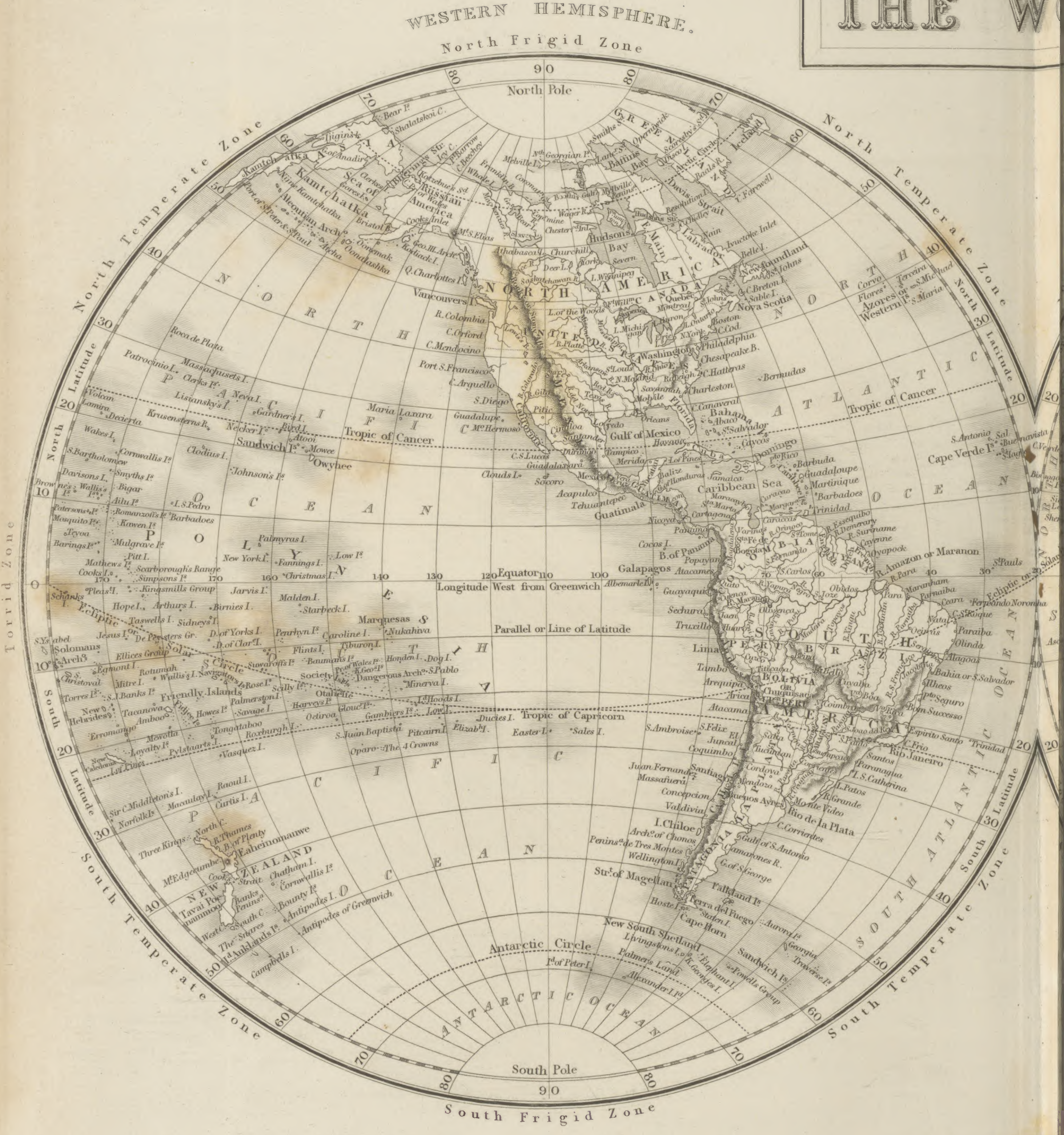


Engd. by G. Aikman, Edinr.

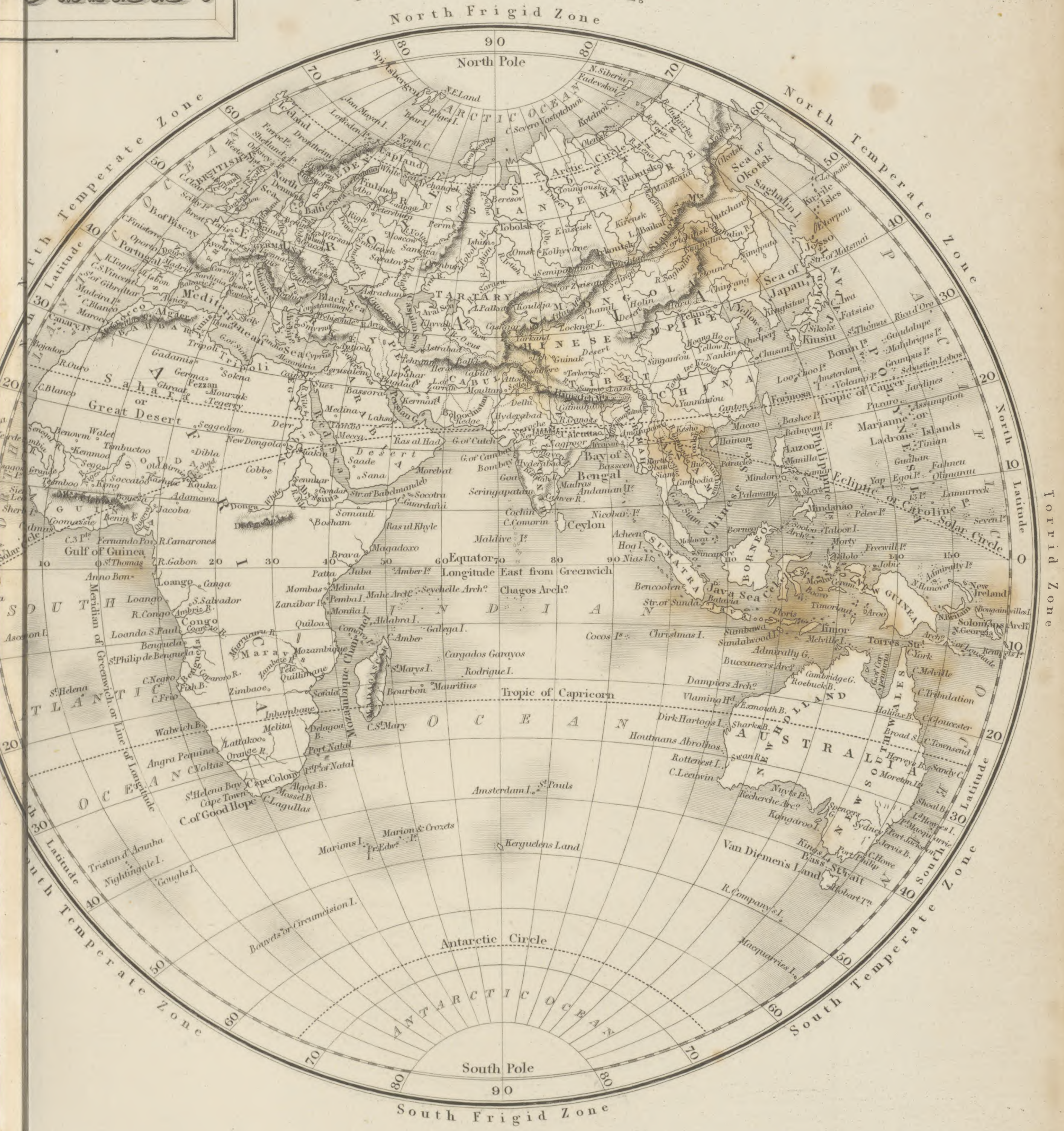
THE W



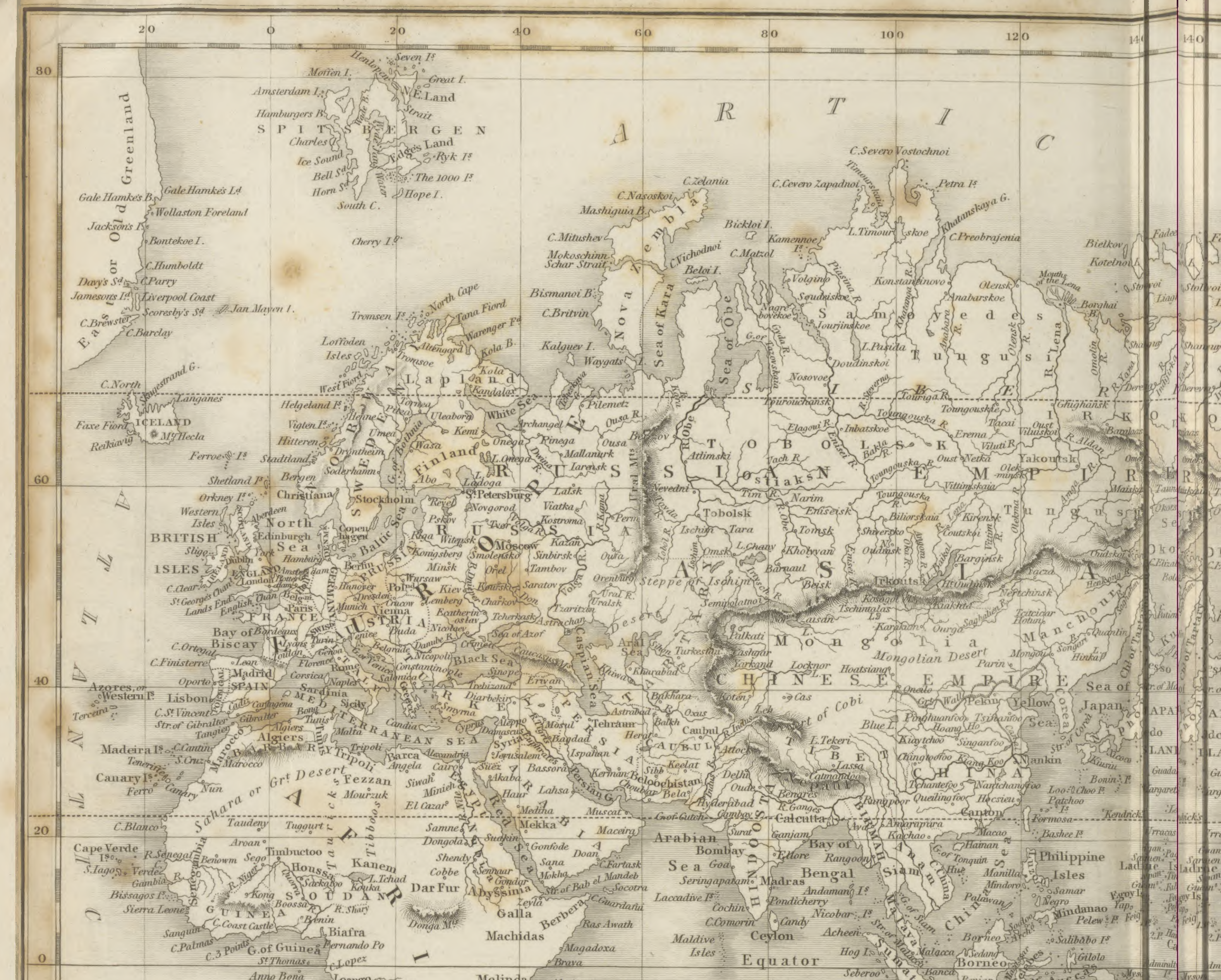
Engraved by S. Hall, Bury

WORLD.

EASTERN HEMISPHERE.



Bury Str.t Bury Str.t Bloomsbury.


20
0
20
40
60
80
100
120
140
80
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40
20
0
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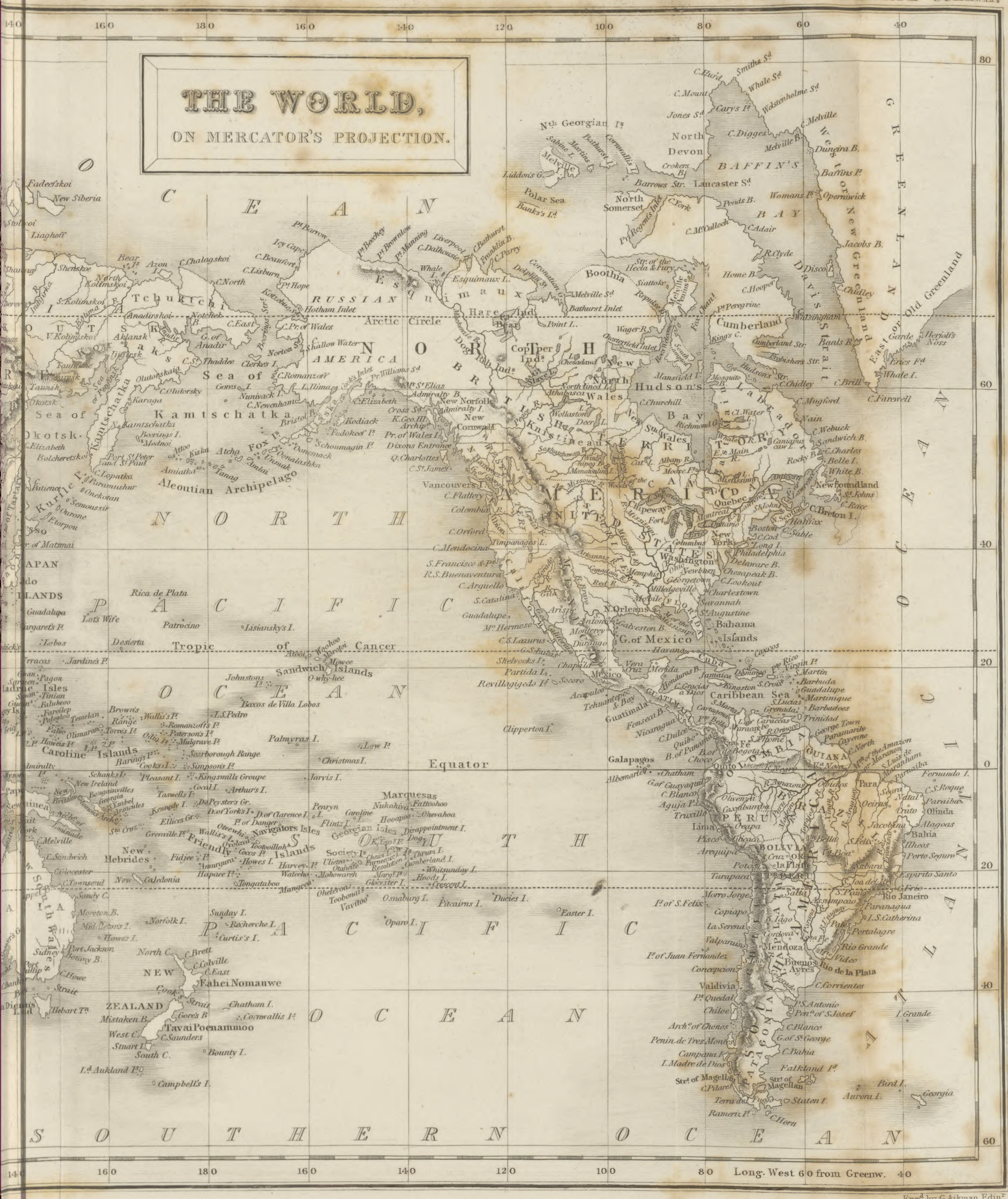
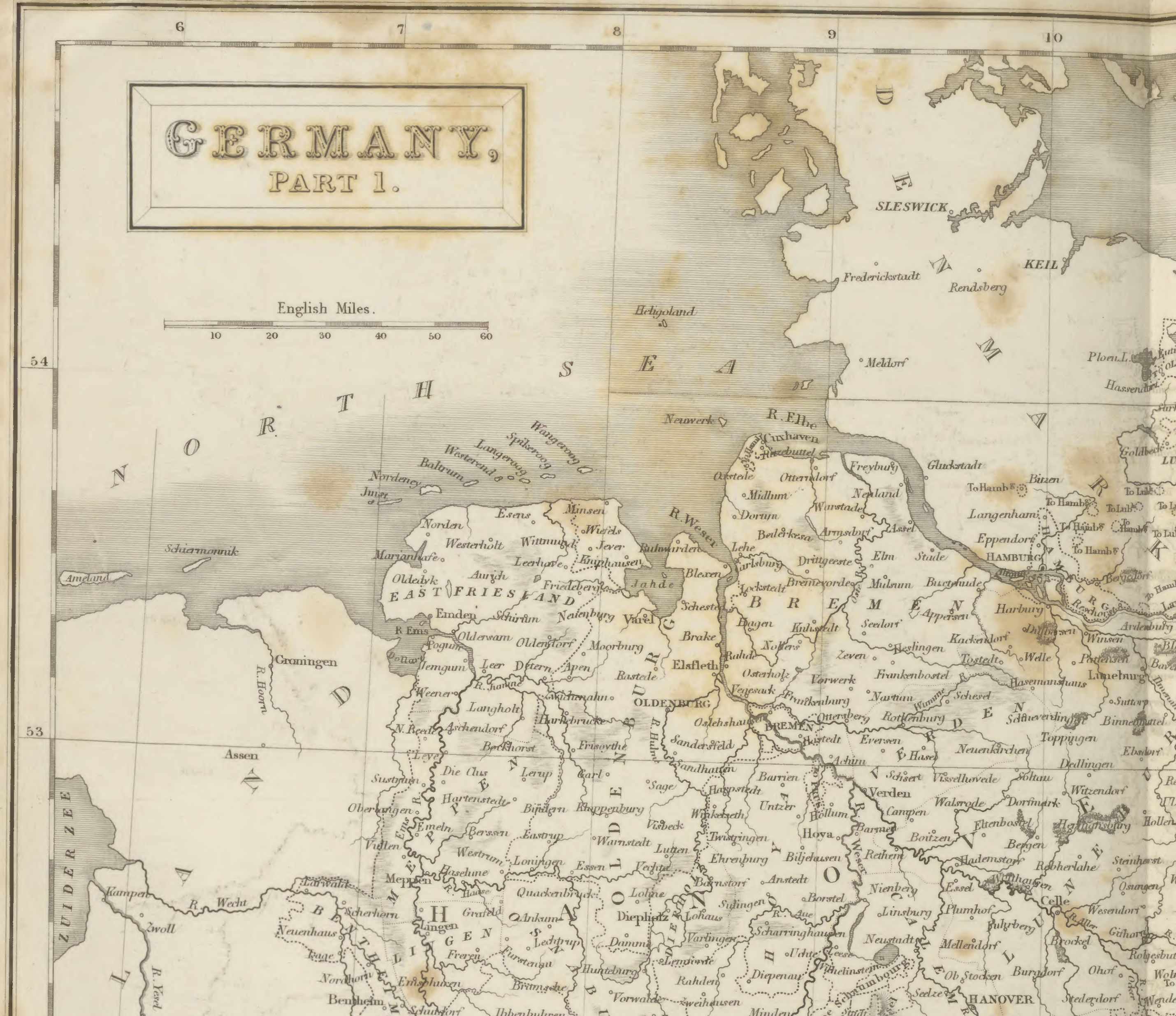
40
60
A R T I C
Spitsbergen
Seven Is.
Great I.
N.E. Land
Amsterdam I.
Hamburgers B.
Charles
Ice Sound
Bell Sd.
Horn Sd.
South C.
Edges Land
Ryk Is.
The 1000 Is.
Hope I.
Cherry I.
East or Old Greenland
Gale Hamke's B.
Gale Hamke's Ld.
Wollaston Foreland
Jackson's I.
Bontekoe I.
C. Humboldt
C. Parry
Davy's Sd.
Jamesons Id.
Liverpool Coast
Scoresby's Sd.
Jan Mayen I.
C. Brewster
C. Barclay
C. North
Iceland
Langanes
Faxe Fiord
Reikiavig
Mt. Hecla
Ferroe Is.
Shetland Is.
Orkney Is.
Western Isles
British Isles
North Sea
Edinburgh
Aberdeen
Sligo
Dublin
England
London
C. Clear
St. Georges Chan.
Lands End
English Chan.
Paris
France
Bay of Biscay
Bordeaux
Lyons
C. Ortegal
C. Finisterre
Leon
Madrid
Spain
Oporto
Lisbon
C. St. Vincent
Str. of Gibraltar
Cadiz
Gibraltar
Carthagena
Azores, or Western Is.
Terceira
Madeira Is.
Canary Is.
Teneriffe
Ferro
Marocco
Tangiers
Algiers
Tunis
Barbary
Tripoli
Sahara or Grt. Desert
Fezzan
Mourzuk
Tuggurt
Taudeny
Aroan
Sego
Timbuctoo
Houssa
Kanem
L. Tchad
Dar Fur
Soudan
Guinea
Biafra
G. of Guinea
Fernando Po
St. Thomas
Anno Bona
C. Blanco
Cape Verde Is.
S. Iago
R. Senegal
Gambia
Bissagos Is.
Sierra Leone
Sanguin
C. Palmas
C. 3 Points
Coast Castle
Benin
Kong
Boossa
Donga Mts.
Loango
Congo
Angola
Benguela
C. Negro
C. Frio
Walwich B.
Bird I.
Orange R.
C. Voltas
St. Helena B.
Table B.
C. of Good Hope
Cape Col.
C. Lagullas
Algoa B.
C. Natal
Fredericksburg
Delagoa B.
Lattakoo
Betjouanas
Bosjesmans
Mozambique
Mozambique Chan.
Madagascar
C. St. Mary
Sofala
Corrientes
Maraves
Zanzibar
Melinda
Quiloa
Comoro Is.
Magadoxa
Brava
Berbera
Machidas
Galla
Abyssinia
Gondar
Sennaar
Shendy
Dongola
Cobbe
Samne
Nubia
Egypt
Cairo
Siwah
Minieh
El Cazar
Barca
Angela
Alexandria
Mediterranean Sea
Malta
Sicily
Sardinia
Corsica
Rome
Naples
Italy
Turin
Venice
Genoa
Florence
Belgrade
Swiss
Germany
Austria
Vienna
Buda
Munich
Dresden
Cracow
Prussia
Berlin
Hanover
Hamburg
Amsterdam
Copenhagen
Baltic Sea
Konigsberg
Warsaw
Poland
Lemberg
Kiev
Minsk
Riga
Revel
St. Petersburg
Novgorod
Pskov
Witepsk
Smolensko
Moscow
Orel
Tver
Kostroma
Tambov
Koursk
Charkov
Saratov
Sinbirsk
Kazan
Viatka
Perm
Penza
Ekaterinoslav
Tcherkask
Astrachan
Sea of Azof
Crimea
Black Sea
Nicopoli
Constantinople
Salonica
Greece
Candia
Smyrna
Turkey
Sinope
Trebizond
Erivan
Diarbekir
Cyprus
Aleppo
Syria
Damascus
Jerusalem
Suez
Akaba
Mosul
Bagdad
Bassora
Persia
Ispahan
Tehraun
Kerman
Persian G.
Arabia
Medina
Mekka
Red Sea
Sana
Mokha
Doan
Str. of Bab el Mandeb
Socotra
C. Guardafui
Ras Awath
Maceira
Muscat
Lahsa
Caspian Sea
Astrabad
Aral Sea
Khiwa
Bukhara
Balkh
Herat
Caubul
Attock
Kelat
Beloochistan
Sind
Delhi
Oude
Benares
Hyderabad
Gambay
G. of Cutch
Surat
Bombay
Goa
Seringapatam
Madras
Pondicherry
Cochin
C. Comorin
Ceylon
Candy
Laccadive Is.
Maldive Isles
Arabian Sea
Hindoostan
Bay of Bengal
Calcutta
R. Ganges
Ganjam
Ellore
Andaman Is.
Nicobar Is.
Acheen
Ava
Ummerapoora
Rangoon
Birmah
Siam
Anam
Tonquin
Hue
Cochin China
Camboja
G. of Siam
Malacca
Str. of Malacca
Sumatra
Bencoolen
Seberoo
Banca
Batavia
Java
Str. of Sunda
Borneo
Benjar
Celebes
Moluccas
Boero
Ceram
Timor
Timorlaut
Arroo Is.
Lombock
Sumbawa
Sandalwood I.
Bally
Floris
Christmas I.
Keeling Is.
Philippine Isles
Luconia
Manilla
Mindoro
Samar
Mindanao
Palawan
Sooloo
Gilolo
Pelew Is.
Yap
China Sea
China
Canton
Macao
Haman
Formosa
Bashee Is.
Nankin
Pekin
Yellow Sea
Corea
Japan
Sea of Japan
Chinese Empire
Mongolian Desert
Desert of Cobi
Lassa
Tibet
Teshoo Loomboo
Mongolia
Manchouria
Tartary
Turkestan
Yarkand
Cashgar
Khoten
Oxus
Irkoutsk
Kiakhta
Nertchinsk
L. Baikal
Siberia
Asiatic Russia
Russian Empire
Tobolsk
Omsk
Tomsk
Barnaul
Krasnoyarsk
Eniseisk
Narim
Tobolsk
Ostiaks
Samoyedes
Tungusi
Yakoutsk
Lena R.
Olensk
Anabarskoe
Khatanskaya G.
C. Preobrajenia
C. Severo Vostochnoi
Timourskaia
Petra Is.
C. Cevero Zapadnoi
Kamennoe Is.
Volgino
Dudinskoi
Turukhansk
Bickloi I.
Sea of Obe
Sea of Kara
Nova Zembla
C. Nasoskoi
C. Zelania
Mashiquia B.
C. Mitushev
Mokoschinn Schar Strait
Bismanoi B.
C. Britvin
Kalguev I.
Waygats I.
Pilemetz
Archangel
White Sea
Kola
Kola B.
North Cape
Tana Fiord
Warenger Fd.
Lapland
Tornea
Uleaborg
Kemi
Finland
Abo
Wasa
Sweden
Norway
Stockholm
Christiania
Bergen
Drontheim
Helgeland Is.
Lofoden Isles
Tromsen Is.
Tromsoe
Onega
L. Onega
L. Ladoga
Orenburg
Steppe of Ischim
Semipolatnoi
Ural Mts.
Caucasus
Tzaritzin
Uralsk
Indian Ocean
I N D I A N
O C E A N
Almirante Is.
Mahe Is.
Seychelles
Ady Is.
Speaker's Bk.
Saya de Malha
Nazareth Bank
Cargados Garajos
Mauritius
Bourbon
Roderiguez
Juan de Lisboa
Tropic of Capricorn
Equator
Tryal Rocks
Vlaming Hd.
De Witts Ld.
Endrachts Ld.
Sharkes B.
Houtmans Abrolhos
Edels Land
Swan R.
C. Leeuwin
C. Chatham
Nuyts Ld.
Nuyts Arch.
Arch. of the Recherche
G. of St. Vincent
Spencer's G.
Van Diemens Land
New Holland
Australia
C. Bertholet
Dampier's Land
Melville I.
Anson B.
Van Diemen's G.
G. of Carpentaria
Ascension
St. Helena
Trinidad or Ascension
Columbus I.
Tristan d'Acunha
Gough's I.
Pr. Edwards Is.
Crozet's Is.
Possession I.
Kerguelen's Land
St. Pauls I.
Amsterdam I.
Atlantic Ocean
A T L A N T I C
O C E A N
A N T A R C T I C   O R   S
Long. West 20 from Greenw.
Longitude 80 East from 100 Greenwich



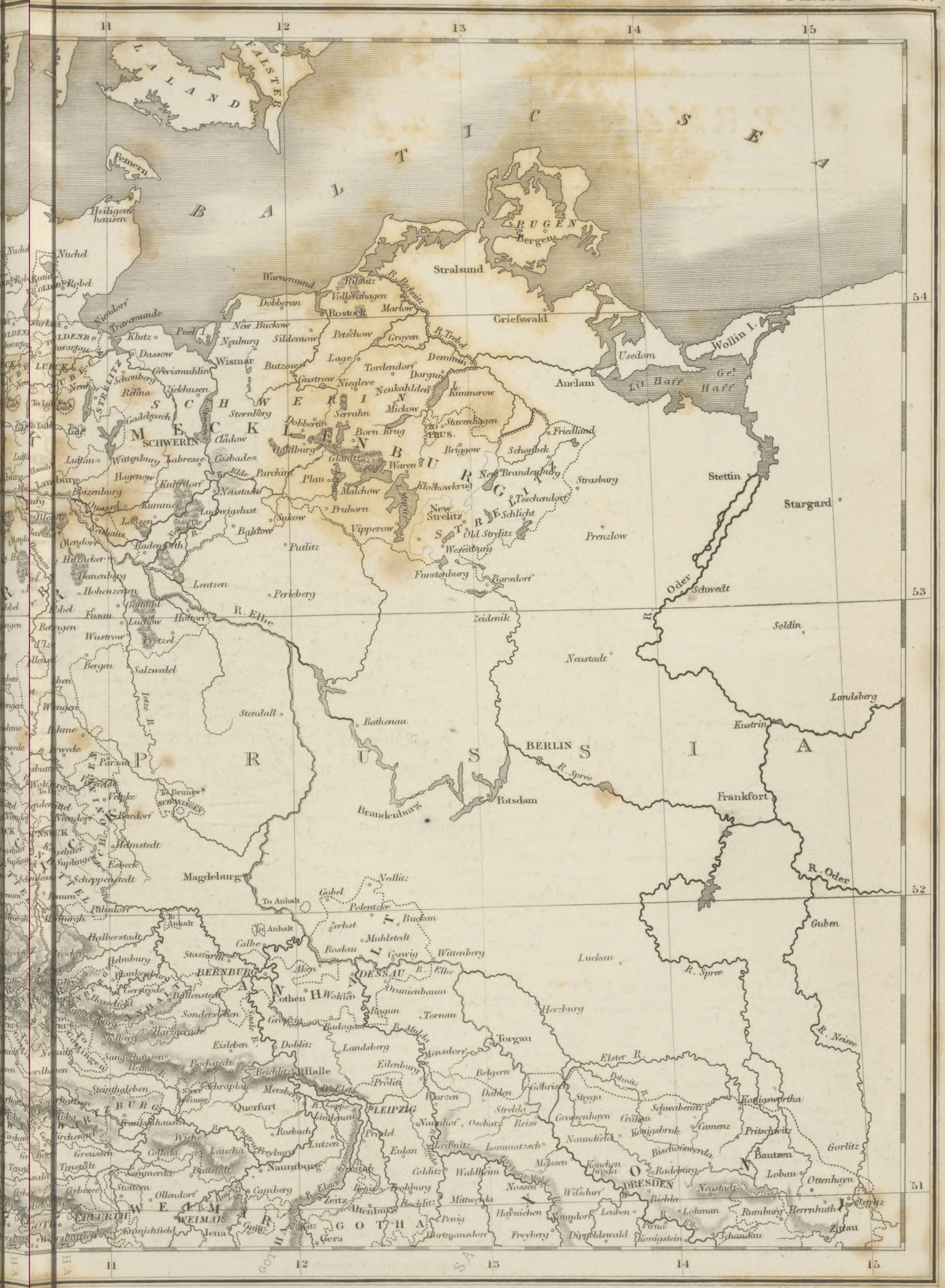
THE WORLD,

ON MERCATOR'S PROJECTION.

Engd by G.Aikman, Edinr



GERMANY, PART 1.



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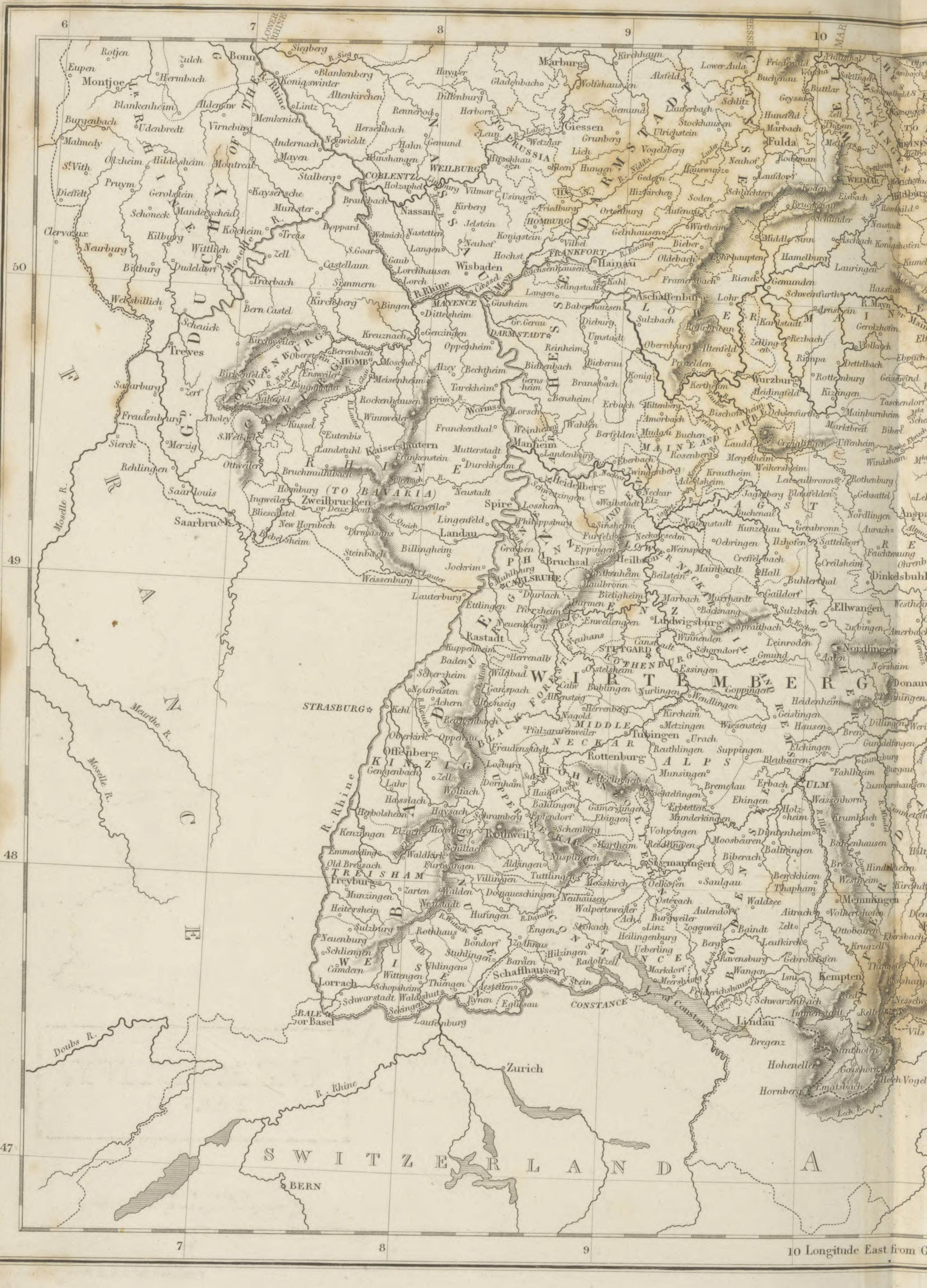
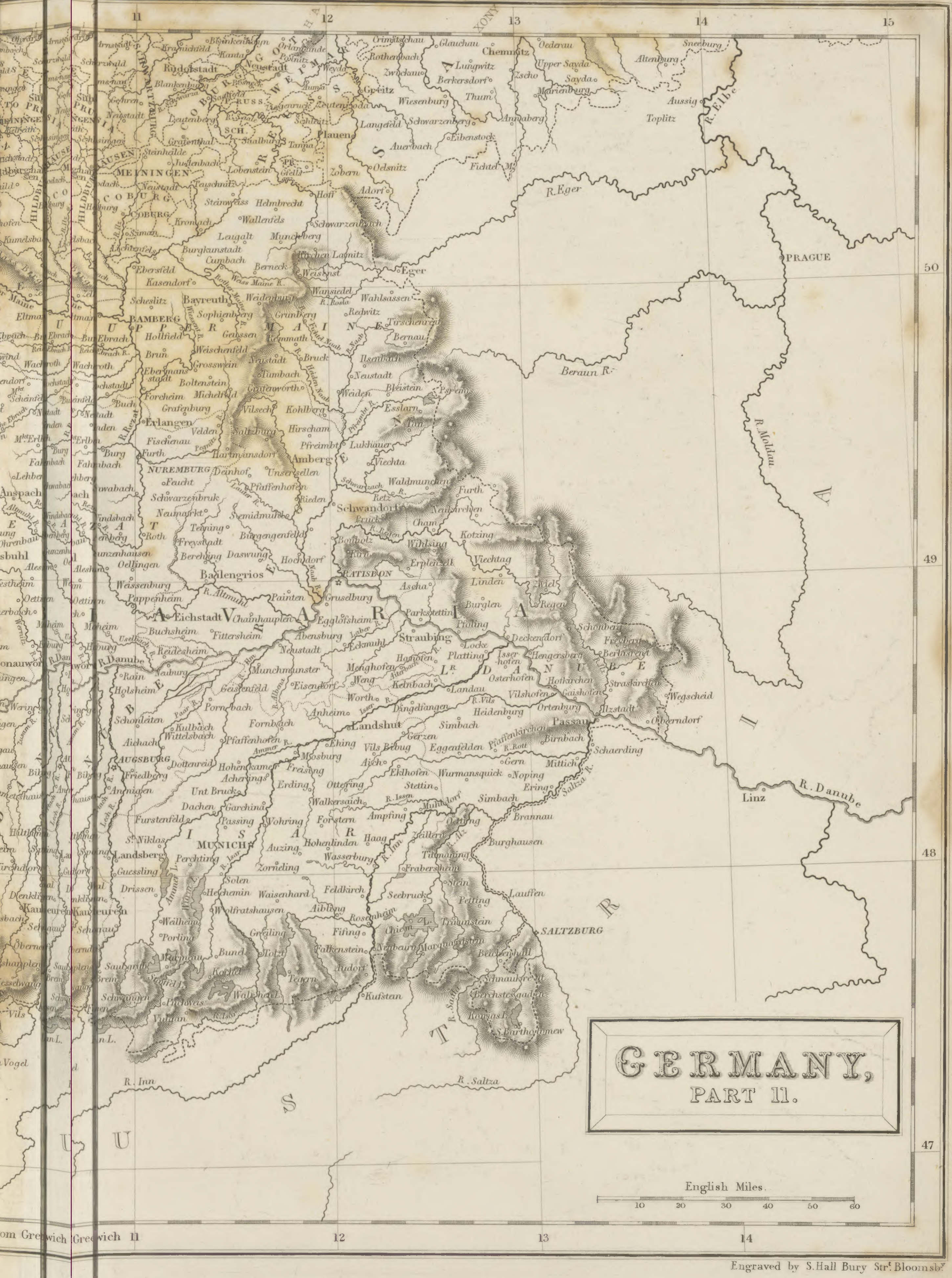
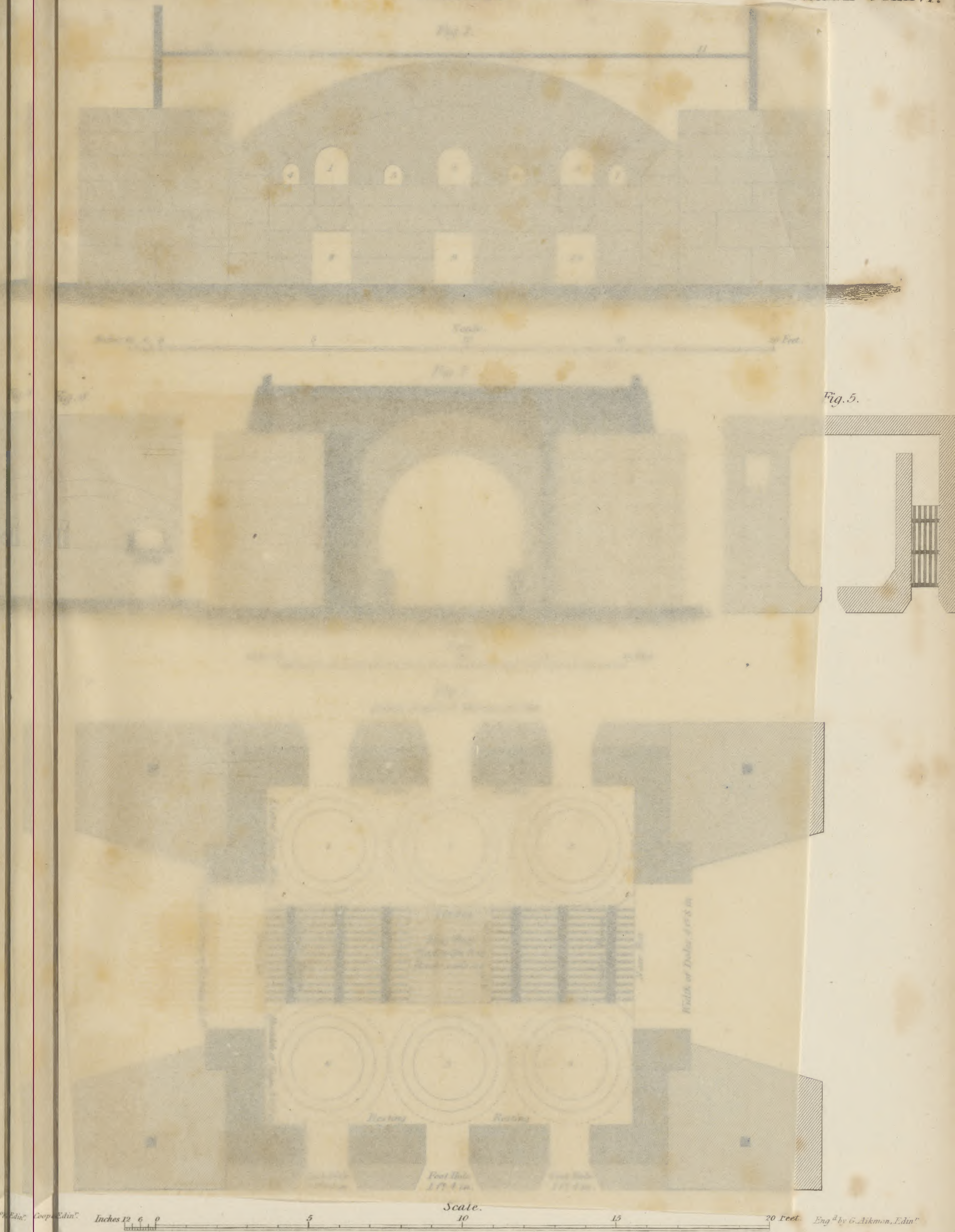

6
7
8
9
10
LOWER RHINE
MAR
50
49
48
47
10 Longitude East from G
Rotjen
Eupen
Montjoe
Zulch
Hermbach
Blankenheim
Burgenbach
Udenbredt
Malmedy
St. Vith
Olzheim
Hildesheim
Pruym
Dieffelt
Gerolstein
Schoneck
Manderscheid
Kilburg
Clervaux
Neurburg
Bitburg
Wittlich
Dudeldorf
Welschbillich
Bonn
Siegberg
R. Sieg
Konigswinter
Blankenberg
Altenkirchen
Lintz
Aldenaw
Memkenich
Virneburg
Andernach
Neuwieldt
Mayen
Montreal
Kayserische
Stalberg
Munster
Kocheim
Treis
Zell
Trarbach
Bern Castel
Scheuick
Treves
Saarburg
Zerf
Freudenburg
Tholey
S. Wendel
Sierck
Merzig
Rehlingen
Ottweiler
Saar louis
Saarbruck
Moselle R.
Moselle R.
Meurthe R.
Doubs R.
F R A N C E
R. RHINE
DUCHY OF THE RHINE
G. D.
OLDENBURG
Kirchweiler
Oberstein
HOMB.
Birkenfeld
R. Nahe
Baumholder
Nohfeld
Kussel
Hagen
Gladenbach
Dillenburg
Herborn
Rennerod
Herschbach
Hahn
Gemund
Runshangen
COBLENTZ
Holzaphel
Braubach
Nassau
Boppard
Welmich
Nastetten
S. Goar
Gaub
Langen
Lorchhausen
Lorch
Castellaun
Simmern
Kirchberg
Bingen
R. Rhine
MAYENCE
Dittelsheim
Kreuznach
Genzingen
Berenbach
Moschel
Enswelier
Meisenheim
Alzey
Oppenheim
Bechtheim
Rockenhausen
Tarekheim
Pfrim R.
Winnweiler
Worms
Eutenbis
Landstuhl
Kaiserslautern
Franckenthal
Mutterstadt
Frankenstein
Durckheim
Bruchmuhlbach
Neustadt
Homburg
Zweilbrucken or Deux Ponts
Ingweiler
Bliescastel
Kerweiler
New Hornbach
Pirmasens
Bebelsheim
R. Queich
Lingenfeld
Landau
Billingheim
Steinbach
Jockrim
Weissenburg
R. Lauter
Lauterburg
R H I N E
(TO BAVARIA)
WEILBURG
Vilmar
Usingen
Kirberg
Jelstein
Neuhof
Konigstein
Hochst
Wisbaden
Homburg
Friedburg
FRANKFORT
Hainau
Offenbach
Sachsenhausen
Kahl
Selingstadt
Langen
Babenhausen
Ginsheim
Gr. Gerau
DARMSTADT
Dieburg
Umstadt
Reinheim
Bickenbach
Bieberau
Gernsheim
Bensheim
Bransbach
Lorsch
Weinheim
Wahlen
Erbach
Manheim
Landenburg
Heidelberg
Spire
Schwetzingen
Lossheim
Philippsburg
Graben
Bruchsal
Muhlburg
CARLSRUHE
Ettlingen
Durlach
Pforzheim
Neuenburg
Rastadt
Kuppenheim
Baden
Herrenalb
Scherzheim
Wildbad
Neufreisten
Achern
Gernspach
STRASBURG
Kehl
Oberkirk
Offenburg
Gengenbach
Lahr
Hasslach
Herbolsheim
Kenzingen
Emmendingen
Old Breisach
Freyburg
Munzingen
Heitersheim
Sulzburg
Neuenburg
Schliengen
Camdern
Lorrach
BALE or Basel
Schopsheim
Schwarstadt
Sekingen
Laufenburg
Waldshut
Thiengen
Marburg
Kirchhaym
Wolfshausen
Alsfeld
Lower Aula
Giessen
Grunberg
Lich
Hungen
Wetzlar
Leun
TO PRUSSIA
Gemund
Lauterbach
Schlitz
Ulrichstein
Stockhausen
Vogelsberg
Gedern
Nidda
Hirzenhain
Ortenburg
Soden
Aufenau
Gelnhausen
Wirtheim
Bieber
Oldebach
Frammersbach
Aschaffenburg
Lohr
Sulzbach
Obernburg
Miltenberg
Amorbach
Konig
Buchen
Mudau
Berfelden
Eberbach
Zwingenberg
Mosbach
Neckar Elz
Sinsheim
Waibstadt
Eppingen
Furfeld
Neckarsulm
Heilbronn
Weinsberg
Besigheim
Maulbronn
Bietigheim
Ludwigsburg
Marbach
Backnang
Murrhardt
Enzweilengen
Cannstadt
STUTGARD
Schorndorf
Essingen
Gmund
Boblingen
Calw
Altensteig
Nagold
Herrenberg
Tubingen
Rottenburg
Reuthlingen
Urach
Nurtingen
Wendlingen
Goppingen
Kircheim
Metzingen
Wiesensteig
Geislingen
Heidenheim
Hechingen
Balingen
Haigerloch
Sulz
Dornhan
Rothweil
Schramberg
Hornberg
Villingen
Donaueschingen
Hufingen
Tuttlingen
Engen
Stockach
Radolfzell
Constance
CONSTANCE
Uberlingen
Markdorf
Meersburg
Friedrichshausen
Ravensburg
Wangen
Lindau
Bregenz
Sigmaringen
Saulgau
Riedlingen
Ehingen
Munderkingen
Biberach
Waldsee
Buchau
Ulm
Blaubeuren
Munsingen
Kempten
Memmingen
Ottobeuren
Isny
Leutkirch
Immenstadt
Hohenelle
Hornberg
Zurich
BERN
Fulda
Hunefeld
Marbach
Neuhof
Schluchtern
Brückenau
Kissingen
Hamelburg
Gemunden
Schweinfurth
Karlstadt
Wurzburg
Kitzingen
Ochsenfurth
Marktbreit
Bischofsheim
Mergentheim
Weikersheim
Rothenburg
Windsheim
Uffenheim
Crailsheim
Dinkelsbuhl
Ellwangen
Nordlingen
Aalen
Dillingen
Donauwert
Gunzburg
BLACK FOREST
MIDDLE NECKAR
ALPS
KINZIG
BRISGAU
TREISHAM
UPPER NECKAR
HOHENZOLLERN
LAKE OF CONSTANCE
WIRTEMBERG
NECKAR
JAGST
KOCHER
DANUBE
MAINE AND TAUBER
LOWER MAINE
MAIN
NASSAU
HESSE DARMSTADT
HESSE CASSEL
SWITZERLAND
A



GERMANY,
PART 11.

Engraved by S.Hall Bury Str^t. Bloomsb^y.



Drawn by W. Coop, Edin.ʳ

Eng.ᵈ by G. Aikman, Edin.ʳ

GLASS.

PLATE CCLXVI.

Fig. 1.

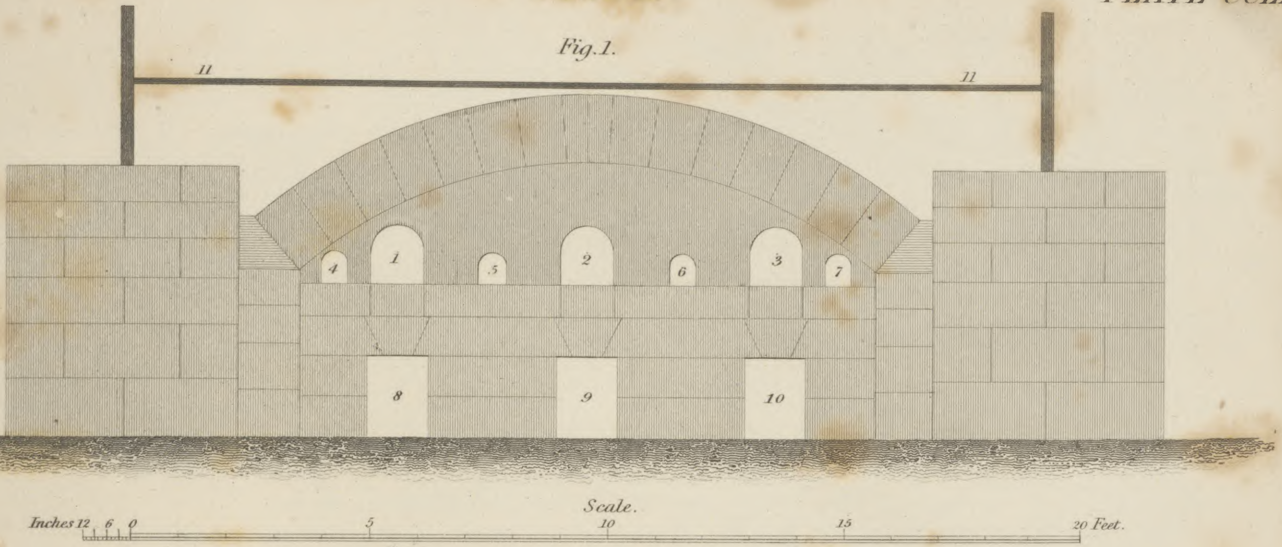


Fig. 4.

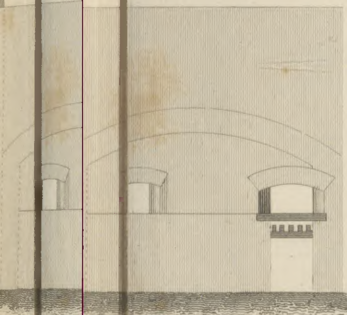


Fig. 2.

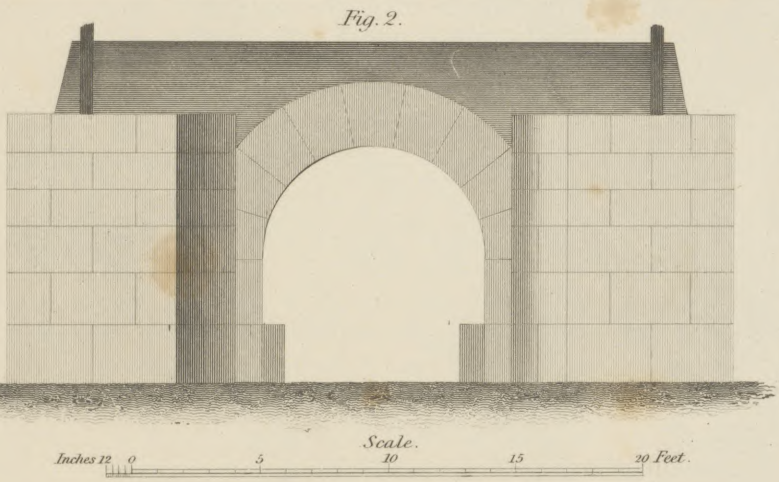


Fig. 5.

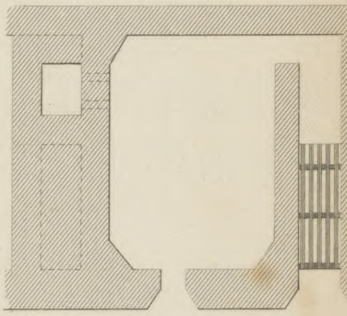
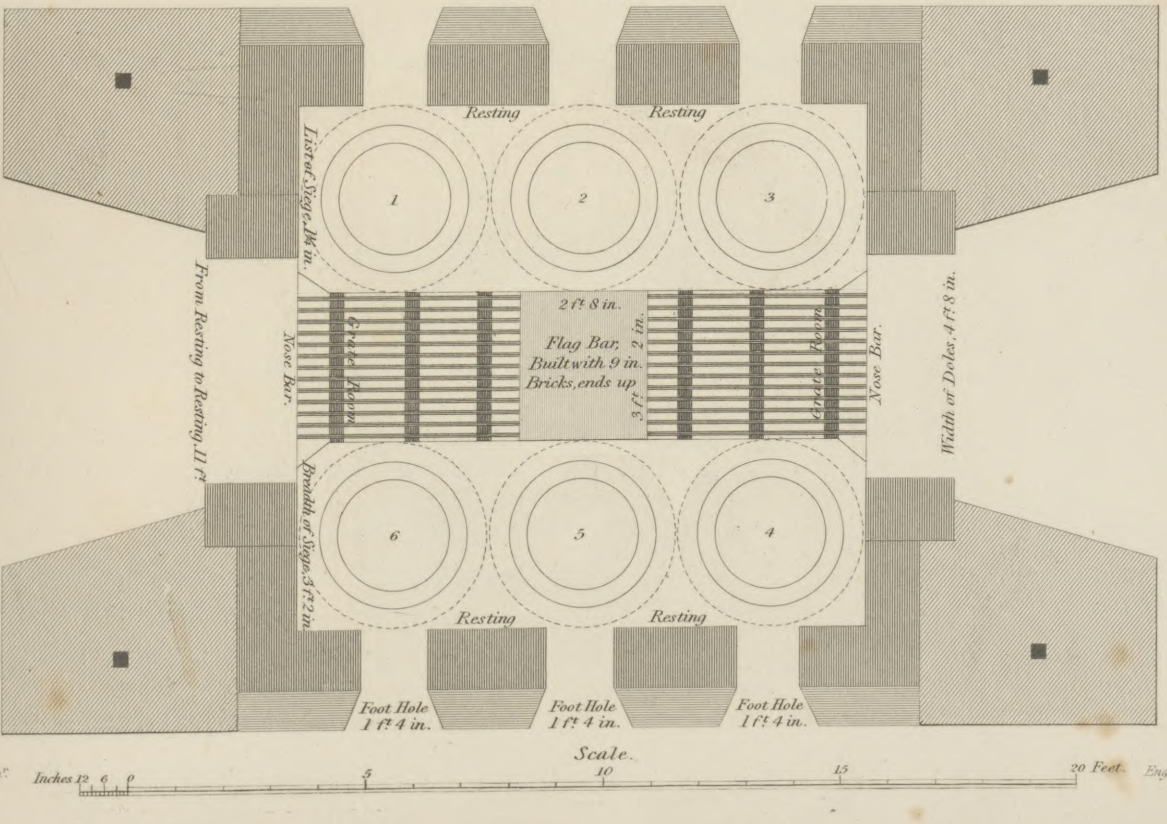


Fig. 3.

Inside Length of Furnace, 12 Feet.



by W. er, Edinr.

Engd. by G. Aikman, Edinr.

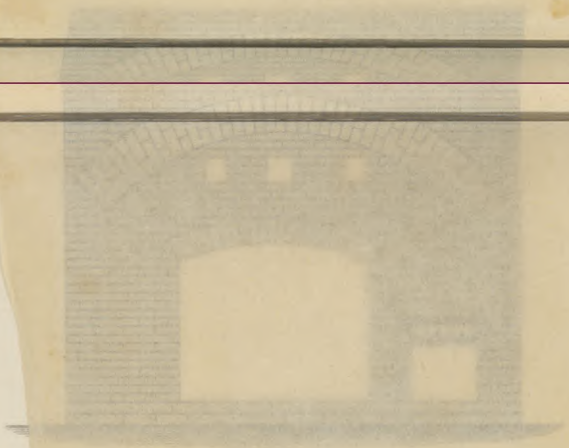


Fig. 2.

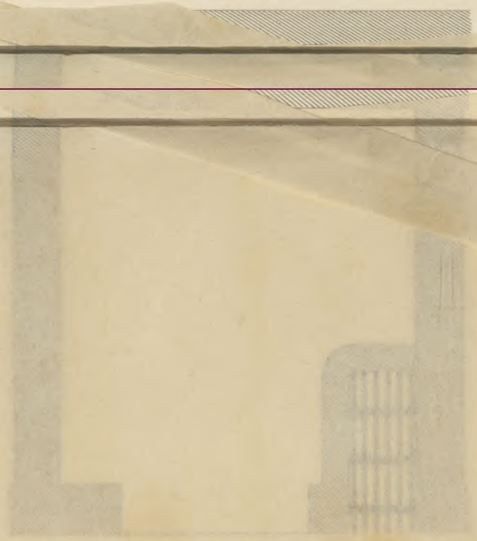


Fig. 3

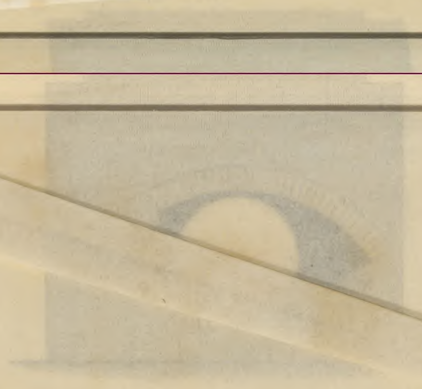


Fig. 5.

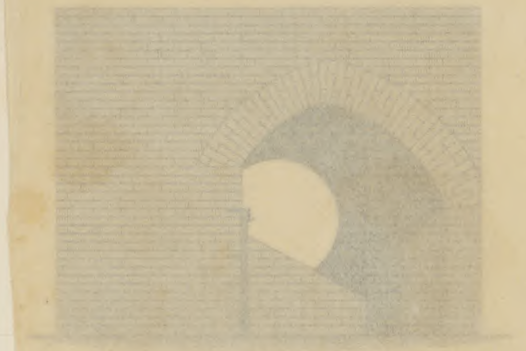


Fig. 6.

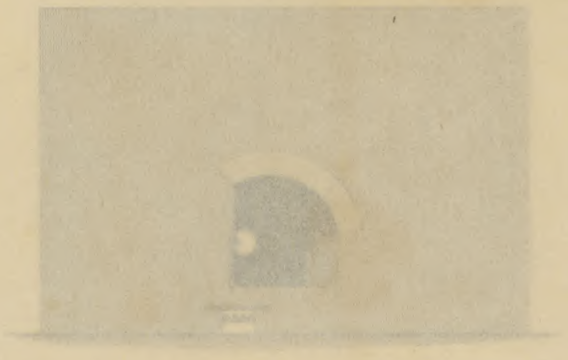


Fig. 4

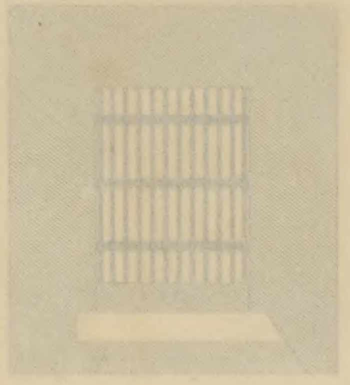


Fig. 8.

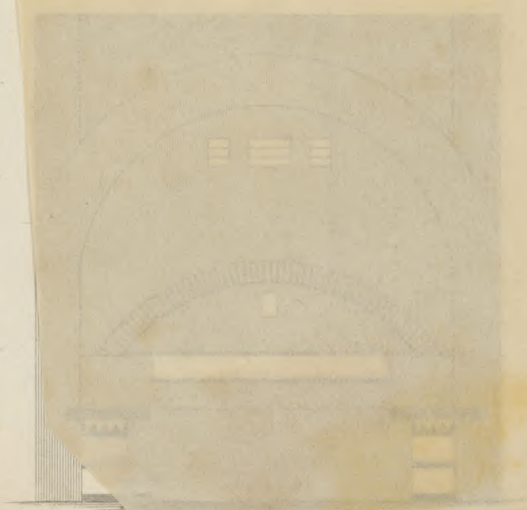


Fig. 7.

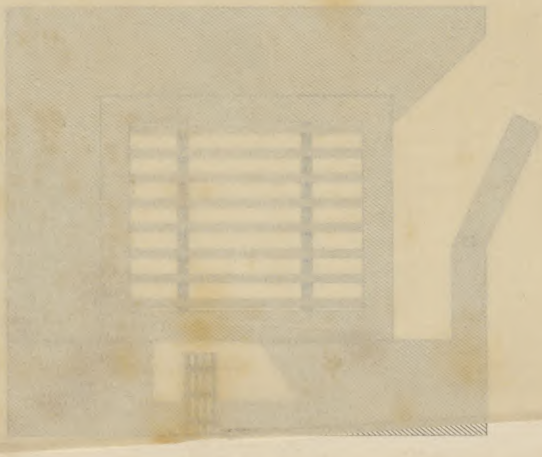
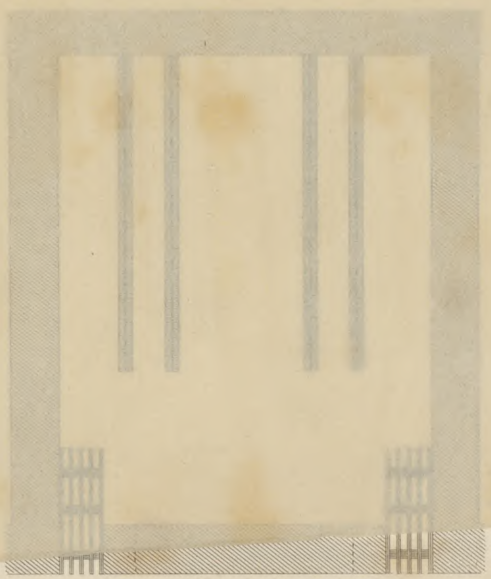


Fig. 9.

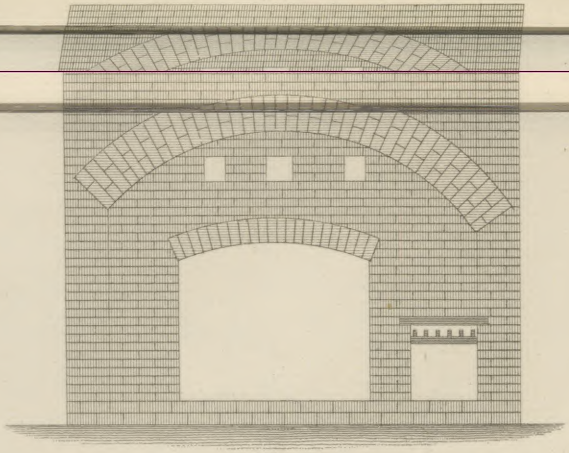


Drawn by W. Cooper, Edin.r

Eng.d by G. Aikman, Edin.r

PLATE CCLXVII.

Fig. 1.



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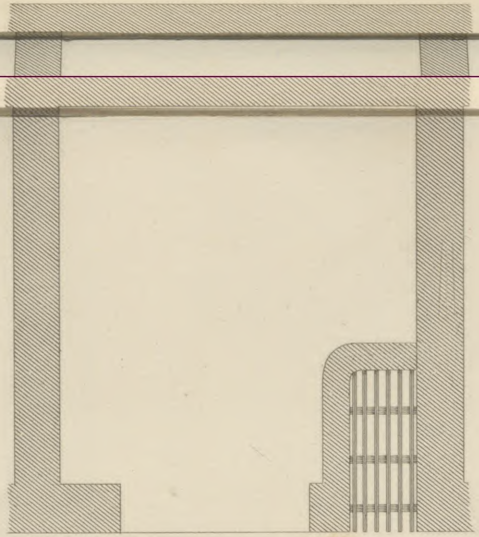
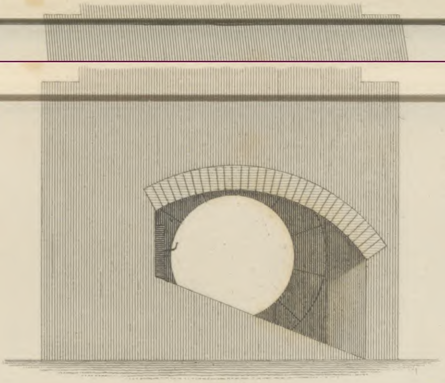
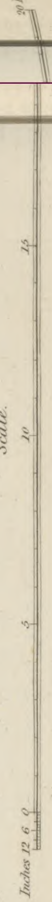


Fig. 3.





Scale.

Fig. 4.

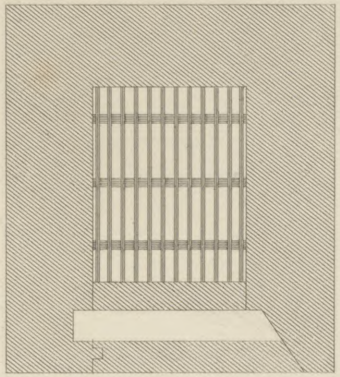


Fig. 5.

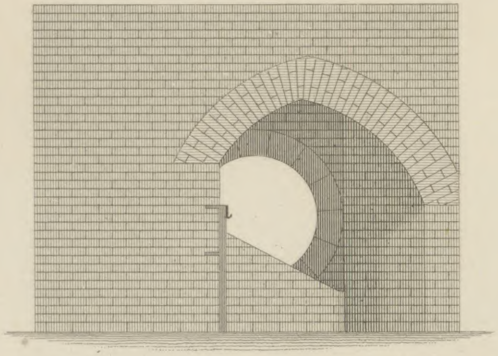


Fig. 6.

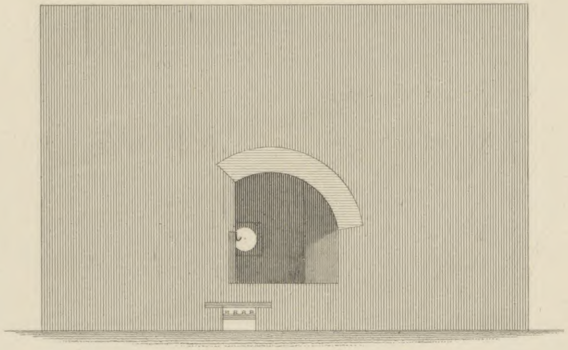


Fig. 9.

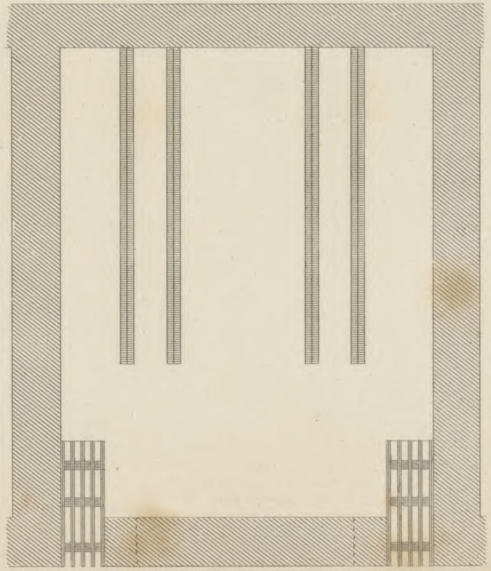


Fig. 8.

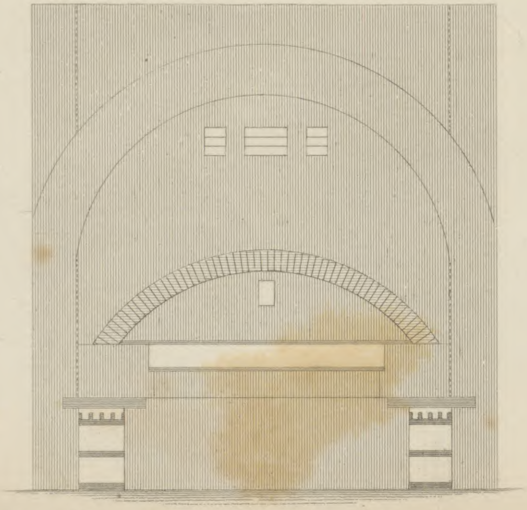
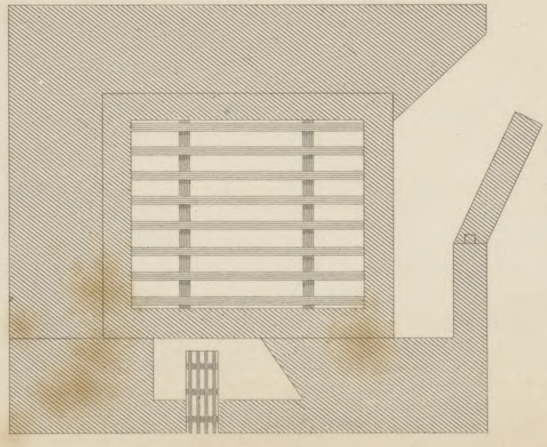


Fig. 7.



Drawn by W. Cooper, Edinr.

Engd by G. Aikman, Edinr.

Fig. 3.

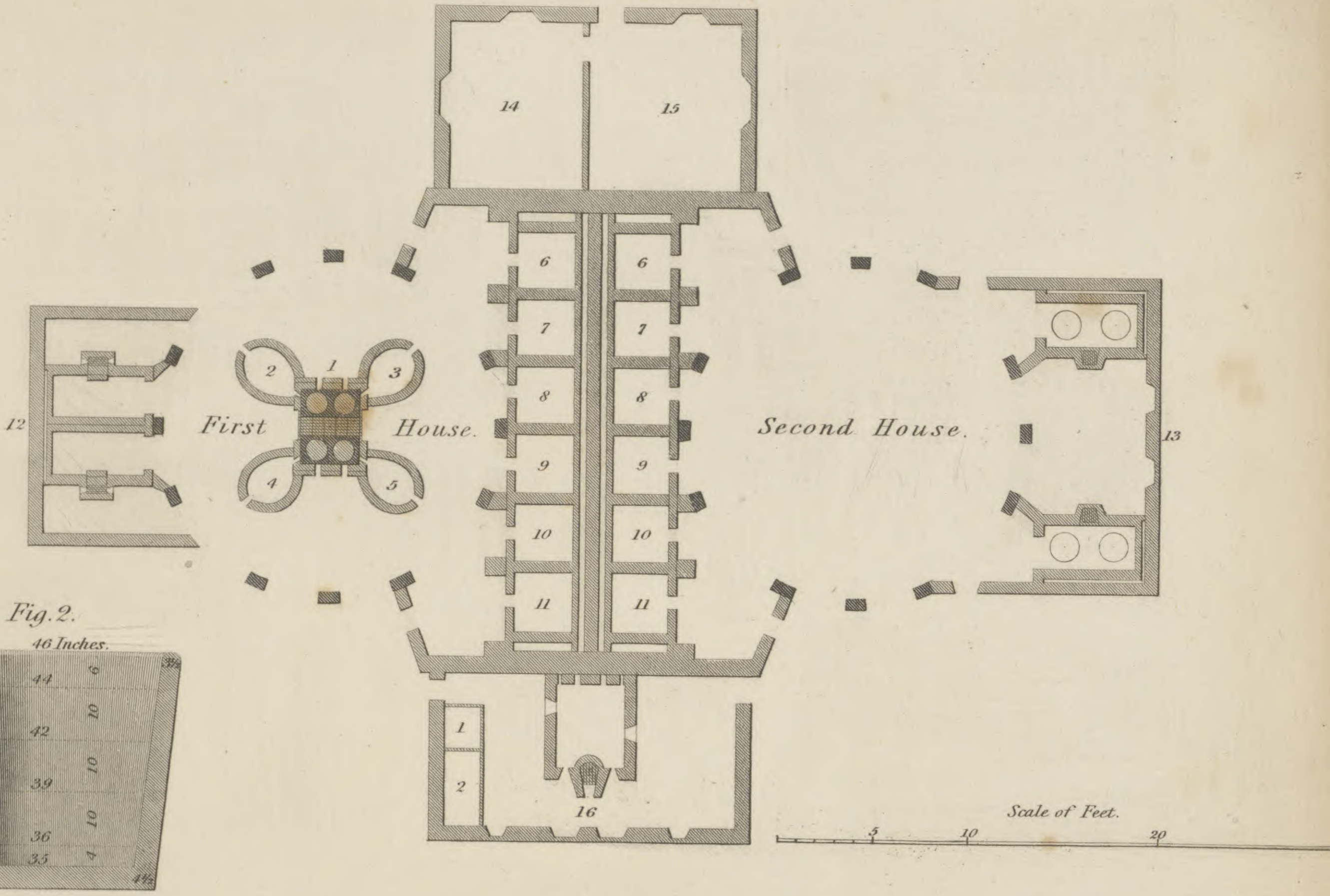


Fig. 2.

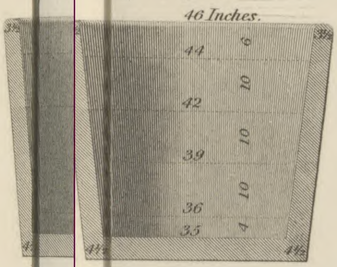
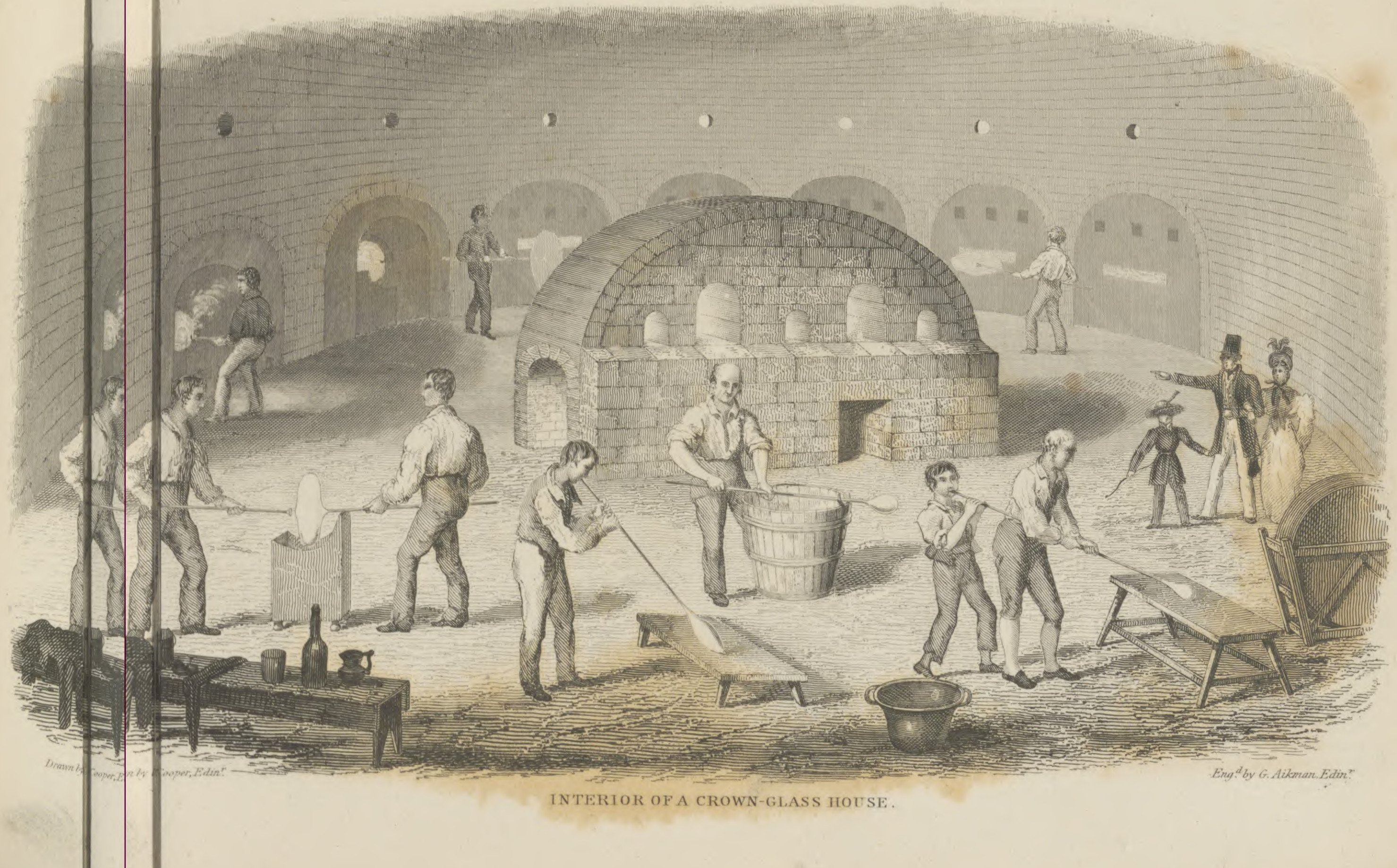


Fig. 1.



Drawn by Cooper, pt. by J. Cooper, Edinr.
Engd by G. Aikman, Edinr.

INTERIOR OF A CROWN-GLASS HOUSE.

GLASS.

PLATE CCLXIX.

Fig. 3.

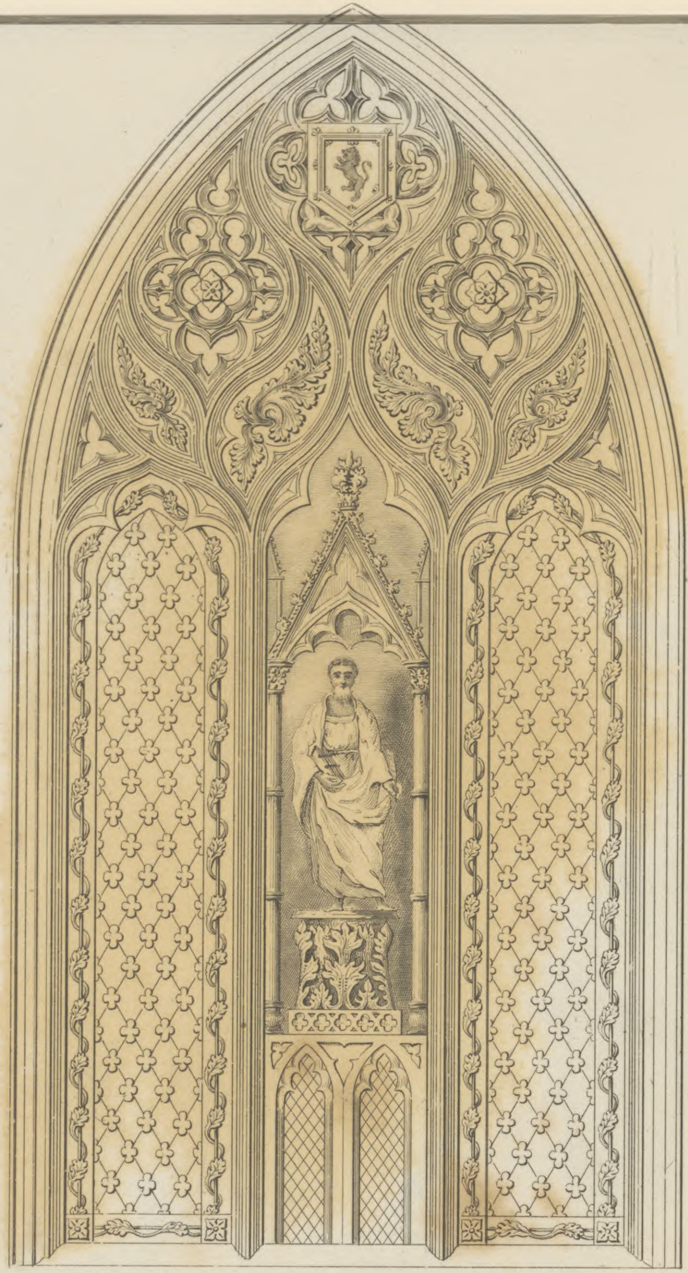


Fig. 2.

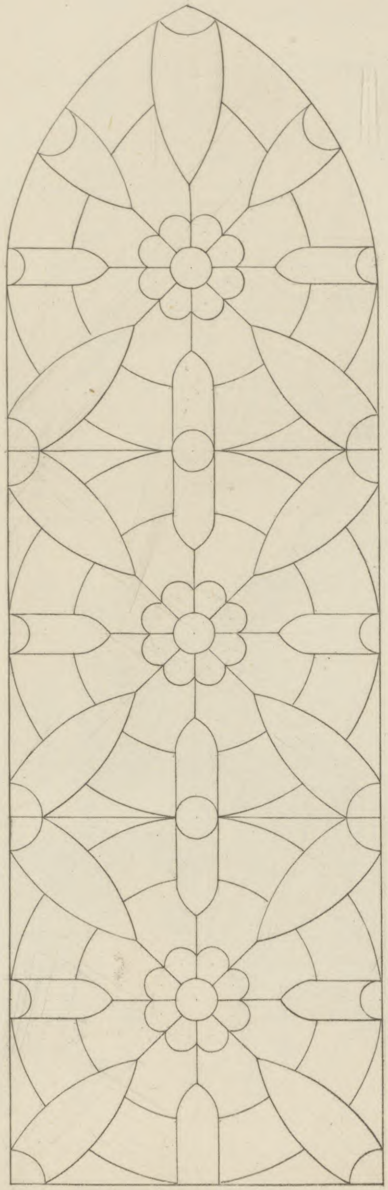
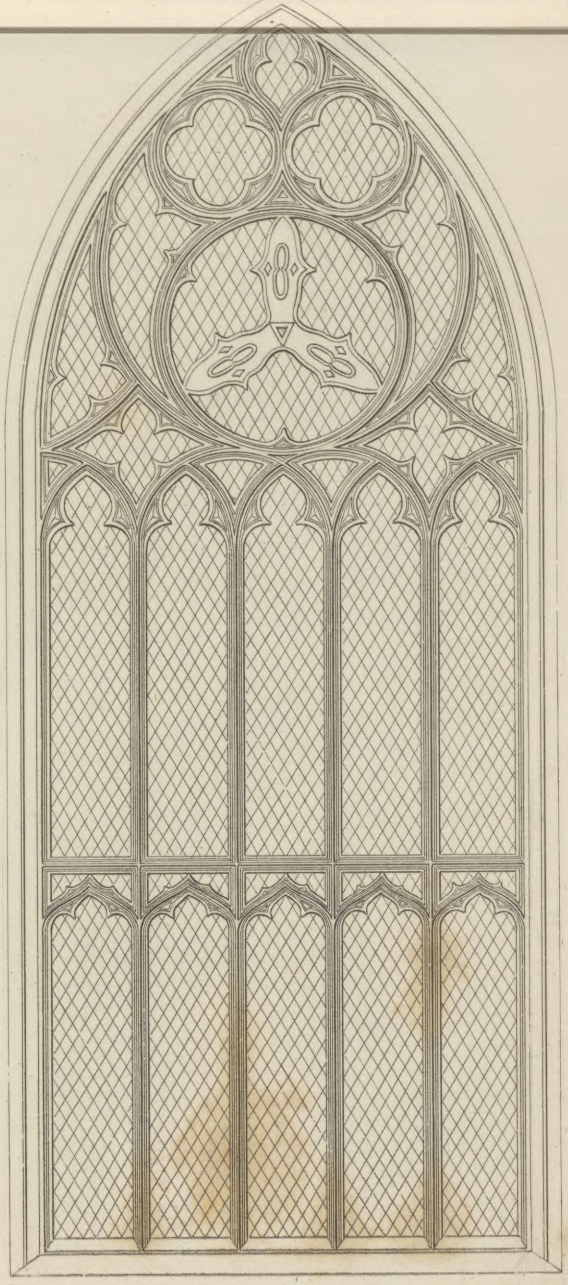


Fig. 1.



Drawn by W. Cooper.

Engd by G. Aikman, Edinr

Fig. 3.

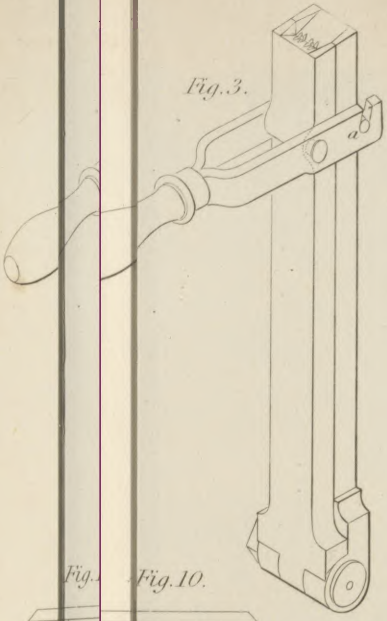


Fig. 1.

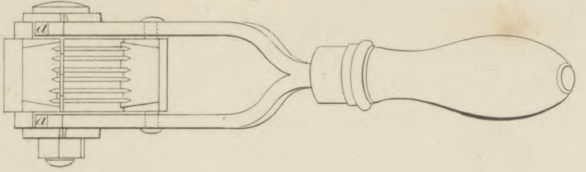
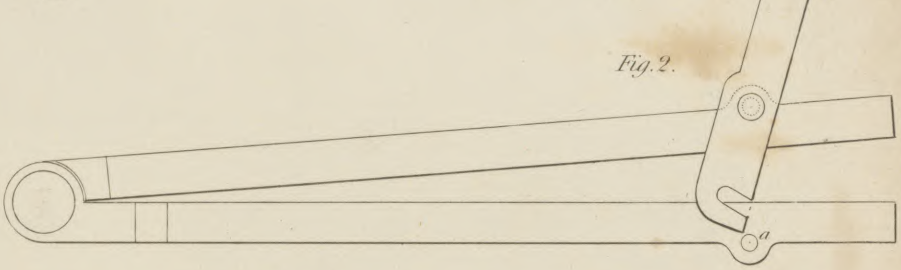


Fig. 2.



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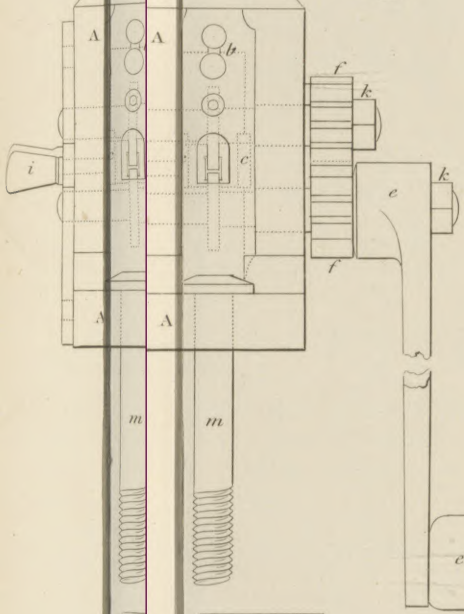

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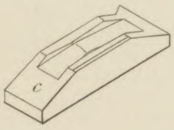

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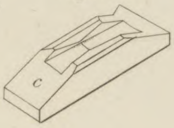

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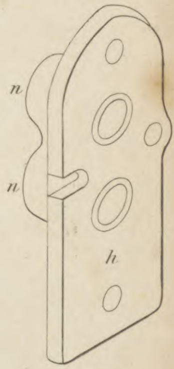
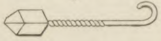


Fig. 13.



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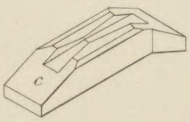


Fig. 7.

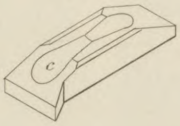


Fig. 14.

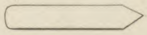


Fig. 8.

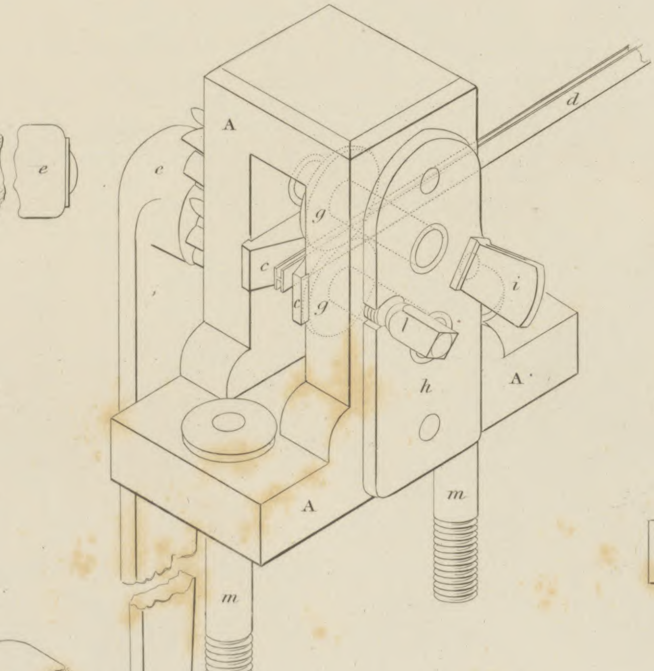


Fig. 9.

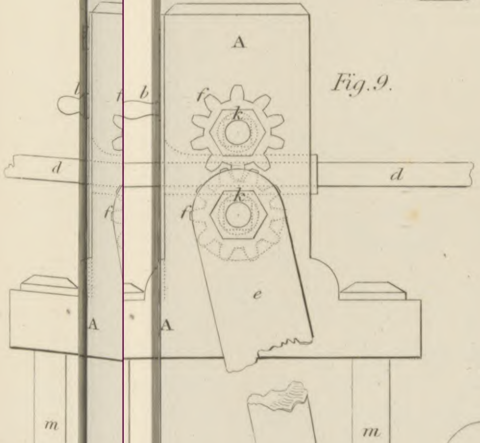
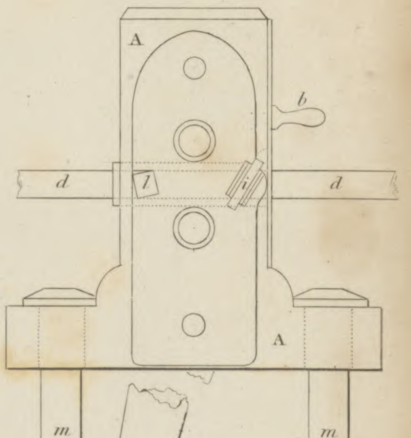


Fig. 11.



Drawn by W. Cooper

Engd by G. Aikman, Edinr.

Fig. 3.

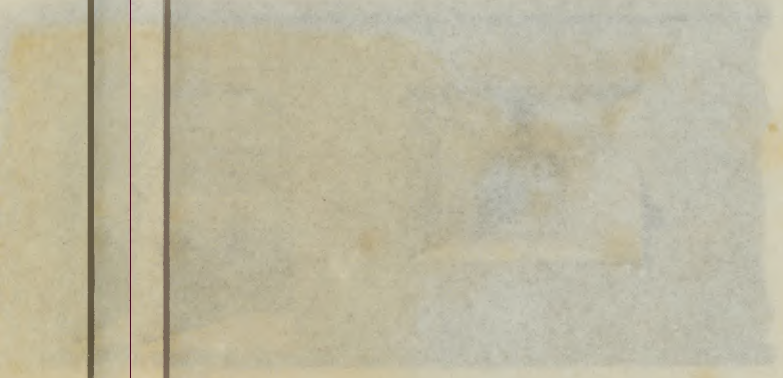


Fig. 4.

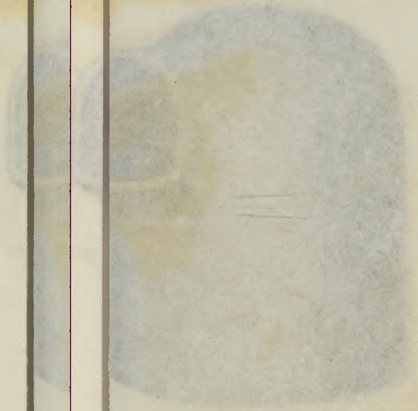
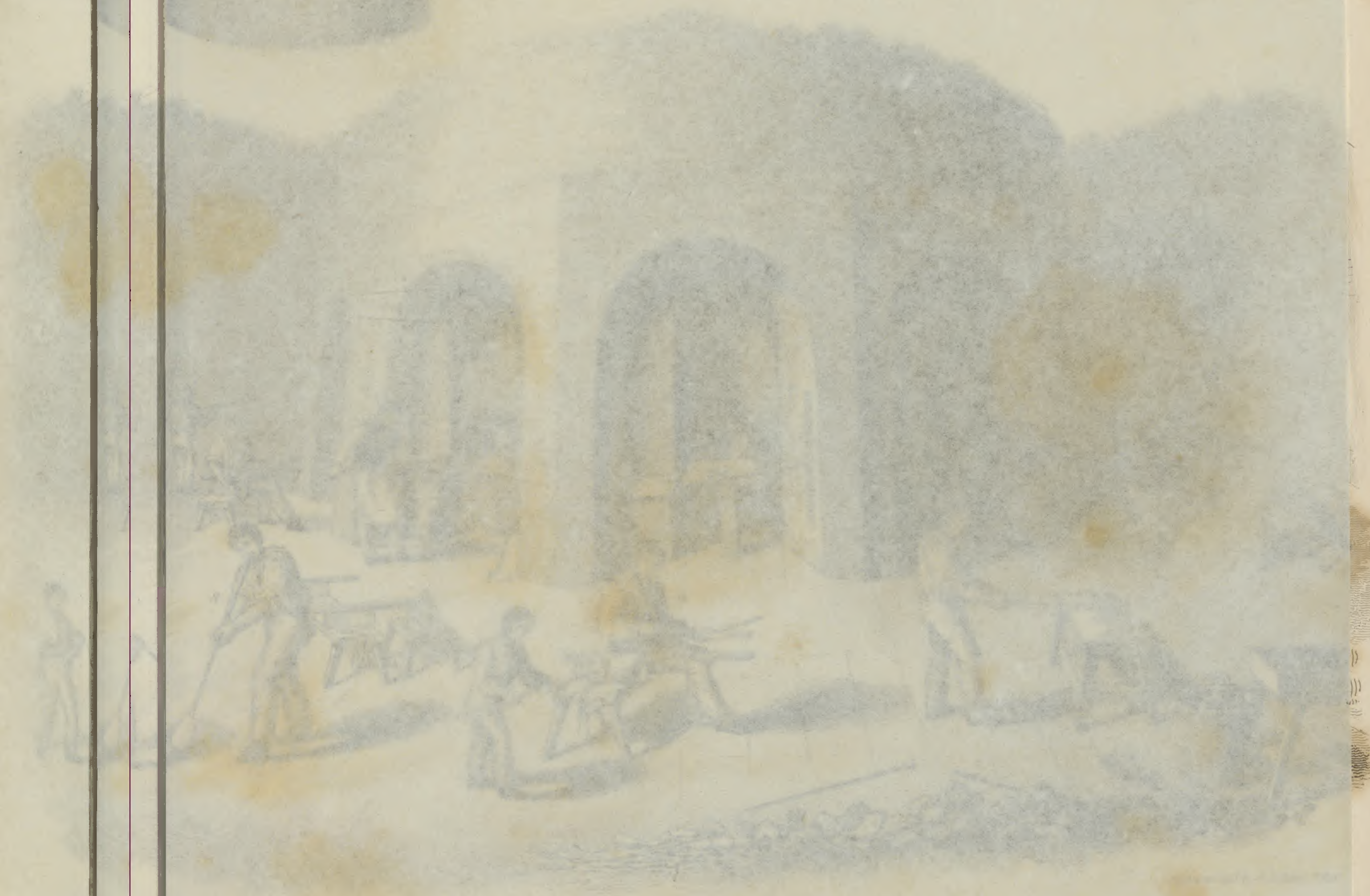


Fig. [illegible]



FLINT GLASS MANUFACTORY.

GLASS.

Fig. 3.

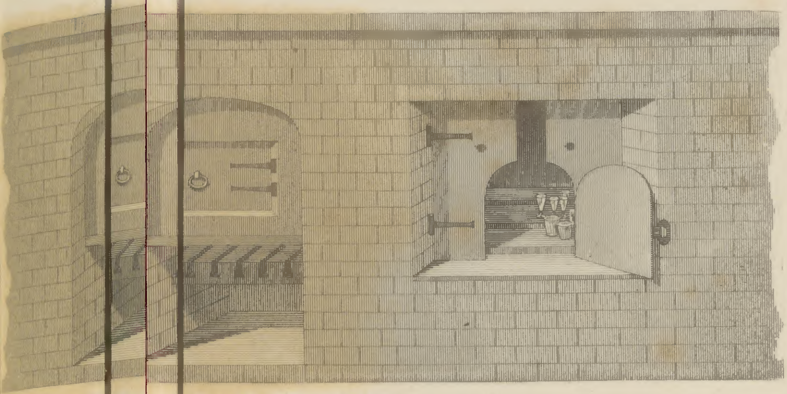
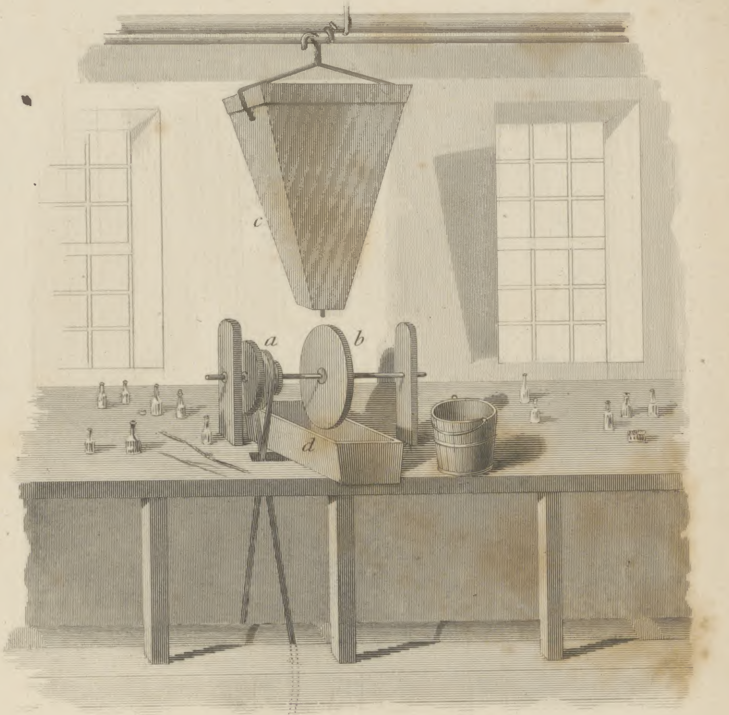


Fig. 4.



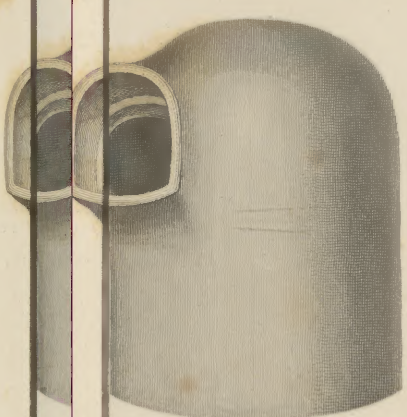
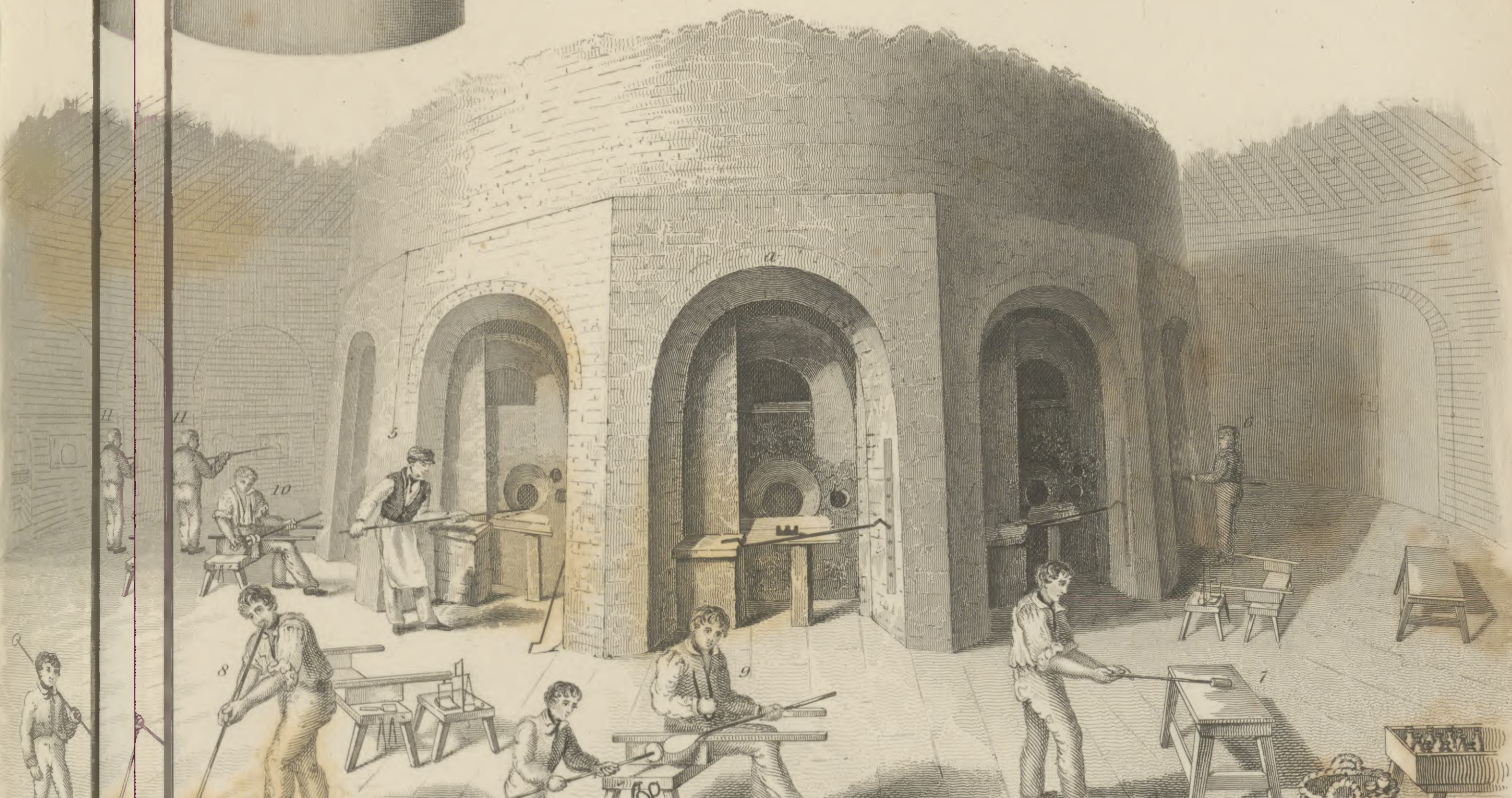


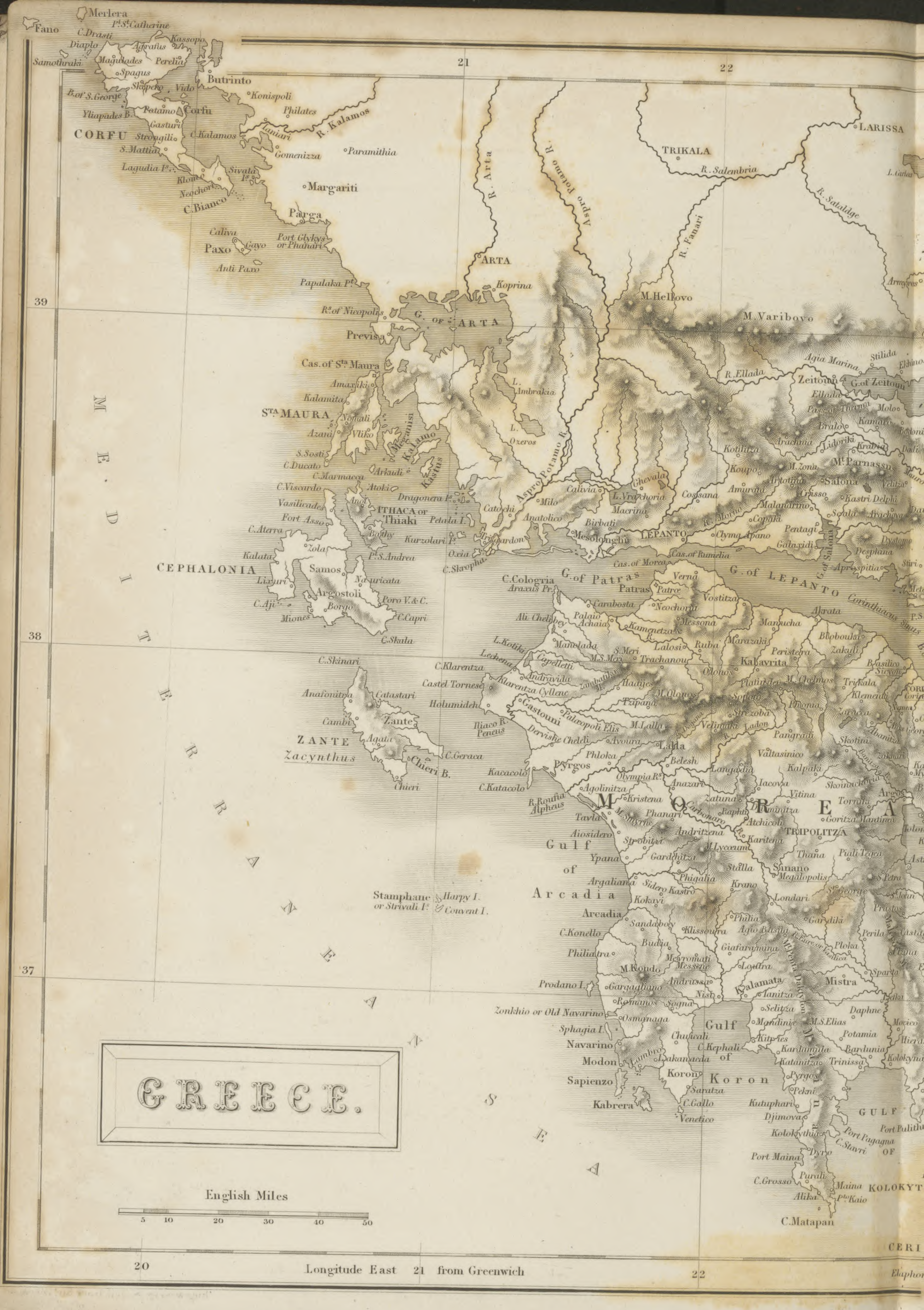
Fig. 2.

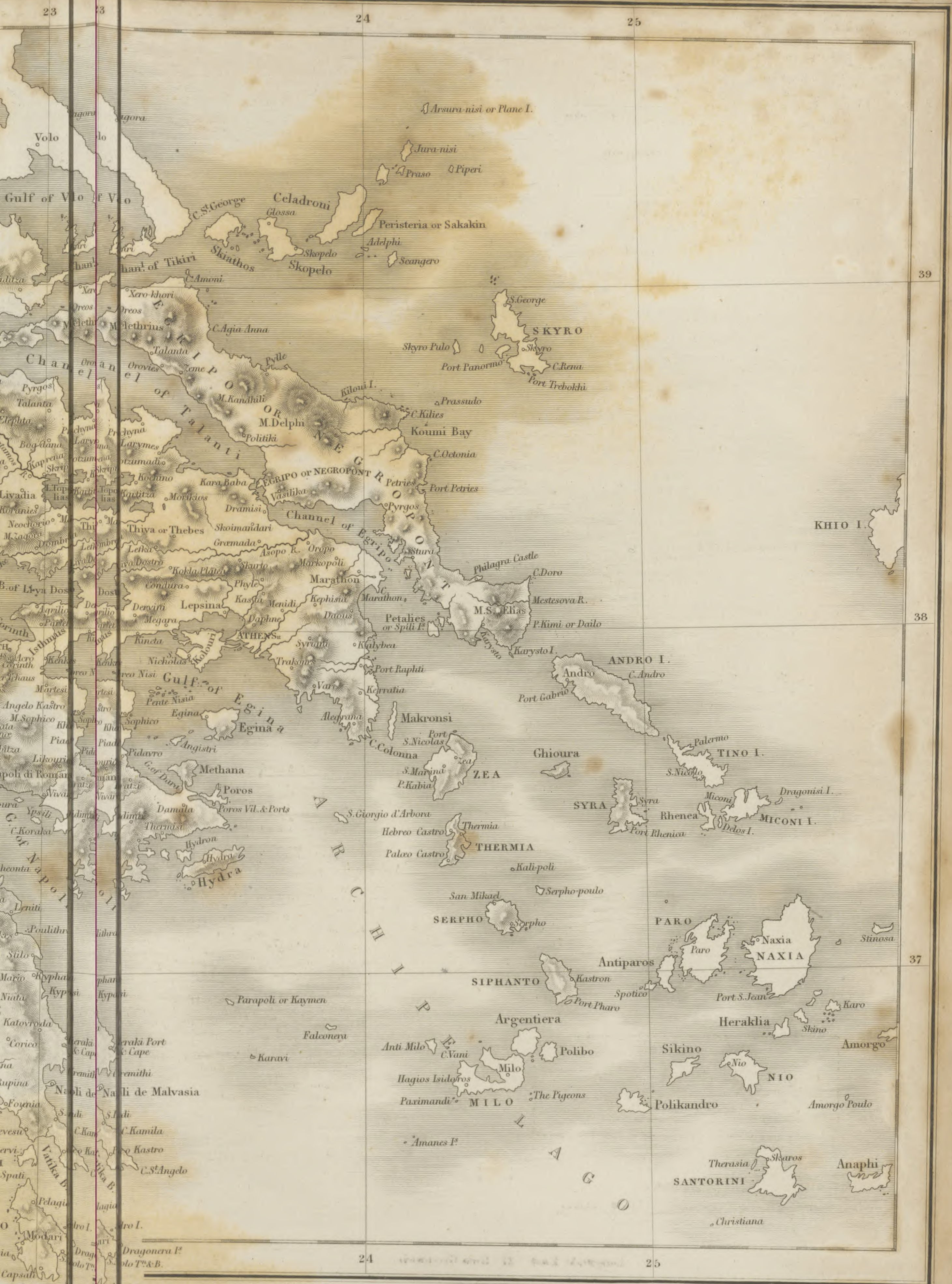
Fig. 1.



Drawn & Eng^{d} by G. Aikman Edin^{r}

FLINT-GLASS MANUFACTORY.


GREECE.
English Miles
5 10 20 30 40 50
Longitude East 21 from Greenwich
20
21
22
39
38
37
MEDITERRANEAN SEA
Merlera
Fano
Pt. St. Catherine
C. Drasti
Kassopo
Diaplo
Afrafus
Samothraki
Magulades
Perelia
Spagus
Skipero
Vido
Butrinto
Konispoli
B. of St. George
Potamo
Corfu
Philates
Yliapades B.
Gasturi
CORFU
Strongili
C. Kalamos
R. Kalamos
Ianiari
S. Mattia
Gomenizza
Paramithia
Lagudia Is.
Sivata Is.
Kloni
Neochori
C. Bianco
Margariti
Parga
Caliva
Paxo
Gayo
Port Glykys or Phanari
Anti Paxo
Papalaka Pt.
Rt. of Nicopolis
G. of ARTA
Previsa
Cas. of St. Maura
Amaxiki
Kalamita
St. MAURA
Nomali
Azani
Vliko
Meganisi
Kalamo
Kastus
S. Sosti
C. Ducato
Arkudi
C. Marmacca
Atoki
C. Viscardo
Anoi
Dragonera Is.
Vasilicades
ITHACA or Thiaki
Petala I.
Fort Asso
Bathy
Kurzolari Is.
C. Aterra
Zola
Pt. S. Andrea
Oxia
Kalata
CEPHALONIA
Samos
Naxuricata
C. Skropha
Lixuri
Argostoli
Poro V. & C.
C. Aji
Borgo
Miones
C. Capri
C. Skala
ARTA
Koprina
R. Arta
Aspro Potamo R.
TRIKALA
R. Salembria
LARISSA
R. Fanari
R. Sataldge
L. Carlas
Armyros
M. Hellovo
M. Variboyo
L. Ambrakia
L. Ozeros
Aspro Potamo R.
R. Ellada
Agia Marina
Stilida
Elkhino
Zeitoun
G. of Zeitoun
Ellada
Pass of Thermo
Molo
Bralo
Kamari
Bodoni
Kotilitza
Arachova
Lidoriki
Krabasi
Dadi
Koupo
M. Zona
Mt. Parnassus
Artotina
Salona
Velitza
Calivia
Chevala
Crisso
Kastri Delphi
L. Vrachoria
Cossana
Amurani
Malandrino
Milo
Macrina
Scala
Catochi
Anatolico
Birbati
R. Morno
Copaika
Pentagi
Trigardon
Mesolonghi
LEPANTO
Clyma Apano
Galaxidi
Dystomo
G. of Salona
Desplana
Cas. of Rumelia
Cas. of Morea
Stiri
Aprospitia
C. Cologria
Araxus Pr.
G. of Patras
Patras
Verna
G. of LEPANTO
Corinthiacus Sinus
Patro
Vostitza
Carabosta
Neochorio
Palaio Achaia
Ali Chelibey
Kamenetza
Messona
Akrata
Manducha
L. Kotiki
Manolada
S. Meri
Lalosi
Ruba
Marazaki
Peristera
Blobouki
Zakuli
Lechena
M. S. Meri
Trachanou
Capelletti
Kalavrita
Basilico
Sicyon
C. Klarentza
Andravida
Olonos
Trikala
Castel Tornese
Klarentza Cyllene
Hadjes
M. Olonos
Plotinder
M. Chelmos
Klementi
Sopoto
Holumidch
Gastouni
Papana
Strezoba
Phonia
Palaeopoli Elis
M. Lalla
Pliaco R. Peneus
Velingiki
Ladon
Zaraca
Dervishe Chelebi
Avoura
Lalla
Pangradi
Skotina
Phloka
Belesh
Pyrgos
Vâltasinico
Olympia Rs.
Kalpaki
Kacacolo
C. Katacolo
Anazari
Langadia
Iacova
Skoinochoria
Agolinitza
Vitina
Torroki
Kristena
Zatuna
R. Roufia Alpheus
MOREA
Carbonaro
Raphi
Piana
Goritza
Mantinea
Tavla
M. Myrthe
Phanari
Atchicolo
TRIPOLITZA
Aiosidero
Andritzena
Karitena
Strovitzi
M. Lycoeum
Thana
Piali Tegea
Gulf of Arcadia
Ypana
Gardhitza
Stalla
Sinano
Megalopolis
Argaliana
Phigalia
Sidero Kastro
Krano
S. Petro
Kokayi
Londari
St. George
Arcadia
Sandabey
Garydiki
Philia
Klissoura
Agio Basilio
C. Konello
Budia
Giafaramina
Plotsa
Philiatra
Mesromati
Messene
Perila
M. Kondo
Lontra
Sparta
Prodano I.
Gargagliano
Andrusso
Nisi
Kalamata
Mistra
Romanos
Sogna
Ianitza
Zonkhio or Old Navarino
Osmanaga
Selitza
Daphne
Sphagia I.
Mandinia
M. S. Elias
Navarino
Chupeali
Gulf
Kitries
Potamia
Modon
Lumbro
C. Kephali
Kardamila
Bardunia
Sapienzo
Lakanarada
of
Katanitza
Trinissa
Koron
Koron
Pyrgos
Saratza
Pekni
Kabrera
C. Gallo
Kutuphari
Venetico
Djimova
GULF
Port Pulithu
Kolokythia
Port Pagagna
C. Stavri
OF
Port Maina
Dyro
C. Grosso
Purali
Maina
KOLOKYT
Alika
Pto. Kaio
C. Matapan
CERI
Elaphon
Stamphane or Strivali Is.
Harpy I.
Convent I.
ZANTE
Zacynthus
C. Skinari
Anafonitra
Catastari
Cambi
Zante
Agata
C. Geraca
Chieri B.
Chieri



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